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Istvan Kecskes *Editor*

Explorations into Chinese as a Second Language

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Introduction

Rationale of the Book

Recently Chinese language and Chinese culture have been receiving a lot of attention in scholarly circles all over the world. New books (e.g. Han 2014; Kecskes 2013; Jiang 2014) are published and new journals are being established to meet the growing demand in the field. However, there have been less attempts to address the problems of Chinese language acquisition and use from a linguistic perspective and the linguistic and structural issues of Chinese from an educational perspective. This is what this book tries to do by bringing together scholarship that will give a solid, research-based ground to language educators to build on.

Exploration is the act of searching for the purpose of discovery of information or resources. Explorations in this book go in two directions. The 1st Part explores crucial issues about the structure and use of Chinese as a Second Language (CSL) such as word-order, noun-noun compounds, meaning-making in writing, pronunciation and stress and tone. The 2nd Part explores the learning of Chinese by seeking answer to questions about difficulties, expectations, beliefs, use of corpus and learning how to express necessity.

While doing these explorations our authors also demonstrate how existing knowledge has been generated by research, bring together different lines of research, point out tendencies in the field, demonstrate and explain what tools and methods researchers can use to address major issues in the field, and give direction to what future research should focus on.

Unique Features of the Book

The focus of this book is on linguistics research supporting the understanding of the acquisition, development and use of Chinese as a Second Language. It is not a book about language teaching methodology, it is not a pedagogical guide of how to teach

CSL, and it is not even a handbook of CSL that summarizes accomplishments in the field. This is a book that focuses on research that will help both researchers and practitioners better understand the acquisition, development and use of Chinese as a Second Language and the learners of Chinese.

Another unique feature of the volume is that each paper makes an attempt to bring together theory and practice by focusing on theory-building based on practice or theory application in practice.

It was an important goal to make the book as international as possible. We think that Chinese will become an important language when scholars other than of Chinese origin will investigate and explore the language. In this book we have authors from Australia, Czech Republic, Mainland China, Hungary, Italy, Taiwan, UK, and the USA, among them six authors whose native tongue is not Chinese.

Chapter Outlines

In Chap. 1, **Třísková** explores the specifics of learning/teaching Chinese pronunciation, its goals and methods, within the broader context of L2 pronunciation learning teaching. She presents an overview of the textbooks and linguistic literature dealing with Standard Chinese (SC) pronunciation. The following topics, among others, are addressed: the SC syllable structure, the third tone, acoustic correlates of stress, and the importance of unstressed function words.

In Chap. 2, **Ye and Bartos** offer an in-depth comparison between the segmental and suprasegmental phonetic systems of Chinese and Hungarian. The contrastive analysis begins with broad, systemic differences and continues with the detailed examination of specific consonants, vowels and suprasegmental features. Ye and Bartos also identify the phonological features of Chinese which are theoretically likely to cause difficulties to Hungarian learners.

In Chap. 3, **Yang** examines Chinese as a second language learners' interpretation of noun-noun compounds of thematic and property relations within the theoretical framework of CARIN theory (Gagné 2000) and dual process theory (Wisniewski 1997). Yang shows that both thematic relation linking and property mapping processes play roles in learners' interpretations, lending support to the dual process theory. The interaction between the two processes was found that thematic relation linking serves as the major interference in the interpretation of property relation compounds while property mapping serves as the major interference in the interpretation of thematic relation compounds.

In Chap. 4, **Morbiato** examines the role of word order in Chinese by looking into the correlation between linguistic information (functions) and Chinese linguistic expressions (forms), in order to identify potential acquisitional difficulties for Chinese L2 learners: she examines some of the major Chinese typological features (such as being isolating, syllable-timed, tonal, and discourse-oriented) and explores the impact of such features on the range of Chinese linguistic devices. Morbiato argues that different word order patterns are used in Chinese to encode a number of

functions pertaining to various domains, including semantics, syntax, discourse, pragmatics, and conceptualization-related process.

In Chap. 5, **Cheng** investigates the effects of a Systemic Functional Linguistics (SFL) approach to genre instruction on the textual quality of Chinese as a Second Language writing. This approach is taken as the instructional framework due to its emphasis on explicit awareness of language as learning to write. This pedagogical approach was implemented in two CSL courses at tertiary level and the primary data consist of 32 essays and 16 students' responses to an evaluation questionnaire on this pedagogical approach.

In Chap. 6, **Yang and Medwell** report a study of the perceptions of English-speaking learners and teachers about the challenges and difficulties of Chinese as a second language learning in England. Their study presents a picture of teachers who are keen for their students to learn to speak and communicate in Chinese, and of students who are keen to take risks in speaking. However, in contrast to earlier findings about learners' views about learning Chinese, the learners in their study claimed to be very tone aware and reported that they found listening and understanding Chinese more difficult than production.

In Chap. 7, **Cui** analyzes a corpus of naturally occurring classroom language in L1 teachers' lessons in subjects across the curriculum in three Sinophone locations: Beijing day schools, a Hong Kong Mandarin-English bilingual school, and a Chinese Community School in Melbourne, Australia. Analyses of these data isolated the language most commonly used in instructing, sequencing lesson stages, organizing activities, managing the learning process, and regulating classroom behavior. The results show that, regardless of the subject matter and the setting of the class, there was a shared set of teacher classroom talk that was finite and recurrent.

In Chap. 8, **Gabbianelli and Formica** highlight the difficulties and expectations of first-level Chinese as a second language learners and investigate the connections between these factors and the learning process. Their study shows that the majority of respondents seemed to be aware that learning Chinese is a long and complex process, while at the same time, students enrolled in long-term language courses declared high achievement expectations.

In Chap. 9, **Eagle e**xplores how learners of Chinese as a foreign language use modals to express necessity. Eagle shows that the Chinese as a foreign language learners generated more epistemic necessity than the native Chinese speakers, while the native Chinese speakers produced more deontic necessity; travel experience to Chinese-speaking countries does not necessarily have influence on the acquisition of necessity modals; and the amount of time the Chinese as a foreign language learners spent on learning Chinese does not influence the usage of deontic necessities, but affects the usage of 必须 bìxū 'have to' and 得 děi 'must'.

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Part I
Explorations into the Structure and Use of Chinese as a Second Language

Acquiring and Teaching Chinese Pronunciation

Hana Třísková

Abstract The author explores the specifics of learning/teaching Standard Chinese (SC) pronunciation, its goals and methods, within the broader context of L2 pronunciation learning/teaching. The ways in which research findings in Chinese phonetics and phonology might facilitate the acquisition of SC pronunciation by adult learners are investigated. An overview is provided of the textbooks and linguistic literature dealing with SC pronunciation. The usefulness of metalinguistic instruction is discussed. The following topics, among others, are addressed: the SC syllable structure, the third tone, acoustic correlates of stress, and the importance of unstressed function words.

1 Introduction

Pronunciation is one of the essential aspects of the acquisition of Chinese as a second language. The paper explores the specifics of learning/teaching Standard Chinese (SC) pronunciation, its goals and methods, within the broader context of L2 pronunciation learning/teaching. The ways in which research findings in Chinese phonetics and phonology might facilitate the acquisition of SC pronunciation by adult learners are investigated.

Note that the terms 'language acquisition' and 'language learning' are often used interchangeably, yet sometimes a distinction is made between the subconscious, naturalistic language acquisition, and conscious language learning. This chapter is concerned with the latter, as this is the approach adopted by most adults who aspire to master the Chinese language. Pedagogical aspects are given due attention, since attaining good L2 pronunciation requires guidance and should not be left to self-study.

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2 Learning (SC) Pronunciation

2.1 The Specifics and Time Span

Although Chinese pronunciation is rather difficult (partly due to the tonal character of the language), this area tends to be overshadowed in SC teaching and learning by grammar, vocabulary and the enormously difficult Chinese script. On top of that, learning L2 pronunciation has specific features which are not always given due recognition.

While the new words, grammatical constructions and Chinese characters can be acquired and subsequently used in L2 performance one by one, in managing the sounds of connected speech all features need to be employed in one go – the very second the learner tries to say the most trivial sentence. Consider what the learner faces while attempting to say *Zhè shì **nǐ**de ma?*[1] 这是你的吗? "Is it yours?" Quite a number of things, including: articulation of the 'retroflex' consonants *zh* (in *zhè*), *sh* (in *shì*), and of the apical vowel (in *shì*); the tonally weakened/neutralized syllable (in *shì*), the so called 'half T3' (in *nǐ*), the neutral tone following T3 (in *nǐde*), and specific intonation of the particle *ma* 吗 question. None of these features can be bypassed, if the sound form of the sentence is to be correct. In other words, one can easily avoid using a particular word or construction while speaking, but one can hardly avoid a particular difficult consonant, vowel, diphthong or tone, or skip word stress, sentence intonation, etc.

Pronunciation fundamentals are acquired at the very beginning of L2 studies, when the new phonological system of L2 becomes established in the learner's mind. The beginner's errors in speech production, if unattended, easily become fossilized due to the perpetuation of bad pronunciation habits, and the interlanguage phonology/phonetics may cease to develop. Teaching L2 pronunciation thus requires a deliberate teaching methodology, careful planning of the successive steps and well-thought-out coordination with other teaching objectives.

Pronunciation is commonly viewed as a skill acquired during the first year of L2 studies, while in the advanced stages of learning the attention to pronunciation usually decreases. Passable production of isolated words and the knowledge of orthography tend to be regarded as satisfactory outcomes. However, good L2 pronunciation amounts to more than tackling isolated words (although the early stages of learning are absolutely crucial, as noted above). Many things happen to the words when they enter fluent speech. Connected speech has a variety of features (prosodic features in particular), which fulfill important linguistic, communicative or pragmatic functions. L2 speech performance that lacks or distorts such features cannot be regarded as good performance. Yet these features are often left unnoticed by both teachers and learners, as well as by writers of teaching materials.

To sum up, acquiring good Chinese (or any L2) pronunciation is a long-term process, going beyond the span of the first few months. It may take even longer than

[1] Pinyin items are in italics.

the duration of the formal language classes. Thus, upon leaving the classroom, the students should be equipped with appropriate concepts and tools so they can continue to progress on their own.

2.2 The Goals and Realistic Prospects

Whereas some standard forms of native pronunciation (e.g. RP or GA for English) serve as a model in L2 studies, attaining them is not necessarily the goal. Hockett (1951: vii) writes: "A good pronunciation of a foreign language is one which will not draw the attention of a native speaker of that language away from *what* we are saying to *the way* in which we are saying it". The degree to which learners aspire to native-like pronunciation varies. Most learners merely want to achieve a level that allows for effective communication. After they feel this objective has been reached, they prefer to invest their time in learning new vocabulary, phraseology, reading etc., instead of meticulously polishing up their pronunciation. Almost all adult L2 speakers thus retain an immediately recognizable foreign accent, which, however, usually does not stand in the way of successful communication. The lowest common denominator, intelligibility, is, however, undoubtedly shared by all L2 students. Even those learners with very modest goals probably do not wish to end up with a weird accent, which might seriously hinder communication with native speakers. Thus, due attention to pronunciation is an issue that concerns all groups of learners.

It is worth noting that outside the classroom learners of Chinese may largely expect to communicate with *native* speakers who may not be ready to cope with a heavy foreign accent (although they are accustomed to a variety of local Chinese accents). On the other hand, learners of English usually expect to communicate with other *non-native* speakers, using English as a *lingua franca,* and are happy to maintain their L1 accents (cf. the concept of 'Lingua Franca Core' for English).

What are the learner's realistic prospects of success? Numerous linguists argue that pronunciation is a skill acquired subconsciously, and that the most important factors influencing the acquisition of L2 pronunciation (such as the age, motivation, goals and personal talent of the learner, the linguistic environment, the degree of exposure to native speakers, etc.) are largely beyond the control of the learner. The advocates of the **'critical period hypothesis'** hold that it is impossible to achieve a full command of L2 beyond a certain age, while the critical age for acquiring native-like pronunciation is particularly low when compared to the acquisition of morphology or syntax. Proponents of these views regard practical exercises in L2 pronunciation or metalinguistic instruction on phonological rules and principles as ineffective.

Age, as well as a number of other uncontrollable factors, certainly affects overall success in SLA. Yet there are other important factors that *are* controllable. A fairly good approximation to native pronunciation is attainable for most learners if sufficient time is invested, proper guidance provided and efficient methods used.

Those learners who become aware of the close link between good pronunciation and effective communication may be motivated to go beyond the modest ambition of intelligibility. They may wish to devote more time to improving their pronunciation and take full advantage of the rich potential this tool provides. They can learn how to express various pragmatic meanings, attitudes, emotions and moods, they may sound rather more authentic and be able to enjoy L2 communication much more fully.

3 Teaching (SC) Pronunciation

3.1 The Explicit Teaching of Pronunciation

Pronunciation of Chinese (or any L2) cannot be automatically improved simply by increasing the amount of perception and production experience. Evidence of this are the cases of fluent speakers of Chinese who, even though they have lived in China for years, have a good command of Chinese grammar and have developed a native-like vocabulary, still find that their pronunciation remains quite deficient and far short of native speaker standards. They retain a strong foreign accent, substituting phonological structure and phonetic features from their L1 for Chinese ones. Thus, the prevailing opinion is that a natural acquisition of L2 pronunciation does not suffice, and some degree of explicit teaching is required. Whereas young children primarily rely on implicit learning mechanisms in language acquisition, adults benefit from focused teaching.

3.2 The Approaches and Methods

The relative importance of pronunciation teaching within the L2 teaching curriculum have fluctuated over the decades. Methods have been changing as well. In the traditional **'Grammar-translation approach'** pronunciation was not the main area of concern, as teaching was largely based on written texts. A growing emphasis on spoken language proficiency brought about more interest in the significance of the explicit teaching of pronunciation. Its importance rose in the 1960s with the arrival of **'Audiolingualism'**, based on behaviorist notions in SLA and supported by the development of recording technologies. Good pronunciation was of primary concern; error correction became a crucial issue. Drilling exercises and the 'listen and repeat' method were widely used. A major problem was that while students could accurately mimic discrete sounds out of context, they might not be able to integrate the learned skills in real communication. The communicative aspects of pronunciation, including suprasegmental (prosodic) features of connected speech, were largely left unnoticed.

Later on, attention to pronunciation teaching decreased as the **'Communicative language teaching'** and **'Natural approach'** rose to prominence in the 1970s and early 1980s. These approaches attempted to mirror the processes of natural language acquisition in the classroom setting. Emphasis was laid on developing communicative skills. The goals shifted from 'perfect' grammar and pronunciation to functional intelligibility and the increased self-confidence of students. Rule explanations, drilling and the explicit correction of errors were rarely employed. This approach resulted in a lack of pronunciation passages in textbooks. The outcome of the communicative approach was that L2 speakers often developed communicative abilities, oral fluency and self-confidence, but were left with numerous fossilized errors in their interlanguage.

The approach known as **'Form-focused instruction'** (FFI), which gained popularity from the 1990s onwards, recognized the importance of communicative principles in L2 teaching, yet allowed space for explicit instruction on linguistic forms and rules. It was argued that some features of the target language cannot be acquired without guidance. Sometimes, it is necessary to isolate particular forms or features "much as one might place a specimen under a microscope, so that the learners have an opportunity to perceive these features and understand their function" (Spada and Lightbown 2008: 186).

The last two decades have seen a surge of interest in teaching L2 pronunciation, supported by further advances in technology. Pronunciation is primarily viewed as an essential component of successful oral communication, as "another string in the communicative bow" (Jones 1997: 111). Particular recognition is given to the communicative importance of prosodic features of connected speech. The students are expected to take active responsibility for their own progress. Self-monitoring is considered an important part of the learning process. However, there is still much room for improvement in classroom activities. Tutatchnikova (1995: 95) observes for SC:

> We can notice two main factors that [negatively] influence learning pronunciation at the beginning level: first, the large number of students in the class which impairs individual error correction analysis and correction feedback. Second, the classroom exercises focus on primary achieving fluency in performing an ever-increasing inventory of linguistic items and capacities within meaningful and culturally appropriate communication… [while] pronunciation is [inappropriately] considered to be improving gradually along with extensive practice of communication skills and due to home practice.

Speaking about methods of teaching L2 pronunciation, it is clear that traditional 'listen and repeat' approaches will always have an important role to play; pronunciation involves both cognitive and motor skills, and habit formation is thus an essential component of acquisition. Decades ago, Y. R. Chao (1925) wrote in his preface to *A Phonograph Course*:

> To acquire a language means to make it of your own… This is best accomplished by hearing the same phrases and expressions over and over again, so that they will haunt you… you will find that the fluency gained through mechanical repetition is a great lubricant for the comprehension of what is spoken. (paragraph 6)

This claim is still valid nowadays. Thus, repetition and drilling cannot be removed from teaching.

Regarding **teaching materials**, an effort can be observed at introducing a communicative dimension of pronunciation into course book design. However, contrary to the current trends and findings of SLA investigation, many textbooks still retain the features of traditional audiolingual texts, largely relying on drilling decontextualized items. Metalinguistic instruction on pronunciation is often sketchy, imperfect and not in line with the findings of SLA research.

4 Metalinguistic Instruction

4.1 Yes or No?

Repetition exercises and speaking practice, no matter how extensive they are, may not suffice to improve a learner's pronunciation. The problem is that the learner either may not hear the mistakes in his/her pronunciation, or does not know how to fix them. If the errors are to be removed, their competent diagnosis is needed, followed by the offer of a remedy. Clarifying the inner mechanism of pronunciation errors and providing proper guidance in correcting them is rarely achieved, though. Tutatchnikova (1995: 94) complains:

> If a student's response is reasonably prompt, semantically correct and appropriate culturally, then the student is usually encouraged, even if his/her pronunciation could be more accurate. There are no exercises… focused specifically on improving pronunciation skills in class. Consequently, students do not receive enough systematic feedback about their pronunciation. The correction they do receive is usually superficial, with errors being corrected [only] through multiple repetition… Deep pronunciation error correction, which implies an analysis of the reasons for the sound misproduction and an explanation of correct articulation, is usually not done.

It should be noted that pronunciation errors are more difficult to assess and correct than grammatical errors. While grammatical errors are mostly of the *right-or-wrong* type, pronunciation errors are, by nature, part of a continuum; articulation can be *more* or *less* close to the ideal pattern.

Besides the *ad hoc* correction and qualified 'curing' of pronunciation mistakes, the question arises as to whether the teaching curriculum should contain some degree of theoretical explication of the L2 phonological structure and phonetic phenomena. While the practice of focused instruction on L2 grammar rules has a long tradition, efforts to teach some underlying principles of pronunciation are much more recent.

In general, the extent to which **metalinguistic knowledge** contributes to a student becoming proficient in L2 continues to be a point of discussion. Focused rule instruction is sometimes viewed as useless or even detrimental (cf. 'the Natural approach'). Many teachers feel that if such instruction is overly abstract and complicated, it might discourage the learner. Some people say that extensive thinking

about the rules ('monitor overuse') may impede speech production and decrease fluency. All these arguments may be true to some extent. However, various studies in SLA and cognitive psychology show that adult learners benefit from some level of a descriptive or analytic approach, as long as the knowledge is presented to them in an appropriate way. Jones (1997: 108) writes:

> While rule teaching that is too complicated or elaborate (like all the varied rules governing intonation in discourse) might overwhelm the monitor and thus be detrimental…, there seems to be no justification for denying learners linguistic information which may empower them to improve on their own.

Numerous linguists share the view that "while instruction may not directly alter learners' underlying language systems, it can help them notice features in the *input*, making it more likely that they will acquire them." (Spada and Lightbown 2008: 190). Rules can also help learners to monitor their own speech, i.e. to notice and correct pronunciation errors in their own *output*. In the long run, a certain level of phonological/phonetic awareness equips learners with concepts and devices for controlling their progress once they have finished their formal classroom education.

4.2 Integrating Research Findings into L2 Teaching: The Challenges

A basis for formulating metalinguistic rules and principles for the purposes of L2 teaching is provided by the findings of linguistic research. They may throw more light on the issues, correct various inaccuracies in pedagogical practice, challenge certain myths or conservative traditions, etc. They provide teachers with a powerful instrument for error correction. It becomes increasingly obvious that research findings should be consistently integrated into L2 pedagogy. This also applies to teaching Chinese (the trend is reflected, for example, in the founding of the CASLAR project[2] in 2010 and in the main topic of the NACCL-27 conference[3] in 2015). My own experience (9 years of teaching courses of SC pronunciation at university level) has convinced me that some amount of metalinguistic sophistication may considerably support the development of good pronunciation skills. There are many challenges involved, however. Here are some of them:

– There may be a **lack of consensus** on particular topics among linguists (there are, for example, different views on SC syllable structure, on the phonemic status of the palatal consonants *j, q, x*, etc.). However, L2 teaching must offer clear and unambiguous instructions. The accepted solution should always be consistent

[2] The abbreviation CASLAR stands for Chinese As a Second Language Research. The 4th CASLAR biennial conference was held in Shanghai in August 2016.

[3] NACCL is the North American Conference on Chinese Linguistics. NACCL-27 was held in Los Angeles (UCLA) in April 2015.

with other choices (note that in teaching SC, some choices are determined by the phonological system adopted in *Pinyin*, e.g. the two examples mentioned above).
– **Researchers**, on the one hand, and **language pedagogues** or **writers of teaching materials** on the other, represent two distinct communities that usually do not cooperate much. Each group has its own objectives and approaches. Teachers may lack adequate training in phonetics/phonology to offer a more sophisticated treatment of the topics, while researchers may not be interested in pedagogical issues.
– If learners are to absorb metalinguistic knowledge, it must be **transformed** into the language of practical teaching. Anyone who is carrying out such 'translation' activities must beware of making undue simplifications. It is difficult indeed to strip research results concerning a particular topic to the bare essentials and present them in an easy-to-learn manner that does not distort the substance.
– Many learners are **not particularly interested** in language structure and theory. They may view learning pieces of phonetics and phonology as an abstract intellectual exercise that is boring, difficult and of little use. They should be persuaded that knowledge of the underlying principles of the Chinese sound system is not an end in itself, and may actually help them to communicate more effectively.
– The question arises as to how to squeeze metalinguistic instruction on pronunciation into the **teaching curriculum**. In the first year of SC studies learners are overwhelmed by a large number of other tasks, including the time-consuming study of Chinese characters.

4.3 How to Go About Teaching the Rules

Teaching abstract rules and principles is rather dry. It should always be accompanied by abundant examples, direct application in speaking, and by the correction the errors. It may be useful to demonstrate a particular phenomenon by reference to a concrete example first, thus allowing the students to discover the patterns themselves (an inductive approach, 'rule-discovery'). For instance, students can be asked about the phonetic difference between two instances of *qù* 去 in the short dialogue below. They may be led to discover the features of an unstressed syllable in *qù*2 (such as short duration and tone weakening/neutralization). Furthermore, they may infer that the cause of de-stressing is pragmatic: a word mentioned in a previous context, unless emphasized, loses its semantic importance:

*– Nǐ **qù** ba.*	你去吧。	*qù*1
*– Wǒ **bù** qù!*	我不去!	*qù*2

Once the rule has been presented (or discovered), its application should be practiced. In doing so the learners' attention must not be distracted by other tasks, because their processing capacity is limited. Thus, it is advisable to employ rather

short units that focus on only one feature or principle at a time, while other features occurring in the unit have already been mastered (cf. 'phonetic chunks', *yīnkuài* 音块 outlined in Třísková in press). Integrating the learned features into communicative tasks and their automatization is the next step. Persistent, patient correction of individual errors is needed at all times.

Pinyin notation should be used as a major tool for presenting the example sentences and exercises, Chinese characters being only additional. Otherwise, most of the learner's processing capacity is expended in deciphering the characters which are generally unrelated to the sounds. Of course, this does not mean to say that *Pinyin* provides students with precise instructions on how to pronounce words, cf. Sect. 6.1.

5 SC Pronunciation in Textbooks and Literature

5.1 General SC Language Textbooks

The initial stages of teaching Chinese pronunciation are taken up by elementary matters, such as *Pinyin* initials and finals, four tones, tone sandhi rules, reading of *bù* 不 and *yī* 一, neutral tone, and *er*-suffixed finals. In standard language textbooks these fundamentals are presented in the Introduction and/or successively in several of the initial lessons.

A widely used textbook series, ***Integrated Chinese*** (Liu et al. 2009: 1–11), may serve as an example. Pronunciation is treated in the chapter 'Syllabic structure and pronunciation of Modern Standard Chinese'. The topics treated are: Initials; Finals; Tones; Neutral tone; T3 sandhi. The explanations are rather brief and basic. No diagrams of the vocal organs showing the articulation of particular difficult sounds are presented. Some descriptions are misleading (e.g. comparing SC *j* to English j as in "jeep", and SC *q* to English ch as in "cheese"). The authors themselves point out: "…the actual sounds [represented by *Pinyin* letters] can be very different from their English counterparts." They continue:

> Over time, you will acquire a better appreciation of the finer details of Chinese pronunciation. This chapter is designed to help you become aware of these distinctions, though attaining more native-sounding pronunciation will take time and effort through extensive listening and practice.

The authors obviously do not have any ambition to go into these "finer details" themselves.

A somewhat older textbook, ***Chinese Primer*** (Ch'en et al. [1989] following in the footsteps of Y. R. Chao's *Mandarin Primer*), offers a similar picture, although the authors go into more detail and occasionally use sketches of the articulatory organs. The introductory section, 'Foundation work', is devoted to pronunciation (the blue volume 'Lessons', pp. 1–35) and contains the following chapters: The single tones; *Pinyin* romanization; Tones in combination and tone sandhi; Difficult

sounds. It should be noted that unlike the previous textbook, the students are warned against drawing analogies with English consonants: “Take care to distinguish both palatals and retroflexes from English j, ch, sh, r…” (p. 8). Occasional mistakes can be found: “In pronouncing retroflexes, the tongue is curled back (retroflexed) until the tip touches the front part of the roof of the mouth” (p. 7). In fact, the tip of the tongue is not curled back (see Sect. 6.3, Fig. 1).

The BLCU[4] has published the Chinese-English series of textbooks ***Xin shiyong hanyu keben/New Practical Chinese Reader*** (Liu 2010). It addresses the following topics: Initials and finals; Tones; Third-tone sandhi; Neutral tone; Spelling rules; Tone sandhi of 不, 一; Retroflex ending; A table of combinations of initials and finals in common speech. The explanations of particular phenomena are rather elementary and insufficient, e.g. the neutral tone is described like this (Vol. 1: 22): “In the common speech of modern Chinese, there are number of syllables which are unstressed and are pronounced in a ‘weak’ tone. This is known as the neutral tone and is indicated by the absence of a tone mark. For example 吗 *ma,* 呢 *ne,* 们 *men.*” There is no instruction whatsoever on how to pronounce the neutral tone. From Lesson 6 onwards, pronunciation passages virtually disappear. It should be noted that the predecessor of this textbook, ***Shiyong hanyu keben/Practical Chinese Reader*** (Liu et al. 1981), devoted much more space to pronunciation, dealing with it in almost every lesson up to Lesson 30, and then occasionally up to the very last Lesson 50. The topics included: Word stress; Sense group stress; Sentence tunes; Rhythm; Pause; Logical stress. These topics are entirely missing in the later edition.

An example of a textbook attempting to offer a more complete picture of SC pronunciation is another Chinese-English BLCU series of textbooks, ***Hanyu jiaocheng*** (Yang 1999). After expounding the fundamentals (up to lesson 6) subsequent lessons contain explication on: Word stress; Sentence stress; Intonation; Logical stress. Recognition of the importance of these topics, as well as a willingness to provide them with space, should be appreciated, although various inaccuracies can be found. For instance, “In a simple subject-predicate sentence… if the subject is a pronoun, it is stressed” (p. 92). The example given is *Shéi qù*? 谁去? In fact, the authors had in mind the *interrogative* pronouns, not *all* pronouns (e.g. the personal pronoun *wǒ* 我 in the sentences such as *Bié kàn wǒ*! 别看我! *Wǒ è le.* 我饿了。 is regularly unstressed). When addressing word stress, the cases where there is a lexical neutral tone on the second syllable (such as *háizi* 孩子) are not noted. Phrasal stress in expressions such as *sān běn shū* 三本书 is subsumed into ‘Word stress’. Speaking of intonation, the authors write: “Normally, the rise is used in interrogative sentences, while the fall is used for indicative sentences” (p. 93). This statement is skewed, since high final pitch concerns only some types of question (as the authors themselves later note). Some sort of general introduction to the topic (e.g. intonation) may be missing (What is intonation? What functions does it have?). Example sentences are given solely in characters (not in *Pinyin*), etc.

[4]The abbreviation BLCU stands for Beijing Language and Culture University (formerly the Beijing Language Institute).

To sum up, standard textbooks nowadays usually do not go beyond the basics. The focus is on practicing isolated tonal syllables, minimal pairs such as *zhū-chū*, and disyllabic words or word combinations such as *qìchē*, *bàba*, *hěn xiǎo* or *bù qù*. The major goal is to attain correct pronunciation of decontextualized words. It is tacitly assumed that the rest will be coped with by the learners themselves, by means of the "extensive listening and practice" recommended in Liu et al. (2009). However, this may not suffice, as noted above. Students are largely unprepared for tone variation in connected speech caused by stress/non-stress, intonation, a fast speech rate, emotions, a casual style of speech, etc. They often feel confused when being confronted with such variations, having no clue as to what is happening. Kratochvil (1968: 35) rightly points out:

> [The Chinese tones] often cause frustration to students of MSC who are puzzled by the vast difference between the common theoretical description and the appearance of tones in neatly arranged combination patterns at one hand, and the phonetic reality of tones in live speech on the other.

Clearly, fundamental instruction on the level of isolated words should be followed by instruction on the higher linguistic levels (the phrase, the sentence, discourse) involving communicative and pragmatic aspects of pronunciation. I take the liberty of using a metaphor overheard at a conference devoted to teaching English pronunciation (EPIP 2015, Prague):

> Isolated words are like plants in a greenhouse – each one is neatly separated in its flowerpot and given meticulous care. Real communication is a jungle: speech is full of irregularities, errors, contractions, it may be very fast, fragmentary, the words are not separated from each other in speech signal, they may be reduced, swallowed etc. The road from the greenhouse to the jungle should lead through the garden with flowerbeds where the flowers grow naturally and next to each other, yet under control.

It appears that writing an effective introduction to SC pronunciation covering all structural levels for a general language textbook requires an author to be at least partly qualified in SC phonology and phonetics, and to have some insight into research literature, no matter how brief and terse such treatment would be.

5.2 Books Focused on SC Pronunciation

Let us look at the titles written **in English** first. The number of textbooks and teaching materials concerned solely with SC pronunciation is quite small. Huang (1969) is limited to simple descriptions of the articulation of particular consonants, vowels, diphthongs, and triphthongs, accompanied by sketches of the vocal organs, adding an explanation of tones (note that Huang uses the IPA symbols in comparison with various romanization systems, including *Pinyin*). Dow (1972) addresses the topic more comprehensively (up to stress, but not intonation), although the main emphasis is on the description of vowels and consonants (he does not work with *Pinyin*, using the IPA instead; sketches of the position of articulatory organs are presented

for the consonants). More recently, Chin (2006) does not go beyond an isolated tonal syllable (he uses *Pinyin*). The old textbook by Hockett (1951), which provided exercises to improve SC pronunciation, should be mentioned (it is concerned mainly with initials, finals and tones; note that Hockett uses Yale transcription). As such, it contains a deep and still quite valid introduction to Chinese pronunciation.

Knowledgeable, yet accessible advice on SC pronunciation can be found in a number of English monographs devoted to the Chinese language as a whole, containing substantial chapters on SC phonetics/phonology, e.g. Chao (1968), Kratochvil (1968) and Norman (1988). Simple overviews are provided, for example, in Kane (2006) and Sun (2006).

There is a whole range of **Chinese textbooks** that only address the issue of SC pronunciation (they are usually called *yǔyīn jiāochéng* 语音教程). Yet, most of them tend to be rather elementary. For reasons of space, these will not be mentioned here.

A deep level introduction to SC pronunciation can be found in the textbook ***Hanyu yuyin jiaocheng*** (Cao 2002), published as part of the BLCU *Hanyu jiaocheng* series. The explications are competent and knowledgeable (the author is a trained phonetician; he employs the IPA). The sections are:

- Introduction (the fundamentals of acoustics and articulatory phonetics)
- The IPA; articulation of vowels and consonants; the phonemes and allophones
- The SC syllable (the initials, the finals, the tones, SC syllable structure)
- Sound changes in fluent speech (assimilation, dissimilation, er-suffixation, tone sandhi)
- Prosody (stress, rhythm, intonation)

It can be stated that Cao Wen's book outlines the basic ground plan for teaching SC phonetics/phonology within the *Pinyin* framework. Another example of a fairly detailed pronunciation textbook that is worth mentioning is ***Duiwai hanyu yuyin*** (Zeng 2008; the author also employs the IPA). Very useful insights into particular challenges when learning SC pronunciation are offered in Zhu (1997) and Cao (2010).

Besides the textbooks, several **monographs** published in the P.R.C. exist, which offer qualified descriptions of SC sound structure within the *Pinyin* framework, e.g. ***Xiandai hanyu yuyin gaiyao*** (Wu 1992), ***Putonghua yuyin changshi*** (Xu 1999), and ***Yuyinxue jiaocheng*** by Lin and Wang (2003, revised edition Wang and Wang 2013).

Unfortunately, the above-mentioned books are written in Chinese, thus they are not directly accessible to learners of Chinese and a wider readership. It is to be regretted that no English translations of such textbooks or monographs are available.

5.3 Research Literature

There are a few more or less recent monographs written **in English** that are devoted to a theoretical analysis of SC phonology/phonetics within a particular conceptual framework. Duanmu (2002) is mainly interested in phonology. He employs feature geometry in his analysis of segments (i.e. vowels and consonants); he uses

Optimality Theory to study the syllable, and applies metrical phonology when addressing stress. The phonological framework of Lin Yen-Hwei (Lin 2007) belongs to the family of constraint-based approaches. Together with phonological analysis, she is interested in phonetic aspects and processes. She (unlike Duanmu) deals with intonation, although only briefly. These two titles appear to be the only comprehensive ones in existence.

Other studies deal with particular aspects of SC phonology. For instance, Cheng (1973) offers a generative analysis of the isolated syllable (including tone). Li (1999) is concerned with the segmental syllable (without tone); his analysis is diachronically motivated. Shen (1989) explores sentence intonation and its interplay with tones and stress. Tseng (1990) studies the acoustic correlates of tones and the relationship between tone and intonation. Finally, there is a vast array of articles, papers and book chapters that touch upon particular narrow topics of SC phonology/phonetics, both in English and in Chinese.

As these studies are rather difficult to comprehend and, by and large, incompatible with the *Pinyin* framework (e.g. they mostly do not accept the initial-final analysis of the SC syllable), they cannot be directly used in the practical teaching/learning of SC pronunciation. However, they can serve as a valuable source of knowledge and inspiration for writers of teaching materials, teachers and rather advanced students, broadening their linguistic horizons and offering interesting alternative viewpoints.

6 The Topics in Teaching/Learning SC Pronunciation

In this section I will attempt to demonstrate how the insights of linguistic research can help in teaching and learning SC pronunciation. Only a number of topics, belonging to the pedagogically most important ones, can be the subject of comments in the following review. Many interesting issues have had to be skipped: the pronunciation of various difficult segments (e.g. variable source of aspiration friction in the aspirated consonants), the question of the zero initial, the classification of the finals (including the centuries old *sì hū* 四呼 concept), tone sandhi (a favorite topic for phonologists), the neutral tone (the ultimate case of stress loss), word accentuation (a frequent subject of research into SC stress), junctures (their acoustic cues, distribution and importance for easing speech perception), utilizing computer software for acoustic speech analysis (such as Praat) in acquiring pronunciation, etc.

6.1 What Is Hanyu Pinyin?

Teaching SC pronunciation is nowadays based on the *Pinyin* alphabet. *Pinyin* notation is often expected to provide guidance on the acceptable pronunciation of words, and, in turn, is criticized for not being able to fulfill this task properly. However, there

is a misunderstanding (as e.g. Zhu [Zhu 1997: 138] points out). In fact, *Pinyin* should not be regarded as a phonetic transcription (such as the IPA). It is **a kind of orthographic system** in its own right, which fulfills numerous functions. It was originally developed by the Chinese for the Chinese, not for L2 learners. Although its spelling is not as blatantly irregular as English orthography and reflects the actual sounds much more faithfully, its reading must still be *learned.* The basic framework of *Pinyin* is built up phonologically, utilizing a complementary distribution of sounds and largely neglecting the allophones. Furthermore, it takes into account factors such as economy or visual clarity, assigns unexpected sound values to some of the letters (such as *q, x, zh*), etc. Thus, *Pinyin* serves only as a very rough guide to SC pronunciation, as a sort of scaffolding that helps to build up the learner's competence in pronunciation. "You can learn nothing at all from the transcription itself, neither how to pronounce Chinese nor anything else. The transcription stands as a perfectly meaningless jumble of letters to you until you have learned, in terms of pronunciation and hearing, what it is that is being represented by it." These words of Hockett (1951: xvii) actually concern Yale transcription, yet are equally valid for *Hanyu Pinyin*. It is the task of both pedagogues and textbook writers to make this point clear.

6.2 Fundamentals of Phonology

When beginning to learn L2 pronunciation, the learner has to forget the familiar phonological system of L1 and build up a new 'phonological sieve' for the L2, with its different parameters for filtering sounds.[5] The new sieve allows him/her to distinguish between those sound features of L2 that are essential (distinctive) for particular phonemic categories, and those which are mere within-category phonetic variations.

Acquiring the new phonological system may be aided by instruction on the useful general notions. For instance, the above-mentioned notion of **distinctive features** may help in understanding that the same phonetic feature (e.g. voicing) may be utilized differently in SC and in the student's L1. For instance, voicing is not distinctive in SC, while it is distinctive in Czech; aspiration is distinctive in SC, while it is not distinctive in English. The notion of **phonemes and allophones** may help in gaining an understanding of why the same *Pinyin* letter can represent several rather different sounds or phonemes (e.g. the letter *'i'* is read as [i] in *lǐ* 里, as [j] in *xià* 下, as [ɪ] in *lái* 来, as [ɿ], [ʅ] in *zì* 字, *shì* 是). The notion of **complementary distribution** may help in understanding why *ü,* in syllables such as *ju, qu, xu,* does not require an umlaut in orthography, while in *nü, lü* it does (the letter *'u'* represents two different phonemes: */u/* and */ü/*). See, for example, Lin (2007: 138; 2014), Duanmu (2002: 19).

SC sound structure is acquired by means of *Pinyin* phonology. The learners thus naturally tend to view *Pinyin* as 'God's truth'. However, they should be briefly reminded that there are still many other phonological interpretations of SC. This

[5] The author of the notion of a 'phonological sieve' is N. S. Trubetzkoy (Grundzüge der Phonologie, 1939).

sort of awareness may help them to view the phonological system (and, by extension, phonetic reality) in a less rigid way.

6.3 Articulatory Phonetics, the IPA

While acquiring SC consonants and vowels, students have to learn new articulations. Notably, they should avoid replacing particular SC sounds by *similar*, yet *not identical* L1 sounds with which they are familiar. For instance, the SC consonant *r* is regularly pronounced as an unrounded postalveolar approximant [ɻ], or less frequently, as a fricative [ʐ]. Yet native speakers of English often pronounce it as [ɹ] with lip rounding, French learners as a uvular fricative [ʁ], Italian learners as an alveolar trill [r], etc. Nuances of vowel articulation are frequently neglected, too (e.g. the difference between front [a] and back [ɑ]). Experimentally based phonetic descriptions clarifying the articulatory/acoustic features may promote the correct learning of new sounds. This inevitably involves the need to explain various **places of articulation** (alveolar, palatal…) and **manners of articulation** (stops, fricatives, affricates, approximants…) for the consonants. The student should know terms such as voiced vs. voiceless, aspirated vs. unaspirated, lax (lenis) vs. tense (fortis), coarticulation, secondary articulation etc. As regards the vowels, there are terms such as front–back, close/high–open/low, unrounded–rounded, vowel centralization, devoicing, nasalization, retroflexion, etc. This seemingly dry knowledge is highly practical because it helps learners to realize the differences between L1 and L2 sounds and attain control over the fine phonetic details of articulation. At the same time, it provides the teacher with an efficient instrument for error correction.

The usage of (good quality) **diagrams of the articulatory organs** (i.e. their sagittal sections) and of **palatograms** is highly advisable in teaching, especially with difficult sounds. The diagrams may, for example, clarify the point that SC 'retroflex' consonants *zh, ch, sh, r* are not in fact retroflexed at all, although they are commonly called so and transcribed by the retroflex IPA symbols, with a 'hook':

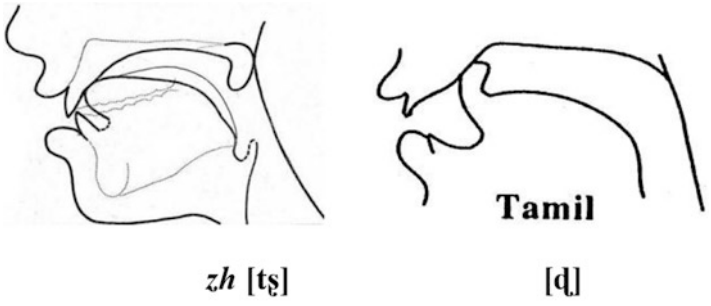

Fig. 1 Position of the vocal organs in the SC apical 'retroflex' consonant zh [tʂ] (Zhou and Wu 1963: 58), and in the Tamil sub-apical truly retroflex consonant [ɖ] (Ladefoged and Maddieson 1996: 27)

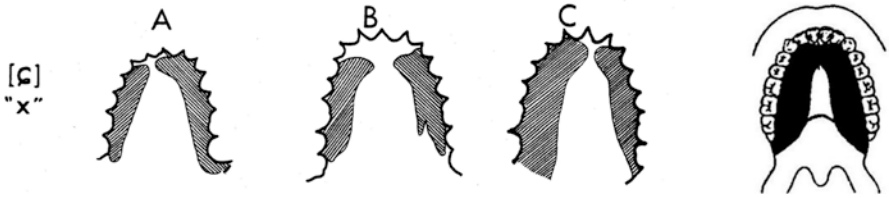

Fig. 2 Palatograms of the SC alveolopalatal fricative x [ɕ] (three speakers, Ladefoged and Wu 1984: 270), and of the Czech palatal stop ť [c] (Adopted from Triskova 2012: 175)

THE INTERNATIONAL PHONETIC ALPHABET (revised to 2005)

CONSONANTS (PULMONIC) © 2005 IPA

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k g	q G		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	N		
Trill	B			r					R		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	L			

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.

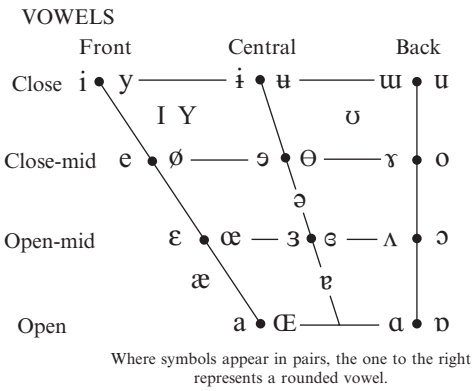

Fig. 3 The symbols of the International Phonetic Alphabet: consonants and vowels

Palatograms are useful, too. They may, for example, demonstrate that the so called SC 'palatal' consonants *j, q, x* are in fact alveolopalatal (see Fig. 2).

The previously mentioned knowledge about articulatory mechanisms is a necessary prerequisite for teaching **the International Phonetic Alphabet (see Fig. 3)**. Although neither teachers nor students are usually much fond of it, the basic

command of the IPA (or at least a passive knowledge of the symbols which are used for SC sounds) is desirable. It allows impressionistic descriptions of sounds to be replaced by rather exact notations.[6] See e.g. Lee and Zee (2003, 2014).

6.4 Syllable Structure

The views of linguists in relation to SC syllable structure vary (cf. traditional *Initial-Final model* vs. modern *Onset-Rime model* described in Lin 2007: 106). The key question is the position of the prenuclear glide (the 'medial') within the syllable structure: is it more closely related to the consonantal onset (the 'initial'), or to the vocalic nucleus (the 'main vowel') belonging to the syllable rime? Another question relates to which syllable constituents are obligatory, and which are optional (e.g. is a vowel an obligatory constituent of the SC syllable?).

***Pinyin* phonology** adopts the traditional *Initial-Final model*. The textbooks introduce the SC syllable as a combination of initial, final and tone. The finals are usually not the subject of further analysis in the textbooks, despite the fact that they may be complex forms containing up to 3 constituents (medial, main vowel, ending) with non-linear mutual relationships.[7] These relationships are clarified in the hierarchical scheme provided in Fig. 4. (cf. Lin 2007: 107; Cheng 1973: 11).

Each of the constituents at the lowest level has its own specific articulatory features (latent in *Pinyin* notation, of course). These are well noted in the phonetic literature, but commonly left unexplained by teachers and textbooks (cf. Třísková 2011).

- **The medials *i, u, ü*** ('semivowels', glides) are pronounced as tense, short approximants (i.e. consonants) [j], [w], [ɥ] respectively (*xià* 下 [ɕja], *huán* 环 [hwan], *lüè* 略 [lɥɛ]).
- **The main vowels *a, e, o, i, u, ü*** are usually pronounced as full vowels.
- **The endings** (terminals) are pronounced in a lax manner, their articulation is weakened, the articulatory target is undershot: the vocalic endings ***i, u*** are pronounced as [ɪ], [ʊ] (*mài* 卖 [maɪ], *dào* 道 [tɑʊ]); the nasal endings ***n, ng*** often have an imperfect or even missing closure (see Fig. 5).

[6] Note that the IPA transcriptions of particular SC sounds may have their problems, as well as there being a lack of consensus among authors etc. For instance, the consonant written as *r* in Pinyin is alternatively transcribed as a fricative [ʐ], as an approximant [ɻ] or as an approximant [ɹ]. The choice between a fricative and an approximant is conditioned by the placement of this consonant in a SC phonological system, which differs from author to author.

[7] An ingenious phonological analysis of the system of SC finals within a traditional framework is offered by Dragunov and Dragunova (1955); their analysis has a pedagogical potential.

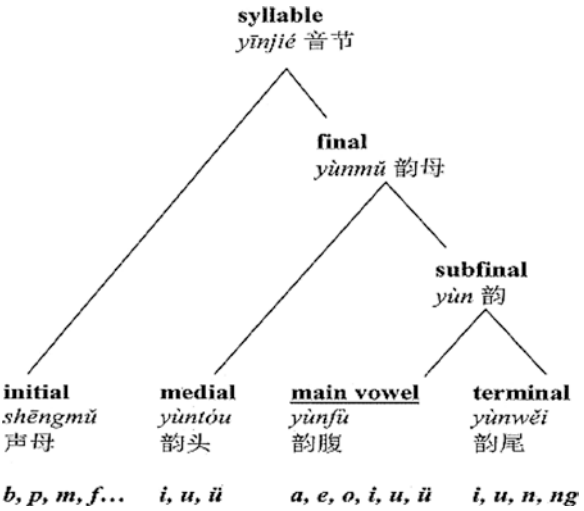

Fig. 4 Structure of SC syllable (traditional analysis) (Adopted from Triskova 2012: 39)

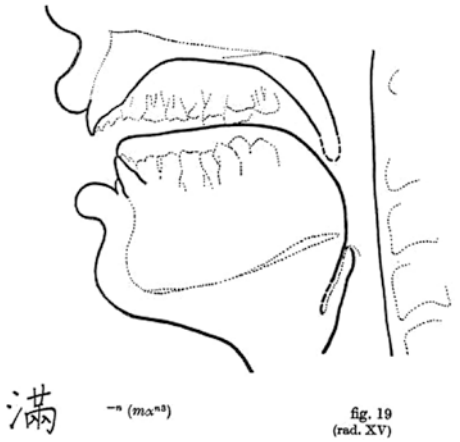

Fig. 5 Missing closure in casual pronunciation of the ending -n (Ohnesorg and Švarný 1955, Fig. 19)

Syllable scheme (let alone the analysis of its components) can hardly be found at all in textbooks. However, deeper insights into syllable structure are rather useful. Why? Because this can help the learner to overcome various mistakes in the pronunciation of finals.

First, the difference between **two types of diphthongs** can be clarified (see Sect. 6.5).

Second, in casual speech, **terminal nasals *-n, -ng*** are often pronounced with incomplete or missing closure (see Fig. 5). Such "sloppy" pronunciation can be conveniently explained by reference to the regular tendency to a weakened articulation that is shared by all endings (***n, ng, i, u***).

Third, the syllable scheme allows for an understanding of the various **segmental processes** occurring within a syllable (cf. Lin 2007: 137). In particular, the lower right part of the scheme shows the close link between the main vowel and the ending (forming the *yùn* component, subfinal together). This tight connection explains the assimilation processes that happen within *yùn*. For instance, in syllables such as *bān* 班 [pan] the vowel */a/* is pronounced as front [a], being assimilated to the front nasal ending [n], while in syllables such as *bāng* 帮 [pɑŋ] the vowel */a/* is pronounced as back [ɑ], being assimilated to the back nasal ending [ŋ]. The tight connection between the main vowel and the ending may occasionally result in the phonetic fusion of both constituents, e.g. *bāng* 帮 [pɑŋ] may be pronounced as [pɑ̃], or *mǎn* 满 [man] as [mã], as reflected in Fig. 5.

6.5 Two Types of Diphthongs

A deeper insight into the SC syllable structure brings with it considerable advantage: it allows us to explain the difference between falling and rising diphthongs. While many languages lack diphthongs entirely, SC is very rich in this respect. *Pinyin* phonology establishes four **falling diphthongs** *(/ai/, /ei/, au/, /ou/)*, five **rising diphthongs** (*/ia/, /ie/, /ua/, /uo/, /üe/*), plus four **triphthongs** (*/iau/, /iou/, /uai/, /uei/*).[8]

The pronunciation of each type of diphthong is quite different. This fact is of course not reflected in *Pinyin* notation (cf. *-ai, -ia*). Falling diphthongs comprise a main vowel and (vocalic) ending, while rising diphthongs comprise a medial and main vowel. The difference in their pronunciation is clear from what has been stated about the articulatory properties of particular syllable constituents (see Sect. 6.4). For instance, *xià* 下 is pronounced as [ɕja] (the medial */i/* is realized as an approximant [j]), while *mài* 卖 is pronounced as [maɪ] (the ending */i/* is realized as a lax, centralized [ɪ]).

Specific features of the two types of diphthongs generally remain unnoticed by teachers and textbooks. Yet an effective teaching of their pronunciation, together with an emphasis on the tautosyllabicity of their components (i.e. strictly pronouncing the components of a diphthong as well as a triphthong within a single syllable) helps prevent one common mistake – tearing a syllable into two parts: *[ɕi.ja], *[ma.ji], *[ta.ʊ].

6.6 The Third Tone

The tones represent a greatly feared aspect of Chinese pronunciation. Y. R. Chao writes in his preface to *A Phonograph Course* (Chao 1925):

> The Chinese tones are reputed to be the most difficult part of the language. It is so only because Europeans cannot be convinced realistically enough of the fact that modulation of pitch is as much an etymological element of the word as consonants and vowels are, and not merely an incidental accompaniment. (paragraph 2)

[8] Note that some analyses only accept falling diphthongs, e.g. Duanmu (2002: 42).

The pitch contours of SC tones are traditionally represented by a rectangular diagram employing Y. R. Chao's five-point scale (Chao 1968, p. 25). The description of tones is based on the shapes of citation tones (T1 = 55, T2 = 35, T3 = 214, T4 = 51). Such a tone diagram can be found in every textbook. Examples coming from three different textbooks are reproduced in Fig. 6.

T3 is commonly portrayed as a "spiky" contour with a conspicuous final rise (214), see the first diagram in Fig. 6. The rise takes up more than half of syllable duration. At first glance it seems to be an essential, obligatory part of T3. The description of T3 as a **'dipping tone 214'** is presented in an absolute majority of textbooks. However, the final rise is *not obligatory*. First, it may only occur in prepausal positions. Second, it is not obligatory even in prepausal positions: it may be entirely missing here (211). Third, if the rise does occur, it can be rather inconspicuous (213 or 212). To sum up, the final rise may be attributed to sentence intonation, focus, emotions, etc. Regarding the mild initial fall, it may be attributed to articulatory constraints (cf. Duanmu 2002: 220). Thus, most phonologists treat T3 as an **underlyingly 'low' tone** (L or LL in feature analysis) with an *optional* final rise that occurs in sentence- or phrase-final position. In other words, the rise is not viewed as a part of the underlying form of T3. The 214 realization is just one of the allotones, surface variations of T3. Such analysis is accepted in Kratochvil (1968: 35), Shih (1988: 83), Zhu (1997: 186), Yip (2002: 180), etc. This solution is also reflected in the last diagram in Fig. 6 (the final rise is rendered as optional). The 'low' interpretation of T3 agrees with speech facts: the majority of T3 surface realizations in connected speech are *without* the final rise.

T3 is viewed as the most difficult tone. The reason for this seemingly rests in the considerable variability of its surface forms (falling-rising before a pause; low before T1, T2, T4, T0; changed into T2 before another T3), which is traditionally explained by virtue of T3 sandhi rules (cf., for example, Lin 2007: 197, 204). Sandhi rules need to be applied in the majority of occurrences of T3 in speech. Some linguists, including the author of this paper, suggest that the student's difficulty with T3 may not be due to the inherent difficulty of T3, but to its phonological interpretation as 214. The 214 phonological tradition and 'half-third tone' (半三声) sandhi rule do not actually bring about any benefits in L2 teaching. This interpretation only

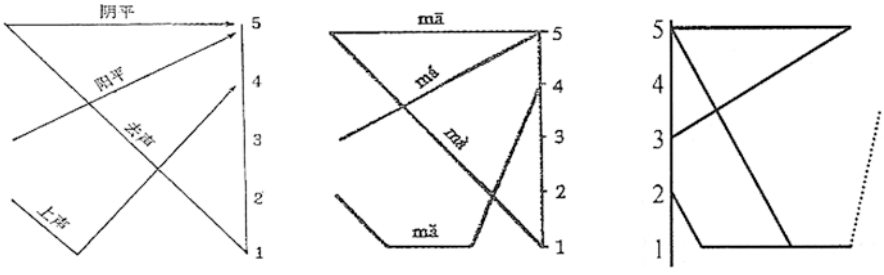

Fig. 6 Three examples of tone diagrams with three types of T3 representation (Wang et al. 2002: 85; Lin and Wang 2003: 125; Cao 2002: 94)

increases the difficulty of T3 mental processing and causes its confusion with T2 (both tones comprise some kind of rise). The term 'half-third tone' rather improperly suggests that the 21 or 211 form (which is the most frequent form of T3 in speech) is something incomplete and truncated. I would argue that if the analysis of **T3 as a low tone** is introduced into SC tone teaching, it would greatly simplify things. Such an analysis is advocated by a number of Chinese linguists and pedagogues, such as Lin (2001b: 213), Cao (2002: 94) and Yu (2004).

6.7 Attention to Disyllables

As mentioned above, descriptions of the four tones in SC pedagogy conventions are based on the citation forms of tones. Due to a wide range of factors (such as the influence of adjacent tones, stress, intonation, speech style, speech tempo, emotions, etc.) the shapes of citation tones undergo **considerable variation** in connected speech. This may occasionally be drastic in rapid casual speech, where quite a number of tones may be reduced or deleted. Students need to be prepared to cope with this variability. The first step in this direction is to give increased attention to disyllables (instead of monosyllables) in tone teaching. It is well known that disyllabic tone combinations are not simply a plain sum of two tone contours as pronounced in isolation. One of the reasons for this is that there are physiological constraints that require some time for the transition of pitch between two adjacent tones; both tones coalesce into a single contour. Disyllables are then perceived and produced as wholes, not as combinations of two discrete components.

The mutual influence of two adjacent tones and changes in their F0 (fundamental frequency) contours are analyzed in Xu (1997) (also cf. Třísková 2001). He observes the **carry-over effects** (the effects of the preceding tone on the following tone), and **anticipatory effects** (the effects of the following tone on the preceding tone). The magnitude of the former is very noticeable, as can be seen in Fig. 7. In each panel, the tone of the first syllable varies between T1 (H = high), T2 (R = rising), T3 (L = low) and T4 (F = falling); the tone of the second syllable remains constant. Obviously, the ending F0 of the first syllable virtually determines the onset F0 of the second syllable:

There are 16 disyllabic tone combinations. **Diagrams of the pitch contours** of these 16 combinations, based on instrumentally obtained data, would be very useful in tone teaching.

Regarding the four combinations with T0 in the second position (T1 + T0, T2 + T0, T3 + T0, T4 + T0), acoustic measurements show that T0, although very short, is realized as a kind of contour. Yet, for the purposes of teaching pronunciation, T0 can be conveniently represented as a 'point' whose position is decided by the preceding tone. T0 is relatively low after T1, T2, T4, while it is high after T3 (cf. e.g. Chao 1968: 36). Memorizing 16 + 4 concrete **disyllabic 'model words'** can be quite helpful, e.g. T3 + T1: *lǎoshī*, T4 + T0: *bàba*.

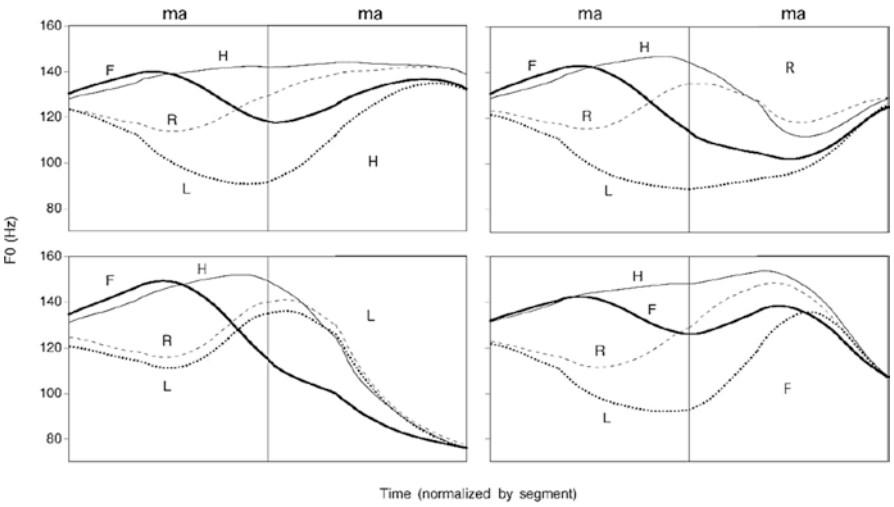

Fig. 7 Carry-over effects; in each panel the tone of the first syllable varies, while the tone of the second syllable remains constant (Xu 1997)

6.8 Acoustic Correlates of Stress/Non-stress

Chinese stress is a complex and rather controversial issue and has been addressed in the research of numerous linguists (e.g. Duanmu 2001). At the same time, stress has many pedagogically relevant aspects. One of them is the provision of advice on the **distribution** of stressed and unstressed syllables/words in speech (see Sect. 6.9). Another relates to the concrete instructions that can be given to a learner about **what** they should do with a syllable in order to make it sound stressed or unstressed. In textbooks, the instructions on this topic are usually limited, wrong or completely missing. For instance, in Liu Xun (Liu 2010: 50) we find the following sentence alongside the first mention of stress: "In a disyllabic or multisyllabic Chinese word there is usually one syllable that is stressed. This syllable is called the stressed syllable." There is no advice whatsoever on how to make a syllable sound stressed. The reader would probably wrongly infer that it should be pronounced more loudly.

Fortunately, unlike with other aspects of SC stress, there is a broad consensus in the literature on its phonetic cues, which is supported by instrumental data. The linguists (e.g. Shen 1989: 59; Lin 2001a: 140; Lin 2007: 224; Shih 1988: 93) agree that in SC, stress/non-stress are phonetically manifested by:

– the manipulation of syllable duration (long/short)
– the manipulation of vertical pitch range (expanded/compressed)
– the manipulation of loudness (as a secondary feature)
– segmental reductions in the unstressed syllables

In other words, **stressed syllables** are phonetically enhanced in relation to all parameters: their duration is longer, their pitch range is wider, and they are generally somewhat louder. Their consonants and vowels are fully articulated. On the other hand, **unstressed syllables** are shorter, have compressed pitch range, and may be less loud. Articulation of their consonants and vowels tends to be weakened. Due to pitch range compression and shortened duration, tone contour in unstressed syllables becomes less distinct; it may be even completely deleted (neutralized). Tone reduction is illustrated in Fig. 8; cf. Chao's metaphor of "stretching the tone graph on an elastic background", reminding us that phonetic reality is a continuum (Chao 1968: 35).

Stress/non stress production 'know-how' should be provided in textbooks, as the instincts of students regarding stress are significantly conditioned by interference from their L1 (as is well-known, stress can be manifested by different means in different languages, although it always comprises some combination of the following suprasegmental features: pitch, duration, and loudness). Due to the complex interplay between stress and tone, the proper control of the phonetic parameters of SC stress/non-stress is a hard-to-learn skill, which should be sufficiently practiced. The neutral tone (i.e. the complete loss of stress) and unstressed syllables are discussed, for example, in Liang (2003), Peng et al. (2005: 236), Lee and Zee (2014: 375).

It should be noted that the reduction of the unstressed syllables, observed especially in fast colloquial speech (particularly in Beijing Mandarin), is recognized as a feature of so-called **'stress-timed languages'** such as English and Russian. Although the concept of 'stress-timed languages'/'syllable-timed languages' is hard to verify instrumentally, and often viewed as doubtful, it has proven its usefulness in L2 teaching. This may hold true for teaching everyday colloquial ('stress-timed'?) SC, too (cf. Lin and Wang 2007).

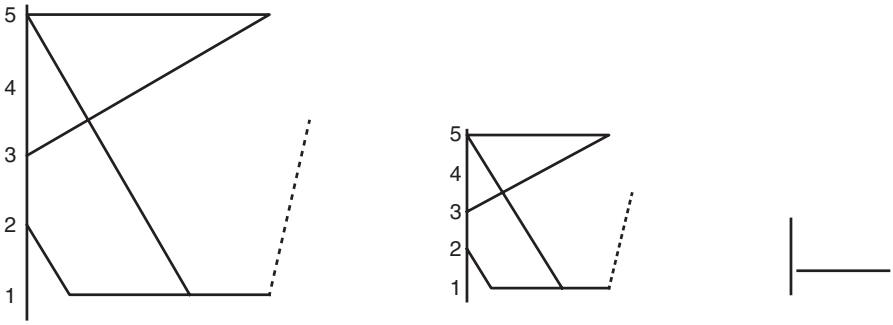

Fig. 8 Scale of tone reduction: emphasized tonal syllable, 'normally stressed' tonal syllable, tonally neutralized syllable (tone diagram comes from Cao 2002: 94)

6.9 Unstressed Function Words

Cross-linguistically, function words, such as prepositions, conjunctions, auxiliary verbs, personal pronouns, articles etc. are high-frequency, typically monosyllabic items. Their meaning is largely or entirely grammatical. They tend to be unstressed in speech, being tightly attached to a neighboring word as **clitics** (cf. Spencer and Luís 2012). In some languages, the pronunciation of function words displays a severe reduction. This is typically the case in English. It namely concerns **'words with weak forms'**, such as *you, the, from, in, of, and*… (e.g. *and* [ænd] becomes reduced to [ən], [ṇ], cf. Roach 1996: 102).

SC has a number of *toneless* function words which always behave as unstressed clitics: sentence-final particles such as *ma* 吗, *le* 了, structural particles *de* 的, *de* 得, *de* 地, and aspect particles *le* 了, *zhe* 着, *guo* 过. In addition, a group of monosyllabic *tonal* function words may be established in colloquial everyday SC, which displays similar features as English 'words with weak forms'. A new term is coined for them: **'the cliticoids'** (Třísková 2016: 134). The group of cliticoids comprises monosyllabic prepositions, postpositions, conjunctions, classifiers, personal pronouns, modal verbs, some other verbs (*shì* 是, *zài* 在, existential *yǒu* 有), and some adverbs (e.g. *hěn* 很, *dōu* 都, *jiù* 就). Unless emphasized or pronounced in isolation, they are regularly unstressed in speech. Their duration is shortened, their tone becomes weakened or deleted, and their vowels and consonants tend to suffer from segmental erosion. Acquiring the unstressed, reduced forms of these high-frequency words and their proper usage in speech may considerably improve a learner's performance (cf. Tao 2015) as well as speech perception.

There are yet other cases of words or morphemes which are regularly pronounced as unstressed in speech, although they carry a lexical tone, e.g. the negative adverb *bù* 不 in A-not-A questions (*Lái bu lái*? 来不来?), the second syllable in reduplicated verbs (*kànkan* 看看), directional complements (*chūqu* 出去) etc. (cf. Zeng 2008: 102). These cases also require the attention of both teachers and learners (cf. Třísková 2016: 128).

6.10 Sentence Intonation

Acquiring native-like intonation patterns belongs to the most difficult set of tasks in SLA. The intonation component is one of the strongest indicators of a foreign accent. The main parameter of intonation is pitch (F0 variations in acoustic terms). On top of that, pitch variations are also used for cueing tone and stress in Chinese. This makes the picture rather complex. Due to this complexity, intonation tends to be neglected in SC teaching, although it carries important grammatical, pragmatic and attitudinal information.

The details of the complex interplay of intonation, tone and stress are examined in experimental studies (e.g. Shih 1988; Jiang 2010; Xu 2015). In SC teaching, however, this complexity needs to be simplified. Students mainly need to be presented with several fundamental intonation patterns, supplemented by the informa-

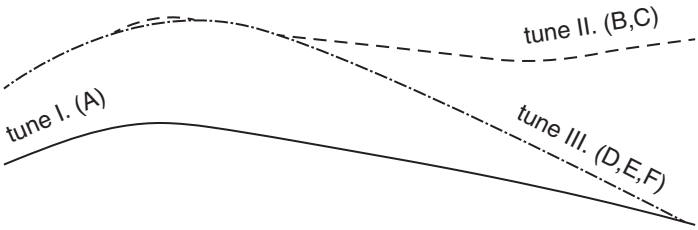

Fig. 9 Three basic intonational tunes of SC (Shen 1989: 26)

tion that the basic distinctive features of tones such as rise or fall remain unharmed (Chao [Chao 1968: 39] speaks of "small ripples riding on large waves"). An example of such a simplification is **Shen Xiaonan's model** (Shen 1989) (see Fig. 9).

According to Shen, **Tune I** occurs only in statements. **Tune III** comprises A-not-A questions, alternative questions and Who-questions. **Tune II** is reserved for particle questions and unmarked questions. The essential information the learner needs is that the intonation contour stays high at the end of particle questions (*Tā qù ma*? 他去吗?), unmarked questions (*Tā qù*? 他去?), and unfinished units, while it drops at the end of statements (*Tā qù le.* 他去了。) and other types of question (*Tā qù bù qù?* 他去不去? *Shéi qù*? 谁去?).

7 Conclusion

The pronunciation of Chinese is rather difficult to acquire. This is largely due to the tonal character of Chinese. Yet pronunciation does not seem to receive due attention in SC pedagogy. In addressing the various aspects of pronunciation, both textbooks and teaching materials tend to be rather elementary and conservative, not to mention the insufficient space they allocate to this issue. Few language teachers have a deep level of insight into (SC) phonetics and phonology. The renowned Chinese linguist, phonetician and pedagogue, Lin Tao (passed away in 2006) calls for the breaking up of the old framework of SC pronunciation teaching and identifies the need to seek more effective approaches, utilizing the results of phonetic research. Lin complains in his Foreword to *Hanyu yuyin jiaocheng* (Cao 2002: 5), appraised by him as a herald of the modern approach:

> The proportion of teaching pronunciation within the whole teaching curriculum is ever decreasing. An inevitable result is that foreign students commonly speak Chinese with a strong accent (洋腔洋调). However, because we neither attach enough importance to teaching pronunciation nor have proper methods, this phenomenon does not decrease, becoming all the more striking instead… Judging from both my own pedagogical experience as a whole, and from discussions focused on particular topics, one can rarely see an endeavor to introduce the expert knowledge of Chinese phonetics and scholarly literature into teaching Chinese as a second language in a comprehensive, systematical way that would take into account the overall needs of L2 teaching.

The major task for the future seems to be to bring instruction on SC pronunciation in line with the findings of SLA research, to develop a modern methodology drawing on the pool of research in phonetics and phonology, and to include it in teaching materials and the training of pedagogues. The scope should go beyond the basic fundamentals and cover the whole range of topics up to sentence intonation and pragmatics. This, of course, requires pronunciation to be granted a decent space within the whole teaching curriculum. Although doing so might somewhat slow down progress in grammar, and the learning of new characters, new words, phraseology, etc., the time invested would undoubtedly pay off in the long term. The magnitude of these tasks is significant. The present chapter has attempted to provide some inspiration with respect to these issues.

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The Comparison of Hungarian and Chinese Phonological Systems: A Pedagogical Perspective

Qiuyue Ye and Huba Bartos

Abstract This paper is intended to contribute to the teaching of Chinese as a foreign language in Hungary by filling a notable gap in the literature. There have been few studies of the specific differences between Hungarian and Chinese and none at all which apply contrastive analysis of phonetic and phonological systems for pedagogical purposes. After a brief general introduction of Hungarian and Chinese, the paper offers an in-depth comparison between the segmental and suprasegmental phonetic systems of the two languages. The comparison is divided into separate sections, each of which is further subdivided, dealing with consonants, vowels, syllable tones, syllable structure, stress and intonation. The paper continues with a discussion of which of the identified differences are likely to cause difficulties both in terms of acquisition by Hungarian learners and in terms of communicative efficiency. The two features that emerge as the most problematic are suprasegmental intonation and syllable tone. The latter, given its essential and pervasive semantic value, is proposed as the feature that deserves the most attention of teachers and learners.

1 Introduction

The very nature of Chinese pronunciation determines the important position of phonology in the teaching of Chinese as a foreign language (TCFL). In the mid-twentieth century Chao Yuen Ren[1] used his *Guoyu Rumen* (*Mandarin Primer)* as teaching

[1] Chao (1948).

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material when teaching Chinese abroad. "Most teaching is about pronunciation; then [we] move on to the teaching of other aspects". During that period, pronunciation teaching was highlighted. During the more recent boom in TCFL, however, this discipline has developed in an uneven manner. Considerable progress has been made in many aspects, but these have not included pronunciation teaching. Lin Tao[2] even claims that "pronunciation teaching has not advanced. On the contrary, it has greatly regressed." This may be over-pessimistic, but it does seem that research not only into pronunciation teaching but into pronunciation itself has attracted less attention than other fields. Nevertheless, during the past few decades a certain amount of valuable research on Chinese pronunciation and pronunciation teaching has emerged, much of it concerned with similarities and differences between Chinese and specific other languages. The present paper is intended to contribute to the latter current, focusing on Chinese and Hungarian. After a brief summary of the overall differences between the two languages, we provide a comparative phonological analysis, mentioning areas of particular difficulty for Hungarian learners. The paper concludes with a discussion of which aspects of Chinese pronunciation are the most likely to cause problems for Hungarian learners.

2 General Description of Hungarian and Chinese

Siptár and Törkenczy (2000: 13) describe Hungarian as "a Uralic language spoken in Central Europe". In terms of the number of speakers, it is the twelfth largest language of Europe. The majority of speakers reside in Hungary itself, but Hungarian-speaking minorities are found in the neighbouring states: Slovakia, Austria, Romania, Serbia, Croatia, Slovenia and Ukraine; there are also groups of Hungarian speakers in more distant countries such as Canada and the United States, resulting from waves of emigration during the nineteenth and especially the twentieth centuries.

Hungarian is not only very different from the majority of (mainly Indo-European) European languages, but also unusual among the members of the Uralic family. Siptár and Törkenczy (2000: 13) point out that it has no close relatives: "The Ob-Ugric languages (Vogul & Ostyak), traditionally bundled together with Hungarian into the Ugric branch Of Finno-Ugric languages, are radically different from Hungarian in their phonology, syntax, and vocabulary."

Hungarian is defined by Kornai (1994) as a language of agglutinating morphology, with non-configurational syntax (Kiefer and Kiss 1994), and syllable-timed prosody (Roach 1982; Crystal 1995). Its vocabulary includes large numbers of loanwords.

The variety of Hungarian discussed here is what Nádasdy (1985) defines as Educated Colloquial Hungarian (ECH), which is typically used by the university- and academic secondary school-based populations that are most likely to study

[2] Lin (1996).

Chinese, and which differs somewhat from Standard Literary Hungarian and various types of non-standard speech.

Chinese is a Sino-Tibetan language used mostly in mainland China, Taiwan, Hong Kong, Macau, and Singapore. In terms of the number of speakers, it is undoubtedly the "largest" language on the planet, being spoken by about one fifth of the population of the world. Not surprisingly there are many, more or less distinct, varieties of Chinese (see e.g. Li 1972 and Norman 1988 for the division of these varieties into main groups). Whether these dialects, many of which are not mutually intelligible, should be regarded as separate languages is perhaps more of a political than a linguistic question and as such will not be discussed here. Two major varieties are most often taught as second or foreign languages outside China: Standard Chinese and Cantonese; the former is far more common. Standard Chinese is known as 普通话 *pǔtōnghuà* 'common spoken language', and is officially regarded as the common language of China, which means that it is taught in the schools and employed in all governmental and official transactions. It is based on the Northern varieties, with the Beijing phonological system as its norm of pronunciation and the modern vernacular literary language as its syntax specification. It has other names such as 国语 *guóyǔ* 'national language', 汉语 *hànyǔ* 'Han language', 中文 *zhōngwén* 'the language of China', and so on. Henceforth, we will refer to *pǔtōnghuà* 'common language' with the term 'Chinese', unless explicitly said otherwise.

While Hungarian is agglutinating, Chinese is an analytic, isolating language. It also differs radically from European languages in its character-based writing system and in the existence of phonemic tones: the first, the second, the third and the fourth. For a more detailed description of tones, see Sect. 2.3.1. Below.

3 The Contrastive Analysis of the Phonological Systems of Hungarian and Chinese

The following section provides a comparative phonological analysis of Hungarian and Chinese, noting both similarities and differences between the two languages, with particular reference to points where differences are likely to lead to real problems for Hungarian learners. The analysis begins with broad, systemic differences and continues with the detailed examination of specific consonants, vowels and suprasegmental features.

At a general level, five broad systemic differences may be observed. The first and most obvious of these is the fact that Chinese is a tonal language in which the rising, falling, falling-rising or steady pitch of individual syllables regularly carries lexical, and sometimes grammatical, meaning – a feature which is completely absent from Hungarian. The second systemic difference is that Hungarian makes use of the voiced-voiceless contrast among consonants, where Chinese does not, while Chinese uses the aspirated-unaspirated contrast among consonants where Hungarian

does not. The third is that vowel length is contrastive in Hungarian but not in Chinese. The fourth is that Hungarian includes phonemic oppositions between the mid-high vowels [ɛ, o, ø], and lacks [ə, ɤ], while in Chinese all of the mid-vowels [e, ɛ, o, ə, ɤ] are allophones of a single phoneme.[3] The fifth systemic difference is that unlike Chinese, Hungarian in general lacks genuine semi-vowels, and thus opening/falling diphthongs (Siptár and Törkenczy 2000: 16).[4]

We will now consider individual speech sounds, starting with the consonants, which are first described language-by-language and then compared with reference first to their place of articulation and then to their manner of articulation. We will then move on to vowels, categorized as high, mid- and low, then to syllable structure, and finally to the suprasegmental areas of stress and intonation.

Except where otherwise specified, the descriptions of Hungarian phonological features in the rest of this chapter are based on Siptár and Törkenczy (2000),[5] while the descriptions of Chinese phonological features are based on Huang and Liao (1991).

3.1 The Contrastive Analysis of Consonants in Hungarian and Chinese

Detailed tables of Hungarian and Chinese consonants based on Siptár and Törkenczy (2000) and Huang and Liao (1991) respectively are provided in Appendices A and B. Briefly, the Hungarian consonant system includes twenty-four items: p, b, t, d, ty, gy, k, g, f, v, sz, z, s, zs, h, c, cs, dzs, m, n, ny, l, r, j (ly), in phonetic transcription: [p, b, t, d, c, ɟ, k, ɡ, f, v, s, z, ʃ, ʒ, h, ts, tʃ, dʒ, m, n, ɲ, l, r, j]. Among them, there are nine pairs of consonants in which each pair shares exactly the same articulatory place, the only difference between members of each pair being whether they are articulated with or without the vibration of the vocal folds. The ones which are articulated with the vibration of the vocal folds are named "voiced" consonants, and those articulated without the vibration of the vocal folds are "voiceless". The nine pairs are shown in the following table. We will discuss specific classifications of all the consonants later in this section (Table 1).

The Chinese consonant inventory consists of twenty-two items; they are as follows: b, p, m, f, d, t, n, l, g, k, h, j, q, x, zh, ch, sh, r, z, c, s, ng; in phonetic transcription: [b̥, pʰ, m, f, d̥, tʰ, n, l, g̊, kʰ, χ, tɕ, tɕʰ, ɕ, tʂ, tʂʰ, ʂ, z̩, ts, tsʰ, s, ŋ]. They can be incorporated into different categories in terms of manner and place of articulation.

[3] The question of how many different mid-high vowels there are in Standard Chinese, and whether they are all allophones of a single phoneme has for long been a matter of dispute – here we accept Xu's (1980: 194) analysis as correct. For some discussion, see for example Duanmu (2000: 39ff).

[4] There are exceptions: a limited set of recent loan-words such as "auto", which sometimes preserve the diphthongs used in their original languages.

[5] Note that Siptár and Törkenczy do not treat 'dz' as an independent consonant, but merely as the d + z cluster.

Table 1 Hungarian voiced and voiceless consonants

Voiced consonants	b, d, ɡ, v, z, ʒ, dʒ, ɟ
Voiceless consonants	p, t, k, f, s, ʃ, tʃ, c

Table 2 Chinese unaspirated and aspirated consonants

Unaspirated consonants	b̥, d̥, ɡ̊, ts, tʂ, tɕ
Aspirated consonants	p^h, t^h, k^h, ts^h, $tʂ^h$, $tɕ^h$

In contrast to the Hungarian consonant system, lexical voiced/voiceless pairs do not exist in Chinese, but there are unaspirated/aspirated pairs. Members of each pair share exactly the same place of articulation; the main difference between them is whether they are articulated with or without extra airstream. In each pair the one which is articulated with extra airstream is named the "aspirated" consonant; the one which is articulated without is the "unaspirated" consonant. The six pairs of unaspirated/aspirated consonants are shown in the following table. More details of categories will be discussed later in this section. The distinction between "fortis" (pronounced with tense muscles of the oral cavity) and "lenis" (pronounced with lax muscles) articulation is also an important feature of the apirated ~ unaspirated pairs (Table 2).

3.1.1 Contrastive Analysis of Consonants in Hungarian and Chinese by Place of Articulation

Labials

The Hungarian labials are [b, p, m, f, v], the nearest Chinese equivalents being [b̥, p^h, m, f]. In other words, both languages have bilabials and labiodentals, with no notable articulatory difference. However, the second systemic difference mentioned above applies: Hungarian distinguishes between voiced and voiceless unaspirated semi-fortis consonants while Chinese distinguishes between voiceless aspirated fortis and unaspirated lenis, and while Hungarian contrasts the voiced and voiceless fricatives [f, v], Chinese has only the voiceless [f].

Dental/Alveolar Stops

The Hungarian alveolar stops are [d, t, n, l], the nearest Chinese equivalents are [d̥, t^h, n, l]. In other words, both languages have dentialveolars, with no significant articulatory difference. However, the same systemic difference applies as with labials: Hungarian distinguishes between voiced and voiceless unaspirated semi-fortis consonants while Chinese contrasts voiceless aspirated fortis and unaspirated lenis. One particular feature of Chinese that Hungarian learners find hard to master is the fact that in Chinese [n] is pronounced slightly differently when it is in final position, but this does not normally give rise to confusion or cause any loss of comprehensibility.

Alveolar Affricates and Fricatives
The same systemic difference applies here too: Hungarian with [ts, s] contrasts voiced and voiceless unaspirated semi-fortis while Chinese with [ts, tsʰ, s] contrasts voiceless unaspirated lenis and aspirated fortis.

Palatals
Unlike the speech sounds discussed so far, palatals present relatively serious difficulties for Hungarian learners of Chinese because both languages have two specific articulatory regions here with completely different places (and manner) of articulation. Hungarian contrasts palato-alveorals (or laminal palatals) [tʃ, dʒ, ʃ, ʒ] with (dorso-)palatals [c, ɟ], while Chinese contrasts alveolar-palatal doubly articulated[6] (*apda*): [tɕ, tɕʰ, ɕ] with retroflex [tʂ, tʂʰ, ʂ, ʐ]. Problems arise because Hungarian learners tend to associate (or even equate) Chinese retroflexes with Hungarian palato-alveolars, and Chinese *apda*'s with Hungarian dorso-palatals.

Velars
In the case of velars the place of articulation is identical in the two languages, though once again the second systemic difference mentioned above applies: Hungarian contrasts the voiced and voiceless unaspirated semi-fortis [g, k], while Chinese has the voiceless unaspirated lenis vs. aspirated fortis [g̊, kʰ]. Problems may arise with the Chinese [ŋ], because although this sound occurs in the native speech of Hungarian learners it does not usually appear in isolation but is "completed" with a [g]. If they are unaware of this fact, when speaking Chinese they are likely to pronounce two separate phonemes in the sequence [ŋg] or even [ng] when [ŋ] would be correct. Their attention must be drawn to this, and appropriate practice needs to be provided, so that they can begin to learn to pronounce the various sounds in isolation when necessary.

Postvelars
In this case there is a marked difference between the Hungarian glottal-laryngeal [h] and Chinese uvular approximant [χ][7] (though in several Chinese dialects such as Shanghainese, the 'velar' fricative is actually much like Hungarian glottal [h]). It is certainly worth drawing the Hungarian learner's attention to the difference, but in practice there is relatively little perceptible difference and no confusion arises when s/he replaces [χ] with [h].

[6] '[A]pico-anterodorsal or lamino-anterodorsal alveolo-palatal' in Lee and Zee's (2003) terminology, 'alveolo-palatal' in Lin (2007). The complex term used here (and abbreviated as '*apda*') is our own coinage, and purports to be more helpful in teaching the articulation of this sound.

[7] Again, it is both a matter of dispute, and of dialect- and speaker-level variation, whether this is really and always an uvular aproximant [ʏ] (e.g., Chao 1968, Pulleyblank 1984), or a velar fricative [x] (Duanmu 2000; Lee and Zee 2003), but whichever sound one perceives, or whichever description one subscribes to, it is certainly rather different from Hungarian glottal-laryngeal [h].

3.1.2 Contrastive Analysis of Consonants in Hungarian and Chinese by Manner of Articulation

The Stop/Affricate 'Pairs'
Here the second systemic difference applies again: in Chinese the usual opposition is between an unaspirated lenis (rather like a voiceless variant of the English voiced stops) and an aspirated fortis. Both are clearly voiceless, though they may become voiced in certain phonetic environments, especially in toneless/unstressed syllables, e.g.: 的 [d̥i] → [d̥ə] → [də]). In Hungarian there is no such fortis/lenis difference between members of these pairs: both have a medium degree of tenseness ('semi-fortis'), and no aspiration, but there is a clear voiced/voiceless distinction. Hungarian learners tend to equate Chinese unaspirated lenis consonants with the semi-fortis voiceless ones that occur in Hungarian. In practice, this does not often lead to serious problems, as although aspiration is completely absent from Hungarian, if Hungarian learners are made aware of this feature they can easily perceive and reproduce it. The use of *pinyin* can cause problems here, as the letters used in *pinyin* to denote voiceless unaspirated lenis stops and affricates actually denote voiced consonants in Hungarian. Learners need to be made aware of this; they also need to learn to pronounce the Chinese unaspirated lenis consonants with lax muscles.

The Semi-vowels, Functioning as Rime- Initial/Final Glides
Chinese has three such items: [j, w, ɥ], all of which appear in rime initial position, though only the first two also appear rime-finally. Only one of these, [j] is found in Hungarian with the status of a proper consonant, having a voiceless allophonic variant [ç] in voiceless contexts ([−voice] _ [−voice] or [−voice] _ #). Hungarian learners therefore need to be introduced to the glide variants of the full vowels [u] and [y], ([w] and [ɥ], respectively). The [w] sound usually causes fewer problems, since a similar semi-vowel exists in English (the most frequently learned foreign language in Hungary), though it must be noted that the Chinese [w] and English [w] are not identical.[8] The [ɥ] sound, with no easily available equivalent, is somewhat more difficult. Hungarian learners need to beware of the common temptation to replace these glides with the corresponding full vowels ([i, u, y]), resulting in vowel-sequences instead of diphthongs in these rhymes.

[8] Chinese [w] is more vocalic in nature, more like a brief but properly articulated [u], whereas English [w] is more consonant-like, and often also has a secondary velar articulatory trait which is absent from its Chinese 'counterpart'.

Table 3 Hungarian short and long vowels

Short vowels	ɔ, ɛ, i, o, u, ø, y
Long vowels	aː, eː, iː, oː, uː, øː, yː

Table 4 Hungarian high and low vowels

Front vowels	ɛ, eː, i, iː, ø, øː, y, yː
Back vowels	ɔ, aː, o, oː, u, uː

3.2 *The Contrastive Analysis of Vowels in Hungarian and Chinese*

Detailed tables of Hungarian and Chinese vowels based on Siptár and Törkenczy (2000) and Huang and Liao (1991) respectively are provided in Appendices C and D. Briefly, there are fourteen vowels in Hungarian. The vowel inventory of Hungarian consists of a, á, e, é, i, í, o, ó, ö, ő, u, ú, ü, ű; in phonetic transcription: [ɔ, aː, ɛ, eː, i, iː, o, oː, ø, øː, u, uː, y, yː]. A phonetic classification of the Hungarian vowel system is shown in the following table, which is classified in terms of the duration of vowels (Table 3).

According to the relative position (front or back) of the body of the tongue in the mouth during articulation, here we also roughly divide them into two groups; see the following table. More specific classifications will be discussed later in this section (Table 4).

Huang and Liao (1991) list thirty-nine finals in Chinese language. According to the number of vowels and with or without a nasal consonant, they can be divided into four groups as follows:

monophthongs (10): a [a], o [o],[9] e [ɤ], ê [ɛ],[10] i [i], u [u], ü [y], –i [ɿ],[11] -i [ʅ],[12] er [ɚ];
diphthongs (9): ai [aj], ei [ej], ao [ɑʊ], ou [oʊ], ia [ja], ie [jɛ], ua [wa], uo [wo], üe [ɥɛ];
triphthongs (4): iao [jɑʊ], iou [joʊ], uai [waj], uei [wej];
nasal finals (16): an [ɑn], en [ən], ian [jɛn], uan [wɑn], üan [ɥən], in [in], uen [wən], ün [yn], ang [ɑŋ], iang [jɑŋ], uang [wɑŋ], eng [əŋ], ing [iŋ], ueng [wəŋ], ong [ʊŋ], iong [jʊŋ].

In the traditional way, the final is divided into a medial, a main vowel and a final/ending. Not every syllable has a medial or an ending, only the main vowel is obliga-

[9] This sound occurs lexically only in interjections.

[10] This sound occurs lexically only in interjections.

[11] This sound only occurs after apico-dental affricates or fricatives.

[12] This sound only occurs after retroflex consonants.

Table 5 Chinese medial, main and final vowels

Syllable	Medial	Main	Final
pǔ		u	
tōng		ʊ	ŋ
huà	w	a	
xiǎng	j	ɑ	ŋ

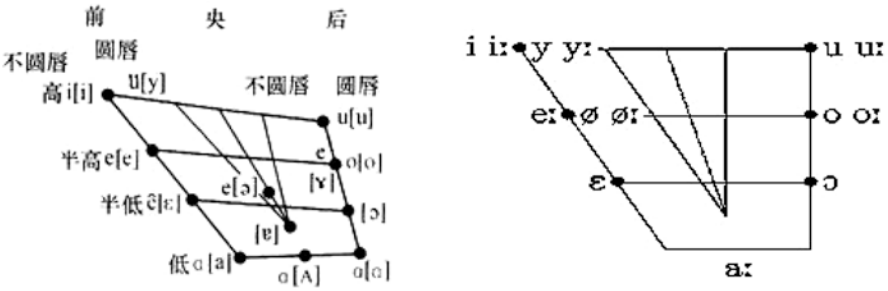

Fig. 1 Vowel charts of Mandarin Chinese (*left*) and Hungarian (*right*) (The authors are indebted to Katalin Mady of the Research Institute for Linguistics of the Hungarian Academy of Sciences for supplying the Hungarian vowel chart)

tory. To take 普通话 *pǔtōnghuà* 'common spoken language' and 想 *xiǎng* 'think' as examples, the details are shown on the table (Table 5).

3.2.1 The Contrastive Analysis of Monophthongs in Hungarian and Chinese

There are 14 monophthongic vowels in Hungarian and ten in Chinese.

A pair of vowel charts (based on the "quadrilateral" or "trapezium" method of depiction devised by the British linguist Daniel Jones (1917) can be used to present every vowel both in Hungarian and Chinese. Note that high vowels are at the top and low vowels at the bottom, back vowels are on the right and front vowels on the left. A contrast between rounded and unrounded vowels in the same position cannot be easily represented: they appear in the same position on the chart (Fig. 1).

In order to further analyze the phonological systems of Hungarian and Chinese, it will be useful to present a comparative table of the vowels of these two languages, based on Huang and Liao (1991) and Siptár and Törkenczy (2000) (Table 6).

We will now describe the salient differences in detail.

High Vowels

Hungarian has [i, y, u, iː, yː, uː]; while Chinese has [i, y, ɿ, ʅ, u]. The issue of vowel length has been mentioned earlier as a systemic difference between the two languages, and will be further discussed below. Apart from this feature, [i, y, u] are exactly alike in the two languages. Chinese [ɿ, ʅ] are different, but they are easily

Table 6 Comparison of vowels in Hungarian ("H") and Chinese ("C")

		Blade vowel					Retroflex-ed vowel	Apical vowel	
		Front		Central	Back		Central		
		Un rounded	Rounded	Un rounded	Un rounded	Rounded	Un rounded	Front	Back
High	H	i [i],	ü [y],			u [u]			
		í [i:]	ű [y:]			ú [u:]			
	C	i [i]	ü [y]			u [u]		-i [ɿ]	-i [ʅ]
High-mid	H	é [e:]	ő [ø:]			ó [o:]			
	C	e [e]			e [ɤ]	o [o],			
						o [ʊ]			
Mid	H		ö [ø]			o [o]			
	C			e [ə]			er [ɚ]		
Low-mid	H	e [ɛ]				a [ɔ]			
	C	e [ɛ]							
Low	H			á [a:]					
	C			a [a]	a [ɑ]				

perceived as being different from both [i] and [y] by Hungarian learners, and it is important to teach such learners that in order to pronounce them properly the tongue must simply be kept in the same position as when the preceding consonant (alveolar and retroflex, respectively) is pronounced.

Mid Vowels

Hungarian has [ɛ, ø, o, eː, øː, oː], while Chinese has [ɛ, e, o, ʊ, ɤ, ə]. Some of these are very similar; for example Hungarian [ɛ], as in *hülyę* 'idiot' corresponds to Chinese [ɛ] in the rhyme *-üe*, as in 月 [y ɛ] 'moon', and Hungarian [o], as in *por* 'dust' to Chinese [o] in a rhyme like *-uo*, as in 多 [tʊo] 'many' (disregarding vowel length), but there are some key differences and problems here. First of all, the vowel of the *-ong* rhyme "falls halfway" between Hungarian [o] and an [u] (IPA [ʊ]). Hungarians tend to perceive it as [u], though once they have been made aware of the difference they usually have little difficulty in pronouncing the Chinese sound. On the other hand, [ɤ] can cause serious problems: Hungarians usually perceive it as something close to their own [ø] sound, but in fact the two sounds are very different: the front rounded [ø] is quite unlike the back unrounded [ɤ], and once Hungarian learners fall into the habit of pronouncing [ɤ] as [ø], it is probably the hardest vowel mispronunciation to correct.

Low Vowels

Hungarian has [ɔ, aː],[13] while Chinese has [a, ɑ]. Hungarians tend to equate both Chinese [a] and [ɑ] with their own [aː] in Hungarian, and this causes no problems

[13] Note that in present-day Hungarian [ɔ] tends towards being pronounced with less lip-rounding as [ɒ].

in understanding as the difference is relatively small, and there is no chance of confusion with any other phoneme: the issue has more to do with the esthetics of pronunciation. Hungarians are also often familiar with [a] because of their knowledge of foreign languages where it occurs and because of its presence in loan-words that have become part of their own language. Another possible problem is equating Chinese [A] (as in 王 [wɑŋ] 'king') with Hungarian [ɔ]. This, again, results in "ugly" pronunciation, but not in misunderstanding.

Vowel Length

One of the main systemic differences between Hungarian and Chinese, mentioned above, is that in the former vowel length is contrastive (compare, for example, *tör* [tør] 'break' with *tőr* [tøːr] 'dagger'). In Chinese, vowel length carries no meaning and is purely derivative: a vowel is long if and only if it is a syllable-final monophthong in a stressed syllable. Although this may be considered a major difference, and can be expected to cause communication problems for Chinese speakers learning Hungarian, it does not cause such difficulties for Hungarians learning to speak Chinese: most long Chinese vowels exist in Hungarian as well: [iː, yː, oː, uː], the two exceptions being [ɤː], and [aː]. The former needs to be practised, especially since its short form is also difficult for Hungarian learners, as already mentioned.

Syllable-Initial Vowels[14]

The last "individual sound difference" to be noted is that concerning syllable-initial high vowels ([i, y]), where the syllable does *not* begin with a consonant (声母). In Standard Chinese the pronunciation of such vowels begins with 'smooth' initiation: the closing of the glottis is simultaneous with the launching of the airflow, while many Hungarians initiate such syllables in a more abrupt fashion (glottal attack: the glottis closes *before* the launch of the airflow).[15] This explains why many Hungarian learners are liable to hear an initial [j] in syllables like *yi* [iː] or *yu* [yː], as if they were *[jiː],*[jyː], and it should be noted that *pinyin* spelling reinforces this confusion, denoting the 'smooth' initiation with an extra letter: *y-*. The situation is rather similar for syllables like *wu*, which are erroneously perceived by Hungarian learners as *[wuː] (and occasionally even reproduced as *[vuː]), instead of [ʷuː]. However, although this represents a distinct difference, it seldom leads to actual miscomprehension. Note, also, that mid and low vowels are initiated less smoothly in Chinese, too, and may optionally begin with glottal attack, often represented as an initial glottal stop in phonetic transcription.

[14] We are indebted to Andrea Deme (Research Institute for Linguistics, Hungarian Academy of Sciences) for a very thorough discussion of this subsection. Note, though, that these passages do *not* represent her views.

[15] See Seikel et al. (2010) and Gósy (2004) for a general overview on possible initiations.

3.2.2 The Contrastive Analysis of Compound Vowels in Hungarian and Chinese

As we mentioned before, there are thirteen compound vowels in Chinese: nine diphthongs and four triphthongs. Strictly speaking, standard Hungarian has continuous vowels, but not normally compound vowels, although diphthongs do appear in some loan-words. 'Compound vowel' and 'continuous vowel' are totally different concepts. A compound vowel is a part of a syllable and cannot be divided. For example, in words like 好 *hǎo* 'good', 有 *yǒu* 'have/exist', 家 *jiā* 'home', *ao* [ɑʊ], *ou* [oʊ] or [əʊ], and *ia* [ja] are compound vowels. A continuous vowel occurs when two vowels appear side by side in a sequence and can be divided into two syllables. For instance, Hungarian *tea* [te.ɔ]/[teʲɔ] 'tea', *piac* [pi.ɔc]/[piʲɔc] 'market', *diák* [di.aːk]/[diʲaːk]'student', *fiatal* [fi.ɔ.tɔl]/[fiʲɔ.tɔl] 'young' can be divided into syllables, *te-a*, *pi-ac*, *di-ák*, *fi-a-tal* respectively. The pronunciations of a compound vowel and a continuous vowel are also different. Take [i.a] for example, as a continuous vowel, "i" and "a" both keep their own characteristics as full vowels, the durations of the two sounds are the same. As a compound vowel, [i] and [a] cannot be divided. In a single syllable, when [ia] = [ja] is pronounced, the position of tongue slides from [i] to [a], and the durations of the two sounds are not the same: [i] is short and weak, [a] is long and strong. Note that there are three types of compound vowels in terms of the position of the main vowel: falling diphthongs, rising diphthongs and middle-rising triphthongs with a main vowel in the middle, as shown in the following table (Table 7).

The differences between a continuous vowel and a compound vowel are illustrated in the following table (Table 8).

Table 7 Compound vowels in Chinese

Compound vowel	Members	Type	Explanation
Diphthongs	ai [aj], ei [ej], ao [ɑʊ], ou [oʊ]	Falling diphthong	The first V strong, the second is weak
	ia [ja], ie [jɛ], ua [wa], uo [wo], üe [ɥɛ]	Rising diphthong	The first V is weak, the second is strong
Triphthongs	iao [jɑʊ], iou [joʊ], uai [waj], uei [wej]	Middle-rising triphthong	The main V is in the middle, so the middle part is strong

Table 8 Compound and continuous vowels

Name	Tongue-position feature	Type	Loudness/strength
Continuous vowel (H)	Fixed	V V	Equal
Compound vowel (C)	Slide	V v	Not equal
		v V	
		v V v	

3.3 Tones in Chinese

3.3.1 The Four Tones

Before we move on to the comparison of syllable structures in Hungarian and Chinese, it is worth considering syllabic tone, a well-known characteristic of Chinese (and of many other languages) which does not exist at all in Hungarian. Not surprisingly, syllabic tone causes severe difficulty to Hungarian learners, as it does to the speakers of any non-tone language.[16] Conscious knowledge about the nature and functioning of tone is usually not problematic: the phenomenon is quite easy to describe and to understand; but recognising and interpreting tone when listening to Chinese speech and, to an even greater extent, producing tone automatically and accurately when speaking, are skills which require a great deal of effort to acquire.

Tone, which pertains to the entire syllable and may distinguish meanings (i.e., is phonemic), is primarily characterized by voice pitch contour, although length and intensity also play a role in its perception. There are four regular tones in the standard Chinese language: the first tone (or *Yīnpíng* 阴平), the second tone (or *Yángpíng* 阳平), the third tone (or S*hǎngshēng* 上声) and the fourth tone (or *Qùshēng* 去声).

Chao (1983) devised the following system for describing the four tones (the "neutral tone" or *Qīngshēng* 轻声 will be discussed separately).

Pitch is plotted on a vertical scale which covers the normal voice (pitch range) of a speaker. The scale is divided into five points, such that 1 shows the lowest point (the lower limit of a speaker's normal pitch range) and 5 the highest (the upper limit of a speaker's normal pitch range); 3 is mid pitch, 2 half-low and 4 half-high. From 1 to 5 means from the lowest to the highest. A tone can be described by indicating its beginning and ending point, while if it is a falling-rising tone, the point dividing the falling and rising stretches is also indicated. The four tones can be described as follows:

The first tone, T1 (also called *Yīnpíng*, or high level) is at a continuous high level. The value of tone in Chao's system is 55, which means it starts at point 5 and ends at the same level 5. In *pīnyīn* the diacritical mark of the first tone is ¯.

The second tone T2 (also called *Yángpíng* or high rising) is at mid-to-high level. The value of tone in Chao's system is 35, which shows it begins at mid pitch 3, and then rises to the highest pitch 5. The diacritical mark of the second tone is ´.

The third tone T3 (also called *Shǎngshēng* or rising tone) begins at the half-low point 2 and falls to the lowest level 1, then rises to the half-high level 4. The value of the tone in Chao's system is therefore 214 and its diacritical mark is ˇ.

The fourth tone T4 (also called *Qùshēng* or departing tone) starts at the highest level and falls to the lowest. The value of tone is therefore 51 and its diacritical mark is ˋ.

The following table shows the details of the four tones (Table 9).

[16] And for that matter also for speakers of tone languages where tone is not a syllabic phenomenon.

Table 9 The four main syllabic tones in Chinese

Type of tone	Value of tone	Shape of the tone	Diacritic	Examples
The first tone T1 (*Yīnpíng*)	55	high level	¯	摸 *mō* 'touch', 星 *xīng* 'star'
The second tone T2 (*Yángpíng*)	35	high rising	´	桃 *táo* 'peach', 红 *hóng* 'red'
The third tone T3 (*Shǎngshēng*)	214	falling and rising	ˇ	马 *mǎ* 'horse', 水 *shuǐ* 'water'
The fourth tone T4 (*Qùshēng*)	51	high falling	`	坏 *huài* 'bad', 二 *èr* 'two'

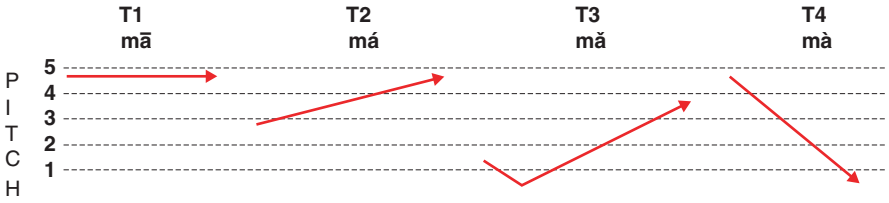

Fig. 2 Graphical representation of the four tones

They may be represented graphically, as in the following figure, where they are exemplified by the four different words *mā* (mother 妈), *má* (numb 麻), *mǎ* (horse 马) and *mà* (scold 骂) (Fig. 2).

3.3.2 The "Neutral Tone" or Qīngshēng

The "neutral tone" or *Qīngshēng* is a somewhat controversial feature. In Huang and Liao (1991) argue that *Qīngshēng* should not be regarded as the fifth tone, but rather as the weakened form of tones. In fact, *Qīngshēng* cannot exist in an independent-syllable on its own; it occurs only in combinations of syllables such as words or phrases, and it does not have a lexically fixed pitch. According to Huang and Liao (1991:158): "Generally speaking, the *Qīngshēng* which occurs after a third tone (or *Shǎngshēng*) usually has relatively high pitch (at point 4 in the pitch range), the one that follows a first (*Yīnpíng*) or second (or *Yángpíng*) tone has relatively lower pitch (at point 2 or 3, respectively), and the one that appears after a fourth tone (or *Qùshēng*) therefore has the lowest pitch (at point 1)."[17]

Huang and Liao also list the categories of morphemes in which *Qīngshēng* occurs, which are as follows:

- Particles "的 *de*, 地 *de*, 得 *de*, 着 *zhe*, 了 *le*, 过 *guo*" and interjections "吧 *ba*, 嘛 *ma*, 呢 *ne*, 啊 *a*";

[17] The translation is ours.

- Non-initial elements in reduplicated words, as in "娃娃 *wáwa*, 弟弟 *dìdi*, 看看 *kànkan*, 玩玩 *wánwan*";
- Word suffixes like "子 *zi*, 头 *tou*"and the word "们 *men*", which indicates plurality;
- Words which indicate directions such as "来 *lai*, 去 *qu*, 起来 *qǐlai*, 下来 *xiàlai*";
- The measure word "个 *ge*";
- Orientation morphemes or words which occur after nouns or pronouns;
- The second syllable in some very commonly used bisyllabic words is customarily uttered with *Qīngshēng*.

Qīngshēng (in opposition with any/all of the four primary tones) can carry semantic value. For example, 东西 *dōngxī* means "east" and "west", but 东西 *dōngxi* (with *Qīngshēng* on the second syllable) refers to "thing".

The importance of tone in both the receptive and the productive use of Chinese is indicated by the existence of the four words used in the preceding figure (*mā* 妈, *má* 麻, *mǎ* 马 and *mà* 骂), which have completely different meanings and are distinguished only by their syllabic tones. Nor should we forget that there is yet another "ma吗", the *Qīngshēng* version without a tone, which does not occur in isolation but can be added to the end of a declarative sentence to make it into a question.[18] It is not difficult to find examples of minimal pairs distinguished by tone, such as: *mǎi huà* 买画 (to buy paintings) and *mài huā* 卖花 (to sell flowers); *dōngxi* 东西 (things) and *dōngxī* 东西 (east and west); or *jiéshù* 结束 (to finish) and *jiè shū* 借书 (to borrow books).

3.3.3 Sandhi (*biàndiào* 变调)

As we have seen, standard Chinese has four tones: the first tone (or *Yīnpíng)*, the second tone (or *Yángpíng*), the third tone (or S*hǎngshēng*) and the fourth tone (or *Qùshēng*). Generally speaking, a Chinese syllable corresponds to a Chinese character, so as Huang and Liao (1991) point out, tones are also called "character tones (*zìdiào*)". However, as Huang and Liao also note, single tones affect each other in words, phrases and sentences. This phenomenon is called "sandhi" (*biàndiào*). Sandhi (*biàndiào*) takes various forms, including: sandhi of *Shǎngshēng*, sandhi of *Qùshēng*, sandhi of "一 *yī"* and "不 *bù*", sandhi of reduplicated adjectives. The first type can be illustrated with the example of the greeting phrase 你好 *nǐhǎo* 'hello'. Both of the words in the phrase carry a lexical third (or S*hǎngshēng*) tone, and in isolation they are pronounced accordingly. But when they are combined in the greeting phrase the sandhi effect causes the word *nǐ* to be pronounced with the second tone instead: *ní*. For *Qùshēng* sandhi, in the combination of *Qùshēng*syllables,

[18] Note that even so, the rate of morphemic homophony is rather high in Standard Chinese: usually there are several morphemes with identical segmental AND tonal content for each possible syllable.

such as 介绍 *jièshào* 'introduce', the actual value of the tone on the first syllable *jiè* should be 53, rather than 55. The nature of sandhi is not particularly difficult to explain to learners; and common expressions where it occurs (such as 你好 *nǐhǎo*) are not particularly difficult to learn. Applying it systematically in general conversation is much harder, but it could be argued that sandhi problems cannot really arise until the learner has mastered the basic syllable tones, so sandhi is unlikely to be an immediate priority for CFL teachers and learners.

3.4 The Contrastive Analysis of Syllable Structure in Hungarian and Chinese

3.4.1 Syllable Structure in Hungarian and Chinese

The syllable is the basic unit of a phonotactic system. The sequence of one or more phonemes constitute a syllable.

A Hungarian word can be divided into syllables, each of which contains a vowel. In other words, how many syllables a word contains is decided by how many vowels it has. A syllable which ends with a vowel is defined as an open syllable, such as, *ceruza* 'pencil', *zene* 'music', *ajtó* 'door', etc. And a syllable which ends with a consonant is called a checked syllable, for example, *igen* 'yes', *vonat* 'train', *kövér* 'fat', etc. A syllable can consist of a vowel, or a vowel and a consonant, or a vowel and several consonants. There are no words in Hungarian which do not contain at least one vowel.

A Hungarian syllable can contain an onset, a nucleus, and a coda. The onset is not compulsory; therefore, both vowel-initial and consonant-initial syllables are possible. Disregarding the possible complexity of the onset, the nucleus and the coda, the basic types of Hungarian syllable are as follows (Table 10).

The above table reveals that in Hungarian:

(1) Any type of syllable can occur in any position in the word, no matter whether in initial, medial or final position.
(2) The distribution of long and short vowel syllables is the same in the word.
(3) Neither open syllables nor closed syllables are restricted to word-final position.

Table 10 Syllable patterns in Hungarian

	Word-initial	Word-medial	Word-finial
CV	**ce.**ru.za (pencil)	fe.**ke**.te (black)	ka.to.**na** (soldier)
	Kí.na (China)	vi.**lá**.gos (bright)	sző.**lő** (grape)
V	**a**.pa (father)	fi.**a**.tal (young)	szi.**a** (hello)
	í.ró (writer)	i.di.**ó**.ta (idiot)	rá.di.**ó** (radio)
VC	**asz.**tal (table)	a.**or.**ta (aorta)	**is**.ten (god)
	ér.me (coin)	ki.**ál**.tás (shout)	di.**ák** (student)
CVC	**lec**.ke (lesson)	ke.**men**.ce (oven)	ti.**los** (forbidden)
	lám.pa (lamp)	ta.**nár.**nő (female teacher)	kí.**ván** (wish)

Note that the examples listed above are polysyllables; monosyllables also exist in Hungarian, such as *ír* 'to write', *jó* 'good', *és* 'and', *nap* 'day', *fal* 'wall' etc. In addition, besides the four basic syllable types, there are some other extra types due to the existence of consonant clusters. Two-member and three-member consonant clusters occur in word-initial position, too.

Chinese is a monosyllabic language, where almost every syllable corresponds to a morpheme. A syllable consists of an initial, a final and a tone. The initial is the consonant which is at the beginning of the syllable. For example, the word 普通话 *pǔtōnghuà* has three syllables, the initials of which are p, t, and h, respectively. Chinese has twenty-two consonants, all of which can occur as initials except for [ŋ], which can only be used as a coda, as in 听 *tīng* [tʰiŋ] 'listen', 中 *zhōng* [tʂʊŋ] 'middle' and so on. In other words, there are twenty-one consonantal initials in Chinese. There are syllables which have no consonant as an onset; they are defined as "zero-initial syllable". For instance, 爱 *ài* [aj] 'love' or 儿 *ér* [ɚ] 'son'. Note that in *pinyin* the letters *y* and *w* only occur at the beginning of a zero-initial syllable, as in 一 *yī* [iː] 'one', 五 *wǔ* [ʷuː] 'five', or 要 *yào* [jɑʊ] 'will, want', so they either just mark 'smooth initiation' of the main vowel (see Sect. 2.2.3 above), or encode a rhyme-initial glide, but they do not represent initials.

The final is essentially the segmental material of the rhyme, i.e., the rhyme minus the tone. A final can be a single vowel or can consist of a vowel complex, i.e., a diphthong or a triphthong – see both cases illustrated in the word 老鼠 *lǎoshǔ* [lɑʊ.ʂuː] 'mouse'. There is only a single vowel [u] functioning as the final in the syllable 鼠 *shǔ,* while there is a diphthong [AY] in the final in the morphosyllable 老 *lǎo*. Some finals contain a consonant in coda position, as in the two syllables of 冬天 *dōngtiān* [d̪ʊŋ.tʰjɛn] 'winter', where the finals contain the consonants [ŋ] and [n], respectively.

The various types of syllable structure in Chinese can be roughly divided into two categories: with and without an initial. Then, according to the distribution of consonants and vowels, they can be classified as more detailed types. See the following tables[19] (Table 11).

Since zero-initial syllables exist in the Chinese phonological system, too, the types of syllable structure can also be as follows (Table 12).

Table 11 Syllable patterns in Chinese (with initial)

Types of syllable structure	Examples
CV	妈 *mā* (mother); 米 *mǐ* (rice)
CGV	下 *xià* (below); 略 *lüè* (outline)
CVG	白 *bái* (white); 飞 *fēi* (fly)
CGVG	快 *kuài* (fast); 票 *piào* (ticket)
CVC	看 *kàn* (look); 很 *hěn* (very)
CGVC	脸 *liǎn* (face); 穷 *qióng* (poor)

[19] As above, "C" represents a consonant, "V" represents a vowel. "G" represents a glide, a shorter vowel that immediately precedes or follows the main vowel of a syllable.

Table 12 Syllable patterns in Chinese (without initial)[a]

Types of syllable structure	Examples
V	啊 *a* (interjection); 哦 *o* (interjection)
VG	爱 *ài* (to love); 傲 *ào* (proud)
GV	我 *wǒ* (I); 月 *yuè* [ɥɛ] (moon)
GVG	有 *yǒu* (to have)*; 外 *wài* (outside)*
VC	暗 *àn* (dark); 昂 *áng* (expensive)
GVC	远 *yuǎn* (far)*; 问 *wèn* (to ask)*

[a]Note that in zero-initial syllables the rhymes *iou, uai, uei, uan* and *un* are spelt in *pinyin* as *you, wai, wei, wan, wen*, respectively

Table 13 Comparison of Hungarian and Chinese syllable patterns

	Distribution of consonants and vowels	Tone
Hungarian	CV, V, VC, CVC[a]	–
Chinese	CV, CVG, CGV, CGVG, CVC, CGVC, V, VG, GV, GVG, VC, GVC	+

[a]This is a simplification disregarding complex onsets/codas which can containg clusters of up to three consonants each, as well as complex nuclei in the small number of loanwords displaying true diphthongs (Siptár and Törkenczy 2000: 96). A possible generalized scheme could be C*VC* where * denotes {0, 1, 2, 3} occurrences of the preceding category

3.4.2 Contrastive Analysis of Syllable Structure in Hungarian and Chinese

From the introduction to syllable structure in Hungarian and Chinese presented above, we can make a contrastive table, comparing the available syllable structures in the two languages (Table 13).

The table presented above summarises the similarities and differences between syllable structure in Hungarian and Chinese. The main similarities are as follows:

(1) Both Hungarian and Chinese syllables can begin with a vowel.
(2) The two languages share some patterns of distribution of consonants and vowels, such as CV, V, VC, CVC, though it should be noted that the range of consonants that can occur in final position is far more limited in Chinese than in Hungarian.
(3) A vowel is normally obligatory in a syllable in both Hungarian and Chinese, though the latter language contains a few exceptions in the form of interjections which consist only of (syllabic) consonants, such as 嗯 *ng* [ŋ].

As for the differences, they are as follows:

(1) Chinese is a tone language while Hungarian is not. This is one of the most notable differences between these two languages. Every syllable in Chinese has a tone specified, even if this is the neutral tone (*qīngshēng*) described in 2.3.2 above.

(2) Compound consonants (consonant clusters) exist in Hungarian, where they can occur in initial, mid- or final position, but they are absent in Chinese.
(3) The maximum number of phonemes that a Chinese syllable can contain in a sequence is four (disregarding the non-linear tonemes), as, for example, in the CGVG and CGVC types; the minimum number of phonemes in a Chinese syllable is one, such as the V type. In Hungarian the number of phonemes in a syllable ranges from one (e.g. the V-type in *ó* "old") to six or possibly even more, especially in loan-words with initial consonant clusters such as CCCVCC *sztrájk* [stra(ː)jk] 'strike'. The fact that Hungarian, like other European languages, has words with many syllables and consonant clusters is very often problematic for Chinese learners; the relatively simple nature of Chinese in this respect is an advantage for Hungarian learners.

3.5 Stress and Intonation in Hungarian and Chinese

3.5.1 Stress in Hungarian and Chinese

Stress is a feature of pronunciation: it refers to the degree of force used in producing a syllable, realized as increased loudness and raised pitch level. In most languages two kinds of stress can be distinguished: word (or lexical) stress and sentence (or prosodic) stress. Every polysyllabic word when uttered separately may have its own stress pattern, which is called word stress, while in a sentence, some (relatively important) words are stressed and others are not. This phenomenon is therefore called sentence stress.

Concerning word stress in Hungarian, Siptár and Törkenczy (2000: 21) point out that "[i]n its citation form, a Hungarian word typically has a single primary stress, which falls on its initial syllable, no matter whether the word is simple (e.g. ***is****kola* 'school') or derived (e.g. ***for****rósodik* 'grows hot') or a compound (e.g. ***szé****nanátha* 'hay fever')".

Meanwhile, there are two major types of stresslessness: spontaneous enclisis and stress eradication. The following examples which describe and compare these two types are from Kálmán and Nádasdy (1994).

(1) a. ‘Géza ‘táncolni *akar*
G. dance-to wants
“Géza wants to dance”

b. ‘Géza ‘táncolni *akar* a ‘magas ‘fekete ‘lánnyal.
G. dance-to wants the tall black girl-with.
“Géza wants to dance with the tall black(-haired) girl”

c. ‘Géza *bácsi*
G. uncle
“Uncle Géza”

d. ‘Géza *bácsi* ‘táncolni *akar* a ‘magas ‘fekete ‘lánnyal.
G. uncle dance-to wants the tall black girl-with
“Uncle Géza wants to dance with the tall black(-haired) girl”

(2) a. ‘Jenő ‘táncolni *imád*
J. to-dance loves
“It is to dance that Jenő loves”

b. ‘Jenő ‘táncolni *imád* a magas fekete lánnyal.
J. dance-to loves the tall black girl-with
“It is to DANCE with the tall black girl that Jenő loves”

c. ‘Jenő ‘táncolni *akar*
J. dance-to wants
“It is to dance that Jenő wants”

d. ‘Jenő ‘táncolni *akar* a magas fekete lánnyal.
J. dance-to wants the tall black girl-with
“It is to DANCE with the tall black girl that Jenő wants”

In (1), the italicized words *akar*, *bácsi* are enclitic, they join the stress domain of the preceding word. The stress on *táncolni* eradicates the rest of the lexical stresses in its whole domain in (2). With regard to stress eradication, Siptár and Törkenczy (2000: 21) indicated that “two important facts about eradicating stress are that it need not be stronger than a non-eradicating stress; and that it cannot be followed by another stress within the same sentence unless that other stress is also of the eradicating type. A sentence with no eradicating stress is said to have flat prosody, corresponding to neutral interpretation; a sentence with eradicating prosody has a contrastive or emphatic interpretation.”

Chinese is, as we have seen, a tone language. To some extent, tone is such a salient and distinguishable feature of the Chinese language that it is often classified as a non-intonation language. According to Jerry Norman’s *Chinese* (Norman 1988: 148), “Some people […] apparently think that pitch cannot function at the lexical level (tone) and at the syntactic level (intonation) at the same time”. This, as Norman points out, is of course not true: “In fact, in addition to tone, Standard Chinese possesses both stress and intonation” (ibid.).

The rule governing stress of Chinese words is relatively clear. As Luo and Wang (2002) point out, “in disyllabic words, there is a primary stress on the second syl-

lable, and the first syllable is relatively light, except for those which end with a neutral tone", cf. 老师 lǎoshī [lɑʊ.'ʃɻ̩ː] 'teacher', 汉语 hànyǔ [χan.'yː] 'Chinese language', 中国 zhōngguó [tʂʊŋ.'ɡʊo(] 'China'.[20] Based on Luo and Wang's statement, Lu (2010) further indicates that "as for Chinese words or phrases which consist of three or more than three syllables, the primary stress is on the last syllable", as in 普通话 pǔtōnghuà 'common language', 语言教师 yǔyán jiàoshī 'language teacher', 中华人民共和国 zhōnghuá rénmín gònghéguó 'People's Republic of China'. The words or phrases which end with a neutral tone syllable are of course exceptions, because the primary stress is on the full-tone syllable closest to the neutral tone syllable on its left, for example, 妈妈 ***mā****ma* 'mother', 你好吗 *nǐ* ***hǎo****ma* 'how are you?', and 非常喜欢 *fēicháng* ***xǐ****huan* 'like very much'.

The primary stress mentioned above operates at lexical level and indicates a possible locus for sentence stress. Whether or not the syllable concerned actually contains marked stress in a sentence depends on syntactic structure and on intended meaning. In other words, it depends on the relative importance of a word. The more important a word is, the stronger its stress is. In Hungarian, content words such as nouns, adjectives, main verbs, adverbs, and demonstrative and interrogative pronouns are likely given more stress. Other categories of words like auxiliary verbs, conjunctions, prepositions, etc. are usually unstressed. The same is true of Chinese. When we speak Chinese, we tend to emphasize the content words including all the pronouns, by uttering them with more stress, but not the grammatical or function words.

3.5.2 Intonation in Hungarian and Chinese

Intonation plays a vital role in the appropriate use of spoken language. It has been defined in various ways, and may include pitch, volume, stress and rhythm; for our purposes we shall use a relatively simple definition: the way in which the speaker raises or lowers the pitch of the voice during speech, adding that we are using "intonation" to refer to phrase- or sentence-level rather than word-level patterns.

Intonation is an important way to express meanings and feelings. The same sentence with different intonations can convey very different messages. Mainly, the intonation of Hungarian has two types: falling tone and rising tone. Specifically, the intonation of narrative sentences contains a falling tone. The intonation of wh-interrogative sentences usually contains a falling tone at the end of the sentence, and a primary stress accompanied by a rising tone on the interrogative word as well. The intonation of yes/no questions is more complicated: according to Siptár and Törkenczy (2000: 17) it "involves a rise-fall pattern (LHL) which spreads over the last three syllables provided that the major stress occurs on the antepenultimate (or earlier) syllable of the utterance. Thus, given a question whose focus is well before the third-last syllable, a bi-syllable final word will have a pitch on its initial syllable, whereas a trisyllable word will have one on its medial syllable".

[20] Luo and Wang (2002: 156–157).

As regards intonation in Chinese, briefly, there are two major types: falling and rising. With regard to the actual pitch of intonation itself, Jin (1992) distinguishes between high intonation, relatively low intonation and low intonation. But as far as the available patterns and actual significance of intonation are concerned, there are various views and opinions. According to the tone of comments, Chao (1929) divides Chinese intonation into as many as forty different types; Hu (1987) lists eight kinds of intonation according to the final pitch pattern of a sentence, defining them according to function as follows: *statements*, *questions*, *commands*, *imperatives*, *expressions of amazement*, *sighs*, invocations and *pauses preceding continuation*. Still working on a functional basis, Shen (1994) divides intonation into functional intonation and tone of comments intonation. Lin (2004) argues that Chinese intonation has two variables: pitch accent and boundary tone; he claims that only boundary tone plays the role of differentiating between questions and statements. Whether the first tone, the second tone, the third tone, or the fourth tone applies, the pitch pattern of a boundary tone in a question keeps its citation form.

Intonation of Chinese is, therefore, somewhat complicated. It shares the basic features of falling and rising pitch that are common to most languages, but the ways in which these operate are open to discussion. What makes intonation even more complicated in Chinese is the existence of syllabic tones. The relationship between tone and intonation is always a heated topic for linguists. As we know, tone and intonation are two different concepts. The former pertains to the syllable, and is primarily characterized by voice pitch, although length and intensity also play a role in its perception; the latter adds or refines meaning over stretches of speech including several words. To sum up, (1) the pitch is the determinant in both tone and intonation; (2) tone pertains to a syllable while intonation pertains to an utterance.

What, then, is the relationship between them? The most influential theory was put forward by Chao (1983), who used "small wave" and "big wave" as metaphors to describe tone and intonation, respectively. He proposed that the relation between tone and intonation is the algebraic sum of the "small wave" and the "big wave". Based on Chao's theory, Wu (1997) points out that the "algebraic sum" refers to the algebraic sum of register. In other words, the algebraic sum of "small wave" and "big wave" can be explained as the algebraic sum of the average pitch of tone and the average pitch of intonation; meanwhile, the shape of tone remains unchanged.

Although tone and intonation are independent concepts at an abstract structural level, in terms of actual pronunciation they are interrelated: intonation cannot be separated from tone; in fact, it is shown through the pitch movement of tone. On the other hand, within the intonation of an utterance, syllabic tones basically remain unchanged, but the register and tone shape are restricted by the intonation.

The semantic value of suprasegmental intonation becomes clear if we consider, for example, the difference between 今天是你的生日 *Jīntiān shì nǐ de shēngrì* 'Today is your birthday' and 今天是你的生日? *Jīntiān shì nǐ de shēngrì?* 'Is today your birthday?', in which the interrogative feature is indicated solely by intonation. Further examples of semantic differences carried by intonation are not difficult to find.

4 Contrastive Analysis and Difficulty

We will conclude this paper by considering the pedagogical implications of the preceding summary of phonological differences, the question being which of them deserve the most attention from teachers and learners of Chinese as a foreign language. One way to choose would be to use Prator's (1967) categorisation, which reflects a strong belief in the pedagogical value of contrastive analysis and ranks differences between languages according to the degree of difficulty that they may be expected to cause to speakers of one language attempting to learn the other.[21] Prator defines six degrees, with 0 as the least problematic category and 5 as the most problematic (Table 14).

"Correspondence", referring to cases where there is no difference between the two languages and consequently no difficulty experienced by the learner, is ranked "0"; the "split" category, where a single item in the first language corresponds to two or more items in the target language, causes the most serious problems and comes at the top of the scale. Obviously the ranking of specific differences and similarities between languages depends on which language is "first" and which is "second": a problematic "split" from Hungarian to Chinese would correspond to a less problematic "coalescence" from Chinese to Hungarian and so on. It should also be noted that this is merely an ordinal, not an interval or ratio scale: it indicates for example that the "split" category is "more problematic" than the "new" category, but not "how much more problematic". Finally, we should also remember that the degree of difficulty experienced by the learner in recognizing and/or reproducing different sounds is not necessarily proportionate to the resulting problems in understanding or being understood by others. In cases where there is no risk of ambiguity the learner's inability to perceive differentiated sounds will hardly matter; his inability to produce sounds accurately will lead to "aesthetic" rather than communicative problems.

Evidently categories 0, 1 and 2 are unlikely to be the direct causes of phonological problems for learners; the following summary of the problematic cases identified in the previous sections will therefore focus on categories 3, 4 and 5, with reference both to receptive (perceptual) features and productive (active pronunciation).

Table 14 Categories of difference by level of difficulty, based on Prator (1967)

Level	Category	Explanation
5	Split	One item in L1 is split into two or more in L2
4	New	The item exists in L2 but is absent in L1
3	Reinterpretation	The item is present in L1 but appears in a new form in L2
2	Absent	The item exists in L1 but is absent in L2
1	Coalescence	Two or more items correspond to one in the L2
0	Correspondence	The items are the same in both L1 and L2

[21] Prator (1967).

4.1 Split

Vowels

- The contrast between Hungarian [i] and Chinese [i, ɿ, ʅ]. Hungarian learners have little difficulty in recognizing the difference, and are generally aware of what they need to produce, but find it hard to actually do so. This may lead to awkward or "odd" pronunciation, but seldom causes misunderstanding.
- The contrast between Hungarian [a] and Chinese [a, ʌ]. Hungarian learners do have real difficulty in distinguishing between these, but the difference is neither phonemic nor salient in Chinese, so the difficulty is not likely to cause communication problems.
- The contrast between Hungarian [u] and Chinese [u, ʊ]. As with the previous item, this causes few problems because although Hungarians find it hard to differentiate, in Chinese the difference is neither phonemic nor salient.

Consonants

- The contrast between Hungarian voiceless stops/affricates and Chinese aspirated and unaspirated pairs. This is relatively easy to distinguish, both in production and in perception, because of salience of the articulatory differences.

4.2 New

Vowels

- The Chinese [ɤ] is difficult for Hungarians to produce, and hard to distinguish from [ə]: it is very difficult to prevent (or stop) Hungarian learners pronouncing it like their own [ø]. However, since the two sounds are allophones in Chinese, no misunderstanding is likely to result.
- The Chinese retroflecized schwa [ɚ] is very difficult to master for Hungarian learners, who often replace it with the standard Hungarian sequence *[ør], as in *sör* 'beer'. However, this is not too serious as the resulting problems are aesthetic rather than communicational.

Consonants

- Chinese Retroflexes are difficult for Hungarians to produce accurately, and hard to distinguish perceptionally from Hungarian palato-alveolars, but are easy to distinguish from any other place-of-articulation in Chinese.
- Chinese *apda* consonants are very difficult to produce, and to distinguish from Hungarian dorso-palatals, but, like retroflexes, easy to distinguish from any other place-of-articulation in Chinese.

- The Chinese uvular approximant [χ] is not difficult for Hungarians to perceive, but is somewhat difficult to produce. However, its usual replacement by Hungarians learners with [h] does not lead to confusion.

Semi-vowels, Diphthongs

- Hungarian normally lacks proper semi-vowels or glides, and (with very few exceptions) has no diphthongs. As a result Chinese diphthongs are often replaced with sequences of the corresponding full vowels in Hungarian learners' speech. This in itself does not cause confusion, and CFL teachers at Eötvös Loránd University in Budapest (ELTE) report that once the difference has been explained, their Hungarian students find it relatively easy to produce the requisite diphthongs.

Tones and Syllable Structure

- The very existence of syllabic tone falls into the "new" category because this feature is completely absent in Hungarian. Once a speaker of a non-tone language has become familiar with the notion of the Chinese tone system, further difficulties may be caused by the existence of neutral tones and sandhi.
- Chinese is a monosyllabic language where each syllable constitutes a single morpheme, while the majority of Hungarian morphemes contain more than one syllable. This might tempt Hungarian learners to split a Chinese syllable that contains a diphthong into a sequence of vowel sounds. CFL teachers at ELTE report that although the results may sound "odd", they do not lead to confusion during communication.

Stress and Intonation

- The existence of syllabic tone tends to obscure the importance of suprasegmental intonation, to the extent that some Hungarian learners may find it difficult to perceive both and may concentrate on producing accurate tones in their speech, at the expense of intonation. This can cause problems in communication, given that for example in certain cases the difference between a statement and a question may be indicated purely by intonation, without the use of a final "question word".

4.3 Reinterpretation

Vowels

- The vowels [ɛ, e, o] exist as independent phonemes in Hungarian, while in Chinese they only have allophonic status (realizing one and the same morpheme: "–high, −low V") in a context-dependent fashion. (*Modulo* the other allophonic occurrence of [ɛ] realizing the phoneme "+low V" in the context 'i_n', as in the rhyme *-ian*: [jɛn]). This is likely to cause difficulties for Chinese speakers learning Hungarian, but not vice versa.

Consonants

- The Hungarian palatal fricatives [ʃ, ʒ] have the Chinese retroflex fricatives [ʂ, ʐ] as their nearest equivalents. Hungarians tend to replace the Chinese sounds with these "counterparts" from their own language. The results may be "ugly", but are unlikely to cause confusion.
- The velar nasal [ŋ] exists in Chinese in its own right as a phonemic element, while in Hungarian it occurs only as an allophone of [n], most frequently in the sound sequence [ŋg]. Hungarian learners need to be careful to pronounce it as a "bare" [ŋ] and not as the full sequence *[ŋg]. Once again, however, failure to produce the appropriate sound will result in awkward speech, but not in misunderstanding.

5 Conclusion: Choice of Phonological Features for Further Consideration

In the previous sections of this chapter we surveyed the main phonological features of Chinese and Hungarian, considering consonants, vowels, tones and syllables separately, and analyzed the differences between the two languages in these areas. On the basis of this analysis it is possible to identify the phonological features of Chinese which, according to Prator's (1967) categorization, are theoretically likely to cause difficulties to Hungarian learners. Many teachers would be happy to use this approach, typical of traditional structuralist "grammar translation" or behaviorist language teaching methods. They would start with linguistic elements that can be regarded as "relatively easy", and once these elements have been acquired, use them as "building blocks" from which to construct the rest of the language. While superficially attractive, this approach suffers from a number of weaknesses. Intuitive judgments (especially by native speakers) about what is "relatively easy" and what is "relatively difficult" are notoriously unreliable. Even if they are accurate – or if we accept the basic notion that the greater the "distance" between corresponding elements of two languages, the greater the likely difficulty, and therefore adopt the scale that emerges from Prator's (1967) categories[22] described above, there is no guarantee that a progressive structural syllabus based on them will be effective. In this respect we need only consider what Dulay and Burt (1974) demonstrated about the striking differences between the natural order of the acquisition of morphemes in English as a Foreign Language and planned text-book sequences.[23]

A different, learner-centered view, would be imply the need to start with the learners' own priorities and expectations, originating partly in generally available knowledge about the target knowledge or skills (what might be described as "hearsay evidence") and partly in personal experience. Considering the vital importance of individual motivation and attitudes in any learning process, this approach has

[22] Prator (1967).

[23] Dulay and Burt (1974: 37–53).

much to recommend it; indeed, it has become a central pillar of the powerful humanistic ethos in education that reaches back to such great nineteenth-century figures as John Dewey, and beyond, and has more recently been successfully propagated by writers such as Carl Rogers (1969).[24] To put it briefly in practical terms, a learner of Chinese (or anything else, for that matter), is unlikely to make much progress unless s/he believes that what s/he is expected to learn is worth the effort. However, this is not in itself a sufficient basis for a reliable language-learning program. The learner's choices may be unrealistic or partly mistaken, and it is part of the teacher's and/or material writer's task to direct, or at least to guide, the learner in this respect.

In attempting to do this, the teacher will probably find utilitarian considerations to be useful – instrumental motivation can be created and fostered by pointing out the practical value of what needs to be learned, and this leads us to the third criterion for choosing phonological features that deserve priority. The criterion may be summed up in the phrase "potential for communicative efficiency"; or in this case, since we are considering phonological differences that might cause difficulty, "potential for avoiding communicative confusion". A choice made on this basis fulfills both the need to cater for the learners' perceived needs and the institution's educational responsibility for ensuring that students graduate from ELTE with (at the very least) an efficient working command of Chinese.

Looking at the categorized list of differences given above, we find two that represent both potential learning difficulty and potential communicative inefficiency: syllabic tone and, closely linked to it, interference by syllabic tone in suprasegmental intonation. Both of them belong to the "new" category, and should therefore represent a roughly equal degree of difficulty from the point of view of the Hungarian learner. However, as we saw above, suprasegmental intonation in Chinese is a complex and debatable issue: experts recognize its existence, but do not always agree over how it should be defined and described, or over how it interacts with syllabic tone. In experimental phonetics it is also difficult to plot Chinese intonation separately from syllabic tone, and therefore to analyze it satisfactorily. Above all, although intonation can certainly carry meaning, it seems to be less pervasively significant than syllabic tone, which affects virtually all Chinese words and very often carries semantic value.

To sum up, there would seem to be a clear case for choosing syllabic tone as the feature of Chinese phonology that deserves the most attention from both teachers and learners.

Appendices

A: Hungarian Consonants

In terms of place of articulation and manner of articulation, consonants in Hungarian and Chinese can be classified into the following categories (Tables 15 and 16):

[24] Rogers (1969).

Table 15 Categories of Hungarian consonants

		Obstruents						Sonorants			
		Stops		Affricates		Fricatives		Nasals	Liquids		
		Voiced	Voice-less	Voiced	Voice-less	Voiced	Voice-less	Voiced	Voiced		
									Lateral	Trill	Approxi-mant
Labial	Bilabials	b	p					m			
	labiodentals					v	f				
Dental/alveolars	Lamino-dentals	d	t					n	l	r	
	Lamino-alveolars				ts	z	s				
Palatal	Palato-alveolars			dʒ	tʃ	ʒ	ʃ				
	Dorso-palatals	ɟ	c					ɲ			j
Velars		g	k								
Postvelar							h				

Based on Siptár and Törkenczy (2000)

B: Chinese Consonants

Table 16 Categories of Chinese consonants[a]

		Obstruents					Sonorants	
		Voiceless					Voiced	
		Stops		Affricates		Fricatives	Nasals	Liquids (Lateral)
		Unaspirated	Aspirated	Unaspirated	Aspirated			
Labial	Bilabials	b̥ (*b*)	pʰ (*p*)					m
	Labiodentals					f		
Dental/alveolar	Apico-dentals			ts (*z*)	tsʰ (*c*)	s		
	Apico -alveolars	d̥ (*d*)	tʰ (*t*)					n
	Apico–postalveolars (retrofle-x)			tʂ (*zh*)	tʂʰ (*ch*)	ʂ (*sh*)	ʐ (*r*)	
Alveolar-palatal doubly articulated(apda)					tɕ (*j*)	tɕʰ (*q*)	ɕ (*x*)	
Velar		g	g̊ (*g*)	kʰ (*k*)				
Postvelar							χ/x (*h*)	

Based on Huang and Liao (1991)

[a]IPA symbols are used to specify the sounds; wherever the *pinyin* transcription differs, it is given in parentheses after the phonetic symbol

C: Hungarian Vowels

The descriptions of the vowels in Hungarian are shown on the following table, based on Siptár and Törkenczy (2000) (Table 17).

D: Chinese Vowels

The descriptions of the vowels in Chinese are shown in the following table, which is based on Huang and Liao (1991) (Table 18).

Some of the items in the above table are positional variants (allophones), so for example the sounds [a] and [ɑ] are allophones of a single phoneme/a/[25]; likewise, [o, ɤ, e, ɛ, ə] together constitute a single allophonic system,[26] and [i, ɿ, ʅ] are also positional variants of a single phoneme/i/. Finally, the main vowel [ʊ] can also be economically regarded as an allophonic variant of [u]. The allophonic relations are summarized in Table 19.

Table 17 Hungarian vowels according to lip-shape and tongue-position

	Shape of lips	Tongue position	
Vowel and IPA	Rounded/Unrounded	Front/Back	High/Low
a [ɔ]	Rounded[a]	Back	Low-mid
á [a:]	Unrounded	Central	Low
e [ɛ]	Unrounded	Front	Low-mid
é [e:]	Unrounded	Front	High-mid
i [i]	Unrounded	Front	High
í [i:]	Unrounded	Front	High
o [o]	Rounded	Back	Mid
ó [o:]	Rounded	Back	High-mid
ö [ø]	Rounded	Front	Mid
ő [ø:]	Rounded	Front	High-mid
u [u]	Rounded	Back	High
ú [u:]	Rounded	Back	High
ü [y]	Rounded	Front	High
ű [y:]	Rounded	Front	High

[a]According to Siptár and Törkenczy (2000), though not all analyses of Hungarian agree on this point

[25] Some authors also assume the existence of a third allophone of/a/: [ʌ], occurring in open syllables, as distinct from [a, ɑ] occurring before nasals or glides, and Xu (1980) lists as many variants as seven(!). Here we ignore this distinction as relatively insignificant – for some discussion see Duanmu (2000: 43–44).

[26] This is sometimes disputed (especially as regards the status of [o]), but their complementary distribution, as well as the fact that they are all (and in fact the only) non-retroflex mid-high vowels constitutes a strong argument in favor a single-phoneme analysis. Note though, that this also necessitates lexically constraining these rules to apply to word-classes *other than* interjections, because in the latter category [o], [ɤ] and [ɛ] are in contrast, in fact.

Table 18 Chinese vowels according to lip-shape and tongue-position

pinyin and IPA	Lip-rounding	Tongue position	
		Front/back	High/low
a [a]	−	Central	Low
a [ɑ]	−	Back	Low
o [o]	+	Back	Mid-high
e [ɤ]	−	Back	Mid-high
e/ê [ɛ][a]	−	Front	Mid-low
e [e]	−	Front	Mid-high
e [ə]	−	Central	Mid
i [i]	−	Front	High
i [ɿ]	−	Central	High
i [ʅ]	−	Central (retroflex)	High
u [u]	+	Back	High
o [ʊ]	+	Back(−central)	Mid-high
ü [y]	+	Front	High
er [ɚ]	−	Central (retroflex)	Mid

[a]In one particular rhyme it is rendered by the letter *a* in *pinyin*: −ian [jɛn]

Table 19 Allophones of/a/,/e/and/i/in Chinese

V-phoneme	Allophones	Phonetic conditions (rhymes)
/a/	[a]	a [a], ia [ja], ua [wa], ai [aj], an [an]
	[ɑ]	ao [ɑʊ], ang [ɑŋ]
/e/	[e]	ei [ej]
	[ɛ]	ie [iɛ], üe [ɥɛ], ian [jɛn]
	[ə]	en [ən], eng [əŋ], üan [ɥən]
	[o]	uo [wo], ou [oʊ], o [o][a]
	[ɤ]	e [ɤ]
/i/	[i]	ji [tɕi], qi [tɕʰi], xi [ɕi], as well as i [i] when it is *not* after a retroflex or dentialveolar obstruent
	[ɿ]	zi [tsɿ], ci [tsʰɿ], si [sɿ]
	[ʅ]	zhi [tʂʅ], chi [tʂʰʅ], shi [ʂʅ], r [ʐʅ]
/u/	[u]	u [u]
	[ʊ]	ong [ʊŋ]

[a]In an open syllable, where no glide or coda consonant follows the nuclear vowel, it depends on the preceding segment whether the surface realization is [o] or [ɤ]: after labial consonants ([b̥, pʰ, m, f]) or the velar labial glide ([w]) it is realized as [o], and elsewhere as [ɤ]

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Analysis of Chinese as Second Language Learners' Interpretations of Noun-Noun Compounds

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Abstract This study examined Chinese as second language (L2) learners' interpretations of noun-noun compounds of thematic and property relations within the theoretical framework of CARIN (Competition among Relations in Nominal) theory (Gagné CL. J Mem Lang 42:365–389, 2000) and Dual Process theory (Wisniewski EJ. Conceptual compound: possibilities and esthetics. In: Ward TB, Smith SM, Vaid J (eds) Creative thought: an investigation of conceptual structures and processes. APA Books, Washington, DC, pp 51–81, 1997). The CARIN theory postulates that conceptual compounding involves the selection of a thematic relation that describes how the modifier noun and the head noun are related. The Dual Process theory suggests that a compound is interpreted via one of two separate processes: thematic relation linking and property mapping. The thematic relation linking process involves building a thematic relation between the head noun concept and the modifier concept while the property mapping process involves mapping of specific properties from the modifier to the head noun.

A qualitative analysis was adopted in this study of 57 Chinese L2 learners. The results showed that both thematic relation linking and property mapping processes play roles in learners' interpretations, lending support to the Dual Process theory. The interaction between the two processes was found that thematic relation linking serves as the major interference in the interpretation of property relation compounds while property mapping serves as the major interference in the interpretation of thematic relation compounds. The results also demonstrated that the interpretations of L2 learners and Chinese native speakers share more similarities than differences. Pedagogical recommendations were made that instructors should not limit their teaching to the explanations of the meanings of noun-noun compounds. Instead, they should also emphasize the embedded semantic relations in the compounds and guide learners to use thematic relation linking and property mapping processes appropriately in different types of compounds to reach reasonable interpretations.

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1 Introduction

One interesting feature of Chinese is that a noun can directly modify another noun. For example, the noun 书 (shū, book) can modify the noun 桌 (zhuō, table) as in 书桌 (shūzhuō, book table), which refers to a particular type of table designed for reading books. The process of forming new concepts by integrating two (or more) concepts is called conceptual compounding and the result of this process is a compound. Several competing theories of conceptual compounding have emerged over the years. Some researchers, such as Gagné (2002), have argued that compounding involves the identification of a thematic relation between two concepts. Others (e.g., Wisniewski 1997) have hypothesized that there are two distinct forms of processing in compounding, namely the thematic-relation-linking and the property-mapping process. Studies have attempted to evaluate each of these two theories but they have tended to focus on native (L1) speakers rather than second language (L2) learners. Recent SLA research has shown a noticeable increase of interest in L2 vocabulary processing and mental lexicons, yet there still remains a lack of attention to noun-noun compound comprehension. In this article, I review studies conducted within the framework of semantic relation classification and theories involving conceptual compounding. I also look at studies of compound acquisition, and report findings of a study that analyzed Chinese L2 learners' interpretations of novel noun-noun compounds.

2 Background

2.1 Semantic Relation Classification of Noun-Noun Compounds

Many researchers have tried to divide noun-noun compounds into groups according to their semantic relations (Downing 1977; Hatcher 1960; Levi 1978; Lin 1953; Liu 1985; Lu 1951; Lu 2007; Packard 2001; Sun 1956; Warren 1978). Although detailed and thorough, these classifications have been considered arbitrary and subjective due to the lack of agreement on a consistent method.

Some scholars have taken another approach and used elements implied in deep structure to define semantic relations. Lauer (1995), for example, has described the semantic relations of noun-noun compounds by making use of eight prepositions such as OF, FOR, IN, etc. Yet it is difficult to differentiate some prepositions with overlapping meanings. Lees (1970) developed the concept of the *Common Verb* which depicts the semantic relations between a verb and two nouns in deep structure. Tan (2010) has also argued that the noun-noun compound is a special structure within which an *Implied Verb* connects two nouns.

So far, there has been no agreement on the classification of compounds by their semantic relations. The *Implied Verb*, however, serves in this study as a consistent scale for classification as it allows us, to some degree, to avoid arbitrariness,

fuzziness and subjectivity. We used the *Implied Verb* concept to classify noun-noun compounds in *Hanyu Shuiping Kaoshi (HSK) Vocabulary Level Syllabus* (Chinese Proficiency Test Center in Beijing Language and Culture University 2000) and designed experimental materials accordingly.

2.2 Conceptual Compounding of Noun-Noun Compounds

Noun-noun combining is an important word formation process in Chinese. The cognitive processing of combining two or more concepts into a new one is called conceptual compounding, and it plays a particularly important role in the formation of noun-noun compounds. Various models of conceptual compounding have emerged. Among them, Competition among Relations in Nominal (CARIN) theory and Dual Process theory have attracted considerable attention from scholars.

CARIN theory postulates that conceptual compounding involves the selection of a thematic relation that describes how the modifier noun and the head noun are related. A key assumption of the CARIN theory is that people use knowledge about the meaning of the modifier noun to interpret its relation with the head noun in other compounds. Consequently, the modifier's past usage in various compounds strongly influences the ease with which a new compound word can be understood (Raffray et al. 2007). In one study using CARIN, Gagné and Shoben (1997, 2002) selected 3239 noun-noun compounds within which 15 thematic relations were identified. They calculated the frequency of each thematic relation for both modifier and head noun. Participants were asked to judge the acceptability of the compound interpretations. The results revealed that the response to compounds with frequently used thematic relations for modifier nouns was much quicker than those with infrequently used thematic relations. In contrast, the frequency of thematic relations for head nouns did not impact response speed. Ji and Gagné (2007) investigated the cognitive processing of Chinese modifier-head compounds through three experiments that tested five different conditions involving the relationships between the prime and target words. Their results demonstrated that when there was a shared modifier noun, head noun, or thematic relation, the processing of target words was promoted. The facilitating effect was produced due to the increased accessibility of nouns in the mental lexicon. Gagné and Spalding (2004, 2006) found that thematic relation selection was also present in lexicalized compounds. Studies of aphasia patients (Jarema 2006; Libben 1998) showed that their interpretation of compounds involved the selection of various thematic relations as well.

Dual Process theory (Wisniewski 1997) suggests that a compound is interpreted through a combination of two separate processes, thematic relation linking and property mapping. The thematic relation linking process involves building a thematic relation between the head noun concept and the modifier concept while the property mapping process involves mapping of specific properties from the modifier to the head noun. The two mechanisms operate simultaneously and are equal in difficulty. The selection of a suitable mechanism depends on the similarity of the

two concepts. In other words, compounds of two highly similar concepts tend to be interpreted through the property mapping process; otherwise, they are interpreted through the thematic relation linking process. Wilkenfeld and Ward (2001) examined the influence of similarity between two concepts on interpretation and found that property mapping was more likely when there were many parallel differences between two concepts while a thematic relation linking was more likely when non-parallel differences were dominant. Zhong (2004) also explored how Chinese noun-noun compounds were interpreted; her experiment attested that high similarity between two concepts leads to property mapping while low similarity results in thematic relation linking.

So far, there has remained controversy about which theory can correctly describe conceptual compounding. Gagné (2000) was among the first scholars to compare and assess CARIN theory and Dual Process theory. Four experiments, including a sense/nonsense judgment, an interpretation test, a priming test, and a definition selection, as well as a corpus study offered converging evidence that property mapping is more difficult than thematic relation linking. The interpretations through property mapping were not readily encountered in written text, not frequently produced, not easily interpreted, and ultimately not judged as being acceptable. Instead of two parallel processes of equal difficulty as suggested by Dual Process theory, Gagné's results support a trend to rely on thematic relation linking for interpretations.

Based on theories of conceptual compounding, noun-noun compounds can be classified as thematic relation and property relation compounds. Thematic relation compounds are constructed through a thematic relation between the modifier and head noun while property relation compounds involve property mapping of the modifier and head noun. How do L2 learners interpret thematic relation and property compounds? Do learners differ in interpretations of these two types of compounds? The present study will try to answer these questions.

2.3 Acquisition of Noun-Noun compounds

Researchers have claimed that English-speaking children start to acquire noun-noun compounds as early as 2 years old (Clark and Berman 1987). Clark and her colleagues (Clark 1981; Clark et al. 1986) tried to explain the acquisition of compounds through an analysis of newly constructed words by children. They reported that these new words were often semantically transparent, simple, regular and productive (Clark and Berman 1984; Clark et al. 1986). Nicoladis (1999) argued that the main way children understand and learn new compound words is by analogy with known or similar compounds. Complicated noun-noun compounds with various semantic relations proved to be difficult for children to acquire (Clark 1981; Clark et al. 1985; Fabb 1998). Gottfried (1997) investigated English-speaking children and adults' comprehension of metaphoric compounds. He asked 44 3-year-old, 45 5-year-old children and 22 adults to choose a picture correctly describing the

meaning of metaphoric compounds based on shape and color. His results revealed that children could understand metaphoric compounds based on shape such as *stick-bug*, even when there was a competitive distracter. However, 3-year-old children had difficulty understanding metaphoric compounds based on color such as *zebra-shell*. Generally speaking, 5-year-old children outperformed their 3-year-old counterparts but lagged behind adults. Even 3-year-old children did not interpret compounds only based on their surface meanings, indicating that children could grasp the connotative meaning of metaphoric compounds.

There has been a large number of studies on Chinese-speaking children's acquisition of morpheme meaning (Xu and Zhang 2000) and compound structure (Hao and Shu 2003) although studies focusing on noun-noun compound are sparse. Jiang and her colleagues (Jiang et al. 2011) were the first scholars to investigate the influence of semantic relations on Chinese preschool children's comprehension of modifier-head compounds. Eighty four children of three age groups took part in the experiment and were asked to match words with MADE OF, Property and FOR relations with pictures. They found that comprehension of Property compounds was better than FOR compounds which was still better than MADE OF compounds. The youngest children developed only a preliminary ability to analyze compounds into morphemes and made a lot of errors. Older children improved in their comprehension of FOR and MADE OF compounds, especially MADE OF compounds. The oldest children had a fully-developed morpheme analysis ability. Children also used different information to interpret compounds of different semantic relations. MADE OF compounds were more likely to be interpreted based on the head noun while FOR compounds were more likely to be understood with reference to the modifier noun. The researchers concluded that children's morpheme analysis ability and awareness of semantic focus start quite early and that semantic relations do affect comprehension.

In the area of second language acquisition (SLA), especially in the Chinese as a second language (CSL) acquisition field, there are still few studies of noun-noun compound comprehension based on semantic relation. Most of the existing studies of CSL compound acquisition have explored issues such as the influence of Chinese-originated words on Korean and Japanese speaking learners (Gao and Li 2005; He 1998; Li 2011; Li 1991; Liu 2004; Qi 2000; Qu 1995; Quan 2004; Zhao 2011; Zhu 1996), error analysis (Chen 1998; Shi 2003; Xing 2003; Xu 2004; Zhang 2007a, b), and the development of morphological awareness and word formation knowledge (Chen 2005; Feng 2003; Gan 2008; Hao and Zhang 2006; Hong 2011; Zhang and Wu 2005).

Although there have been abundant L2 compound acquisition studies, research focusing on the semantic relations embedded in noun-noun compounds has been very limited. Since recognition of semantic relations plays an important role in compound comprehension, studies of semantic relations could shed light upon the mechanisms of L2 compound interpretation. Furthermore, since Chinese and English share similarities in the pattern of semantic relations in noun-noun compounds, it is important to test the validity of conceptual compounding theories for Chinese L2 learners.

It is widely accepted that there are numerous differences between L1 and L2 acquisition. It is a reasonable conjecture that Chinese L2 learners and Chinese L1 speakers differ in their interpretations of noun-noun compounds. As mentioned above, since compounds with thematic relations and with property relations are constructed through distinct processes and noun-noun compounds contain various thematic relations, there may be a discrepancy in interpretation among different types of compounds. This study explored the following questions: (a) how do Chinese L2 learners interpret novel noun-noun compounds? (b) What are the differences among CSL learners and Chinese L1 speakers in their interpretations of noun-noun compounds?

3 Method

3.1 Participants

Fifty seven Chinese L2 learners (from USA, England, Australia, Japan, South Korea, Germany, Turkey, Russia, Malaysia, Indonesia and Thailand.) were recruited from Beijing Language and Culture University. The groups consisted of 21 participants (7 males and 14 females) of low L2 proficiency (the average period of Chinese learning was 3 months), 24 participants (10 males and 14 females) of intermediate L2 proficiency (the average period of Chinese learning was 3 years) and 12 participants (4 males and 8 females) of high L2 proficiency (the average period of Chinese learning was 4 years). The level of the textbook that these learners were using was also considered to identify their proficiency.

Twenty five Chinese native speakers (10 males and 15 females) participated in this study to provide a baseline.

3.2 Materials

Forty five novel noun-noun compounds (see Appendix 1) were constructed for the present study. All compounds were created by changing one morpheme of a common Chinese word selected from the *HSK Vocabulary Level Syllabus* (Chinese Proficiency Test Center in Beijing Language and Culture University 2000) without changing the semantic relation between the two nouns. E.g. 毛帽 (máomào, hat made of fur) was made by changing 衣 (yī, clothes) in 毛衣 (máoyī, sweater/clothes made of fur) with 帽 (mào, hat). The semantic relation of 毛帽 was MADE OF, as in 毛衣. 45 compounds were divided into three groups: 15 were MADE OF compounds, 15 were FOR compounds and 15 were Property compounds. Of these, MADE OF and FOR compounds are related through thematic relation linking while

Table 1 Examples of noun-noun compounds

Semantic Relation	Examples
MADE OF	毛帽 (máomào, hat made of fur)
FOR	雪伞 (xuěsǎn, umbrella for resisting snow)
Property	球糖 (qiútáng, ball-shaped candy)

Table 2 Characteristics of materials

Semantic Relation	Frequency	Stroke Number
MADE OF	2.93	17.2
FOR	1.67	18.53
Property	1	19.8

Property compounds are connected through property mapping. Some examples are listed in Table 1.

To minimize the effects of familiarity and morphological complexity, word frequency and stroke number were calculated for each item. Results of the word frequency and stroke number count appear in Table 2. The frequency of the compound refers to the number of instances found in *CCL* (*Center for Chinese Linguistics*) corpus. Although all compounds were constructed by the researcher, some compounds appeared a few times in the *CCL* corpus. The mean frequency and stroke number of items for each of the three types were tested by means of a one-way analysis of variance (ANOVA). The three types of compounds showed no significant difference in frequency, $F(2, 45) = 1.510$, $p = 0.233$, or stroke number, $F(2, 45) = 1.347$, $p = 0.271$.

To ensure that a lack of comprehension of the Chinese characters did not hinder participants' understanding, explanations of all morphemes in the compounds were provided. All items were placed randomly.

3.3 Procedure

Participants were asked to write down the meaning of each item. Learner participants could use Chinese, their L1 s or English (Almost all participants could speak and write in English). Most of the low and intermediate level learners chose to use English and few used their L1s. All high level learners wrote in Chinese. Each participant performed the task individually. The researcher communicated with the participant when there was confusion to ensure that all interpretations the participant provided were understood precisely. Although there was no time limit, all participants finished the task within 20 min. Interpretations that did not match the researcher's original answers were analyzed.

4 Results

Since the interpretation patterns for L2 learners of different proficiency were quite similar, the analysis was conducted for L2 learners as a whole group instead of for three proficiency groups.

4.1 MADE OF Compounds

There were 188 deviating interpretations for MADE OF compounds, falling into eight types (See Table 3).

Property interpretations, constructed through property mapping rather than thematic relation linking, accounted for the majority of the deviating interpretations among both L2 learners and L1 speakers. For example, some participants decoded 纸鞋 (zhǐxié, shoes made of paper) as 质量不好的鞋 (zhìliàng bùhǎo de xié, shoes of poor quality) or 轻的鞋 (qīng de xié, light shoes), mapping paper's property of being weak or light onto the concept of 鞋 (xié, shoes). Likewise, 铁柜 (tiěguì, cabinet made of iron) was understood as 重的柜子 (zhòng de guìzi, heavy cabinet), with iron's property of heaviness being retrieved and used for mapping.

The second frequently used strategy to understand MADE OF compounds was to build other thematic relations between the modifier and the head (See Table 4). Most interpretations were based on a FOR relation. Several L2 participants

Table 3 Interpretations of MADE OF compounds

	L2 Learners	L1 Speakers
Image-related	28	0
Only one morpheme	5	0
Other thematic relations	37	4
Joint relation	5	0
Order reverse	5	0
Property	72	20
Other morpheme meaning	1	0
Others	11	0
Sum	164	24

Table 4 Other thematic relations for MADE OF compound interpretations

	L2 Learners	L1 Speakers
FOR	34	4
Blended	3	0
Sum	37	4

interpreted 纸碗 (zhǐwǎn, bowl made of paper) as 放纸的碗 (fàng zhǐ de wǎn, bowl for storing paper). A few L1 participants also explained 石柜 (shíguì, cabinet made of stone) as 放石头的柜子 (fàng shítou de guìzi, cabinet for storing stones). Some interpretations were made by combining more than one thematic relation. For instance, one L2 learner gave an explanation of 画在纸上的裤子设计图 (huàzài zhǐshàng de kùzi shèjìtú, the trousers design drew on the paper) for 纸裤 (zhǐkù, trousers made of paper), mixing LOCATED and MADE OF relations together.

The other six types of interpretations were all created by L2 learners. Image-related interpretations were mainly created through associated images triggered by the constituent morphemes. For example, one participant comprehended 毛鞋 (máoxié, shoes made of fur) as 袜子 (wàzi, socks), probably inspired by the images of the thickness accompanying 毛 (máo, fur) as well as 袜子 (wàzi, socks) related to 鞋 (xié, shoes). Another instance was 博物馆 (bówùguǎn, museum) for 石柜 (shíguì, cabinet made of stone), possibly because they were thinking of museum display windows which are often similar to cabinets and exhibit fossils which are associated with stone.

There were five cases of Only one morpheme interpretation, in which only one morpheme, often the head, was explained. For example, 纸碗 (zhǐwǎn, bowl made of paper) was understood as 碗 (wǎn, bowl) without the information from 纸 (zhǐ, paper).

Some participants provided Joint relation interpretations, displayed as *"and"* phrases. For instance, 纸鞋 (zhǐxié, shoes made of paper) was considered as 纸和鞋 (zhǐ hé xié, paper and shoes), a simple combination of two separate objects.

Order reverse interpretation refers to an explanation following the head-modifier order. For example, 毛帽 (máomào, hat made of fur) was interpreted as 帽子的毛 (màozi de máo, fur on the hat), with 毛 (máo, fur) as the head and 帽 (mào, hat) as the modifier.

Only one participant gave an interpretation based on the alternative meanings of one or two morphemes. He interpreted 石箱 (shíxiāng, box made of stone) as 石做的霜 (shí zuò de shuāng, frost made of stone). A possible reason is that the participant mistook box for forest because Chinese characters of box and frost are visually similar.

There were 11 cases of interpretations difficult to analyze, and these were labeled as Others. One example was that 石杯 (shíbēi, cup made of stone) was interpreted as 文件 (wénjiàn, files, documents).

4.2 FOR Compounds

There were 147 deviating interpretations of FOR compounds, which we divided into six categories (See Table 5).

Property interpretations again were of the highest frequency, contributed by both L2 learners and L1 speakers. A few participants offered 白色的伞 (báisè de sǎn, white umbrella) for 雪伞 (xuěsǎn, umbrella for resisting snow), choosing the snow's property of whiteness for their interpretations.

Table 5 Interpretations of FOR compounds

	L2 Learners	L1 Speakers
Image-related	24	3
Other thematic relations	18	6
Order reverse	19	0
Property	27	21
Other morpheme meaning	13	2
Others	14	0
Sum	115	32

Table 6 Other thematic relations for FOR compound interpretations

	L2 Learners	L1 Speakers
MADE OF	12	4
LOCATED	2	0
HAS	4	2
Sum	18	6

The second most commonly used strategy for L2 learners was to rely on relevant images. For instance, 药杯 (yàobēi, cup for holding medicine) was interpreted as 糖浆 (tángjiāng, syrup), with the images of both the liquid medicine and the cup combined. Similarly, 果碗 (guǒwǎn, bowl for putting fruits) was understood as 水果沙拉 (shuǐguǒ shālā, fruit salad), with the image of the fruits and the shape of cup blended together.

The rest of the interpretations were almost equally distributed among the four categories. Order reverse interpretations were all provided by L2 learners and all of those for 奶马 (nǎimǎ, horse for producing milk) were explained as 马奶 (mǎnǎi, horse's milk).

Other thematic relations were also employed for comprehension (See Table 6). There were 12 cases of MADE OF interpretations, such as 裤子做的柜子 (kùzi zuò de guìzi, cabinet made of trousers) for 裤柜 (kùguì, cabinet for putting trousers). Four HAS interpretations included 报桌 (bàozhuō, desk for reading newspaper) as 桌上有报纸 (zhuōshàng yǒu bàozhǐ, there is newspaper on the desk). Moreover, there were 2 LOCATED interpretations, such as 店里的桌子 (diànlǐ de zhuōzi, desks in the store) for 桌店 (zhuōdiàn, store for selling desks).

Other morpheme meaning interpretations were mostly created by L2 learners. For example, 奶碗 (nǎiwǎn, bowl for holding milk) was interpreted as 奶奶做的菜 (nǎinǎi zuò de cài, dish made by grandma), because milk and grandma share the same Chinese character.

Fourteen interpretations were hard to analyze, all from L2 learners. One example was 椅店 (yǐdiǎn, store for selling chairs) being understood as 广告 (guǎnggào, advertisement).

4.3 Property Compounds

There were 449 deviating interpretations of Property compounds, which we classified as eight types (See Table 7).

The category of Other thematic relations dominated the deviating interpretations for both L2 learners and L1 speakers (See Table 8). About half of them were based on LOCATED relation. For instance, 船鞋 (chuánxié, boat-shaped shoes) was interpreted as 船上穿的鞋 (chuánshàng chuān de xié, shoes on the boat). Another large proportion had a FOR relation. Many participants comprehended 鱼灯 (yúdēng, fish-shaped lamp) as 打渔用的灯 (dǎyú de dēng, lamp used for fishing). The examples of HAS interpretations included 有球的碗 (yǒu qiú de wǎn, bowl that has balls) for 球碗 (qiúwǎn, ball-shaped bowl). For MADE OF interpretations, 板帽 (bǎnmào, board-shaped hat) was interpreted as 板子做的帽子 (bǎnzi zuò de màozi, hat made of board). Blended thematic relations also emerged. Incorporating LOCATED and FOR relations, participants interpreted 板茶 (bǎnchá, board-shaped tea) as 板子之间喝茶的地方 (bǎnzi zhījiān hēchá de dìfāng, a place for drinking tea, between boards).

Interpreting in a reverse order was another popular approach for L2 learners and L1 speakers. The instances included 发光的鱼 (fāguāng de yú, shining fish) for 鱼灯 (yúdēng, fish-shaped lamp), with 鱼 (yú, fish) as the head and 灯 (dēng, lamp) as the modifier.

Table 7 Interpretations of property compounds

	L2 Learners	L1 Speakers
Image-related	10	0
Only one morpheme	25	10
Other thematic relations	250	49
Joint relation	6	0
Order reverse	40	24
Other property	10	14
Other morpheme meaning	5	4
Others	2	0
Sum	348	101

Table 8 Other thematic relations for property compound interpretations

	L2 Learners	L1 Speakers
FOR	77	30
MADE OF	18	7
LOCATED	112	9
HAS	22	0
Blended	21	3
Sum	250	49

A number of participants chose to emphasize only one morpheme, such as 板茶 (bǎnchá, board-shaped tea) being interpreted as 茶 (chá, tea) leaving 板 (bǎn, board) unexplained.

Other properties were activated for the interpretations. Quite a few participants understood 刀眉 (dāoméi, knife-shaped eyebrow) as 锐利的眼睛 (ruìlì de yǎnjing, sharp eyes), making use of the property of sharpness instead of the knife shape.

Other morpheme meanings were also used. For example, 板帽 bǎnmào "board-shaped hat" was interpreted as 老板的帽子 (lǎobǎn de màozi, boss's hat) since the Chinese character 板 (bǎn, board) in 老板 (lǎobǎn, boss) is the same as in 板帽 (bǎnmào, board-shaped hat).

The other three types were all from L2 learners. Image-related interpretations included 码头 (mǎtóu, dock) for 船碗 (chuánwǎn, boat-shaped bowl), because the shape of the bowl was similar to that of a dock with and a dock usually had boats.

Participants also provided Joint relation interpretations, such as 盆田 (péntián, basin-shaped field) being explained as two separate objects, 盆和田 (pén hé tián, basin and field).

Other interpretations included 游行 (yóuxíng, parade) for 船杯 (chuánbēi, boat-shaped cup).

5 Discussion

5.1 Interpretations of Semantic Relations in Noun-Noun Compounds

The number of deviating interpretations for the two thematic relation compounds, MADE OF (188) and FOR (147), was far fewer than for property mapping compounds, Property (449). The difficulty in interpreting Property compounds lends support to the claim by Gagné (2000) that compounds made through the property mapping mechanism are less easily understood. Quantitatively, the evidence from this study does not support the statements of Dual Process theory that thematic relation linking and property mapping are equally difficult.

However, qualitative results seemed to support the Dual Process theory claim that thematic relation linking and property mapping operate simultaneously. Participants most frequently interpreted the two types of thematic relation compounds, MADE OF and FOR, as Property compounds. Likewise, the largest proportion of deviating interpretations for Property compounds were based on thematic relations.

For MADE OF compounds, most interpretations were produced by the property mapping mechanism. The tendency to explain a MADE OF compound through mapping properties from the modifier to the head morpheme could be attributed to the specific semantic field formed by the extended meaning of the modifier morpheme. The modifier morphemes constituting MADE OF compounds were limited, containing only a few material nouns such as iron, paper, and stone. Properties such

as heaviness, thickness, and weakness embedded in these morphemes were often activated and retrieved automatically to build a reasonable interpretation.

Similarly, FOR compounds were also mostly interpreted using properties of the modifier morpheme. The top two compounds for Property interpretation were 雪伞 (xuěsǎn, umbrella for resisting snow) and 奶马 (nǎimǎ, horse for producing milk). It should be noted that the modifier morphemes of these two compounds had salient properties, with the former being whiteness and the latter being whiteness and youth. The properties embedded in the morphemes 雪 (xuě, snow) and 奶 (nǎi, milk) were so striking that they were drawn on in the mapping process.

A majority of the Property compounds, on the other hand, were explained through the thematic relation linking mechanism. The two compounds that were most frequently interpreted as thematically related were 裙房 (qúnfáng, skirt-shaped house) and 板茶 (bǎnchá, board-shaped tea). The two morphemes in the compounds share little similarity. 裙 (qún, skirt) is soft and small while 房 (fáng, house) is hard and big. Likewise, 板 (bǎn, board) is heavy, stiff, and big while 茶 (chá, tea) is light, soft, and small. The sharp difference between the two morphemes made it difficult to map properties from one to the other. In contrast, compounds with two morphemes sharing more similarity were more likely to be understood based on property mapping. 球糖 (qiútáng, ball-shaped candy), 球瓜 (qiúguā, ball-shaped melon), and 筒楼 (tǒnglóu, cube-shaped building) are the top three compounds interpreted as Property ones. One possible reason is that the two morphemes in the compounds (ball and candy, ball and melon, cube and building) are more similar in certain respects (e.g. the shape). The results were consistent with those from Wilkenfeld and Ward (2001) and Zhong (2004), further suggesting that similarity between the two nouns in the compounds affects the mechanisms used. According to Dual Process Theory, a high degree of similarity enhances the possibility of property mapping from the modifier to the head, since the corresponding properties are more easily identified.

The results showed that compounds created by thematic relation linking (MADE OF and FOR) were often interpreted through property mapping while compounds made through property mapping (Property) were often explained based on thematic relations. The complimentary pattern confirms the simultaneously operating mechanisms predicted by Dual Process Theory, that thematic relation linking and property mapping play equally important roles in the interpretative process.

5.2 Differences Between L2 Learners and L1 Speakers in Interpretations

L2 learners provided far more deviating interpretations than L1 speakers. However, the differences in interpretation patterns between L2 learners and L1 speakers were small.

For MADE OF compounds, L2 learners adopted a greater variety of properties of the modifier morpheme, gave more image-related interpretations, and showed a stronger tendency to interpret based on FOR relation.

To understand FOR compounds, L2 learners made numerous order reverse interpretations focusing only on one compound, 奶马 (nǎimǎ, horse for producing milk), which was not found in L1 speakers.

The preferred thematic relations for Property compounds were slightly different for L2 learners and L1 speakers, with the former more likely to use a LOCATED relation and the latter more likely to employ a FOR relation. The domination of LOCATED relations in L2 learners' interpretations might be due to the very frequent usage of the modifier morpheme in LOCATED compounds in L2 input. Most LOCATED explanations were presented for the compounds with the modifier morpheme of 船 (chuán, boat). As a vehicle with relatively closed space, boat is usually associated with a place or a location. Boat also appeared in many LOCATED compounds such as boat lamp, boat cover, etc. According to Gagné (2002), the past usage of boat in LOCATED compounds facilitates its processing as LOCATED relation. The preference shown by L1 speakers for FOR relations might be due to an inclination to perceive and interpret objects based on functions (Jiang et al. 2011; Liu 2012). Children begin to pay attention to the function of objects very early. One infant participant in Jiang et al. (2011) insisted on using *things for injectin*g to refer to *cotton swab*, indicating her emphasis on the function. The results of this study also showed that L1 adults preferred to interpret novel compounds based on function relation.

6 Conclusion

The results of this study partly supported Dual Process theory. Both thematic relation linking and property mapping processes play roles in learners' interpretations, displayed in the fact that learners tended to use the thematic relation linking mechanism in property compound comprehension and rely on property mapping in thematic relation compound interpretation. However, some statements of CARIN theory were also supported. Property compounds are more difficult to interpret than thematic relation compounds, indicated by the far higher number of deviating interpretations for property compounds.

The results also demonstrated that although L2 learners gave far more deviating interpretations, they shared more similarities than differences in their interpretation patterns with L1 speakers.

These results have pedagogical implications too. Instructors should emphasize the embedded semantic relations in the compounds and guide learners to use thematic relation linking and property mapping processes appropriately for different types of compounds.

Appendix

Compound	Frequency	Stroke No.
MADE OF		
毛帽 (máomào, hat made of fur)	3	16
纸裤 (zhǐkù, trousers made of paper)	1	19
铁帽 (tiěmào, hat made of iron)	18	22
石杯 (shíbēi, cup made of stone)	4	13
毛鞋 (máoxié, shoes made of fur)	0	19
毛伞 (máosǎn, umbrella made of fur)	0	10
纸碗 (zhǐwǎn, bowl made of paper)	0	20
石碗 (shíwǎn, bowl made of stone)	3	18
铁杯 (tiěbēi, cup made of iron)	1	18
纸椅 (zhǐyǐ, chair made of paper)	5	19
石柜 (shíguì, cabinet made of stone)	1	13
纸鞋 (zhǐxié, shoes made of paper)	2	22
石箱 (shíxiāng, box made of stone)	2	20
纸床 (zhǐchuáng, bed made of paper)	4	14
草伞 (cǎosǎn, umbrella made of grass)	0	15
FOR		
表店 (biǎodiàn, store for selling watches)	4	16
雪鞋 (xuěxié, shoes for resisting snow)	7	26
药杯 (yàobēi, cup for holding medicine)	1	17
果碗 (guǒwǎn, bowl for putting fruits)	0	21
桌店 (zhuōdiàn, store for selling desks)	0	18
奶马 (nǎimǎ, horse for producing milk)	0	8
雪伞 (xuěsǎn, umbrella for resisting snow)	0	17
帽柜 (màoguì, cabinet for putting hats)	1	20
奶碗 (nǎiwǎn, bowl for holding milk)	1	17
椅店 (yǐdiàn, store for selling chairs)	0	20
裤柜 (kùguì, cabinet for putting trousers)	0	20
奶杯 (nǎibēi, cup for holding milk)	4	13
报桌 (bàozhuō, desk for reading newspaper)	1	17
笔箱 (bǐxiāng, box for putting pens)	0	25
雪帽 (xuěmào, hat for resisting snow)	6	23
Property		
板帽 (bǎnmào, board-shaped hat)	1	20
裙房 (qúnfáng, skirt-shaped house)	5	19
刀眉 (dāoméi, knife-shaped eyebrow)	1	11
船鞋 (chuánxié, boat-shaped shoes)	2	26
球船 (qiúchuán, ball-shaped boat)	0	22
盆田 (péntián, basin-shaped field)	0	14
鱼灯 (yúdēng, fish-shaped lamp)	5	14

(continued)

Compound	Frequency	Stroke No.
球碗 (qiúwǎn, ball-shaped bowl)	0	24
筒楼 (tǒnglóu, cube-shaped building)	0	25
球瓜 (qiúguā, ball-shaped melon)	0	16
球糖 (qiútáng, ball-shaped candy)	1	27
船碗 (chuánwǎn, boat-shaped bowl)	0	24
船杯 (chuánbēi, boat-shaped cup)	0	19
球杯 (qiúbēi, ball-shaped cup)	0	19
板茶 (bǎnchá, board-shaped tea)	0	17

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Information Encoding, Mandarin Chinese Word Order and CSLA: A Cognitive-Functional Account

Anna Morbiato

Abstract The present paper provides a comprehensive overview of the role of word order as a linguistic device in information encoding and management in Mandarin Chinese (henceforth Chinese). Specifically, it investigates its functions from a cross-linguistic perspective in order to identify acquisitional difficulties for Chinese L2 learners. The factors that contribute to shaping word order are explored and discussed, providing reference to relevant research conducted over the past decades; evidence from neurolinguistic and corpus-based studies is also provided, along with the results of a preliminary study conducted on MA Italian L1 learners of Chinese as a second language, which contributes to grounding theoretical claims on more solid empirical data. The analysis suggests that word order is a major area of interest in Chinese as a Second Language Acquisition (CSLA) because (1) it encodes functions pertaining to different linguistic domains (semantic, syntactic, discourse-pragmatic, cognitive etc.), thus displaying a high functional load; (2) due to L1 transfer, the complex interplay of all word order functions entails acquisition difficulties, especially for students whose L1 is morpho-syntactically richer (like Italian); and (3) a clear and comprehensive function-to-form mapping, accounting for L1-L2 differences and for positive and negative L1 transfer, can be an effective tool in CSLA practice. Moreover, discourse and conceptual aspects provide interesting insights for Chinese language teaching.

This work aims to contribute to CSLA as a growing area of research, in that it seeks to fill the gap between Chinese linguistic inquiry and teaching practice by showing the applicability of research findings to Chinese pedagogy. Secondly, it provides a comprehensive overview of the key factors that contribute to shaping Chinese linear order, which have often been investigated separately, resulting in partial and less effective accounts of the issue. Lastly, it hopes to be a reference tool both for SLA researchers and teachers, as it highlights possible difficulties in interlanguage development and suggests further research avenues.

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1 Introduction

The present paper provides a comprehensive overview of the functions, factors, and principles that contribute to shaping the linear sequence of words in Chinese[1] utterances in light of the most significant research on Chinese word order (henceforth CWO) over the past decades. Moreover, it explores the interplay of such factors and functions and its impact on Chinese as a Second Language Acquisition (hereafter CSLA), with the aim of identifying potential acquisitional difficulties for Chinese L2 learners. Lastly, it presents results from empirical studies, including a preliminary study conducted on MA Italian L1 learners of Chinese as a second language, which contributes to grounding the analysis in solid empirical evidence.

The role of word order in Chinese is analysed by exploring the correlation between linguistic information (functions) and linguistic expressions (forms): the study examines some of the major Chinese typological features (such as being isolating, syllable-timed, tonal, and discourse-oriented) and explores the impact of such features on the range of available linguistic devices. This allows for a better understanding of why and to what extent Chinese relies "heavily on word order as an underlying marking feature for meaning" (Ho 1993: 138). The crucial role of CWO in information encoding is then discussed, identifying the functions it displays, which include marking semantic roles and event participants, encoding definiteness, focus and information status, contributing to textual cohesion, signalling temporal sequence of events and states, and so forth. An interlinguistic perspective is adopted, which compares students' L1 (with English and Italian taken as reference) with Chinese as their L2 in order to identify specific interlanguage trends and potential difficulties resulting from L1 transfer. Moreover, the discussion of each function is corroborated, when necessary, by recent neurolinguistic or corpus-based studies that "contribute to increased rigor in the examination and reexamination of [linguistic] theoretical claims" (Jing-Schmidt 2013: 2). However, due to practical constraints, this study is unable to present all word order functions and principles in detail and does not engage with on-going debates on theoretical issues.

This analysis highlights the following important aspects of word order within the discipline of CSLA: (1) CWO encodes information pertaining to different linguistic domains (semantic, discourse, pragmatic, cognitive etc.); thus, compared to Indo-European languages, it has a high functional load defined as the degree of reliance of a language on a device (form) to convey one or more types of information (functions); (2) all CWO related functions and principles contribute to shaping the resulting sequence of words by means of a complex interplay, which may be difficult for students to understand and master; and (3) L1 transfer is a key factor in word order

[1] We refer to Chinese as Modern Standard Mandarin Chinese, which is also often referred to as Putonghua.

acquisition in that, compared to other L2 features, L2 word order is more influenced by L1 word order (James 1998). Moreover, students are required to cope with the difficulties of Chinese word order encoding a wide range of functions, whereas other languages (like Italian and English) provide a wider variety of devices (including agreement, tense markers, article system, and so on). Hence, we maintain that a clear and comprehensive function-to-form mapping, which accounts for L1-L2 differences, can be a particularly helpful tool in Chinese language acquisition. Lastly, this analysis emphasizes the importance of factors such as discourse, context and conceptual schemata, which crucially contribute to shaping word order but tend to be underestimated in CWO teaching practice.

This work hopes to contribute to CSLA in several respects. First, despite the increasing demand for Chinese learning and teaching, there remains a paucity of research in Chinese SLA, while the majority of empirical studies have focused on English and other European languages. Moreover, there still exists a considerable gap between the progress made in Chinese linguistic research and the materials and practice of Chinese language teaching. This analysis hopes to address this gap and serve as a reference tool for teachers who want to broaden their knowledge on CWO functions and acquisitional issues. Secondly, this article highlights aspects that have been rarely accounted for in CSLA, in particular discourse factors and conceptual schemata, suggesting further investigation along these lines. Finally, this work is meant to contribute to CSLA studies on Italian L1 students, highlighting differences that result from the natural dissimilarities in interlanguage development, since the majority of studies in Chinese L2 acquisition have focused on English L1 learners.

The paper has been organized in the following way: Section 2 introduces our research question, namely whether and to what extent word order is crucial to Chinese information encoding. Section 3 addresses some assumptions and methodological concerns and sets out the frame of analysis, namely that of function-to-form studies. Section 4 examines Chinese typological traits in relation to the inventory of its linguistic devices and presents a cross-linguistic comparison with English and Italian. Section 5 provides a closer examination of the functions CWO displays, highlighting its association with specific word order patterns. Significant examples are analyzed from a cross-linguistic perspective, providing an overview of potential difficulties for learners. Section 6 addresses the issue of the interplay of different CWO factors by briefly presenting relevant neurolinguistic and corpus-based studies, while Sect. 7 discusses a preliminary study on CWO errors conducted on MA-level Italian L1 learners of Chinese. Section 8 concludes this article by pinpointing some pedagogical implications and suggesting issues for further research.

2 Chinese, Word Order and Second Language Acquisition

Chinese has notably posed a challenge to existing linguistic theories based on the investigation of English and other Indo-European languages and one of the most widely discussed topics is word order. As Huang (2013) states, "the unusual character of word order in Chinese has […] contributed to a continuing debate on the "true" nature of word order in Chinese dating from the 1970s" (p. 84). In the past decades, CWO has been investigated along several lines of research, generating a long and heated debate. Among the linguists who have investigated this issue are Lü (1979), Li and Thompson (1976, 1981), Tai (1985), Li (1990), Tsao (1990), Ho (1993), Huang (1994), LaPolla (1995), Huang and Chui (1994), Chu (1999), Li (2005), Loar (2011), inter alia. It is noteworthy that, prior to this debate, the renowned grammarian Chao Yuen-ren had recognized that: "It is often said that all Chinese grammar is syntax, all Chinese syntax is word order, and therefore all Chinese grammar is word order" (Chao 1968: 260). Does word order play such an important role in Chinese grammar? Were this the case, it should be one of the main focuses of theoretical and empirical CSLA studies. After discussing some theoretical assumptions and the methodology adopted in this research, the following sections aim to systematically clarify why and in which respects Chinese relies on word order as an "underlying marking feature for meaning" (Ho 1993: 138). The role played by word order, as a device for information structuring and encoding, is one of the ways Chinese differs most markedly from inflectional languages like English and Italian. This paper addresses the implication of these differences for the acquisition of Chinese as a second language.

3 Assumptions and Methodological Concerns

Word order can be described as referring to the temporal or linear sequence of words in an utterance/sentence and is the necessary outcome of one of the universal design features of all languages, namely linearity. In order to convey a message, speakers cannot but utter one linguistic element at a time, and each element precedes and follows another. For this reason, word order has a peculiar role in grammar, which Hudson (2000) defines as one of the three essential aspects of syntax. Linearity is one of the most fascinating and crucial aspects of languages: events, perceptions and experiences of the multidimensional world necessarily undergo a cognitive process that allows them to be coded into a linear sequence of elements. Elman et al. (1996), who investigated human cognition in terms of connectionist network models, claims:

> The grammars of natural languages may be thought of as solutions to an even more daunting dimension reduction problem, in which multi-dimensional meanings must be mapped onto a linear (one-dimensional) output channel (the mouth). The fact that these grammars may not always obviously resemble or reflect the underlying content of the message may be irrelevant to the question of where these solutions come from (Elman et al. 1996: 386).

Thus, grammar can be regarded as "a complex mapping function from humans' conceptualization of the multiple-dimensional physical world to the one-dimensional linearity of human speech" (Tai 1999: 140). But what is the role of word order in the Chinese grammar? In fact, as shown by the works of Greenberg (1966) and Hawkins (1983), in every language speakers talk about objects and actions and need to specify the relations among them, and word order is one device that allows them to do this. Nevertheless, as Gershkoff-Stowe and Goldin-Meadow (2002: 2) point out, languages may differ with regard to the extent to which they rely on surface order in the encoding of meaning, as well as to the range of permissible orders they exhibit.

A possible means of establishing to what extent one device (in our case word order) is relevant for information encoding is to examine the related function-to-form mapping, which involves the analysis of all the functions (linguistic meanings) that correspond to a specific form/device (in this case word order and its patterns). The next section presents this frame of analysis and the reasons why it is adopted in the present study.

3.1 Approach and Framework of Analysis

In this analysis, we take a cognitive-functional perspective to language acquisition, holding that the central issue of linguistics is the study of the relationship between form and meaning: "The basic tenet of the functionalist approach is that forms are derived from functions rather than vice versa" (Biq et al. 1996: 97). Specifically, this approach is concerned with the investigation of function-to-form mappings, namely the set of relations connecting linguistic elements and structures (forms) to meanings and concepts (functions). Recent neurolinguistic studies (Bornkessel et al. 2005) also support this view and show that such mappings are central to meaning construction: "this mapping process encompasses both syntactic properties (the "form"), semantic properties (the "meaning") and the interface between the two" (p. 221). Thus, one of the next goals for neural investigations of language consists in understanding the neural basis of the form-to-meaning mappings in the human brain:

> [As language] communicative power is essentially grounded in a flexible mechanism for mapping form onto meaning and vice versa, language comprehension can be characterized as the real-time association of linguistic forms (sounds, letters or gestures) with conceptual representations (Bornkessel et al. 2005: 221).

The frame of analysis we adopt is that of function-to-form studies (Long and Sato 1984), which expressly investigates the inventory of means learners use to express a specific function, as well as the reorganization over time of the balance of these means. One of its basic tenets is that learners already have access to a full range of concepts and meanings (functions) from their L1, but basically lack the means (forms) to express them in their L2.

The reasons why this framework is particularly suitable for our purposes are multiple: first, it is consistent with the multi-level nature displayed by Chinese word order functions, which cut across domains such as semantics, syntax, pragmatics, and discourse organization. As Long and Sato observe, "function-to-form analysis automatically commits one to multi-level analysis, since the entire repertoire of devices and strategies used by learners must be examined" (1984: 271). Secondly, it provides useful constructs for this research, including the notion of *interplay* among forms related to a specific function (and vice-versa), the concept of language transfer (that may be both positive or negative), and the concept of *functional load*, intended as either the degree of reliance of a language on a device to convey one or more types of information or "the relative degree to which an element of language is used, particularly in comparison with other elements" (Chovanec 2014: 20). Finally, this framework allows for an investigation into the correlation between specific function-to-form associations and different acquisitional stages, namely which forms are acquired earlier because they are easier or more intuitive and which are acquired later, because more complex, allowing to design didactic programs accordingly.

4 Chinese Typological Features and Their Impact on Word Order Functions

Chinese presents a number of interesting typological features, which have captivated scholars during the past few decades. Among the various classifications, Chinese is commonly referred as being an isolating, syllable timed, tonal, topic-prominent and discourse-oriented language. This section is devoted to a closer examination of the implications of Chinese typological traits to the inventory of its linguistic means, with reference to their corresponding functions. The following table summarizes the forms Chinese lacks, or relies less upon, if compared to English and Italian (column 1) and specifies the main functions such forms typically help encode (column 2) (Table 1).

Table 1 Form-function associations

Linguistic forms	Linguistic functions
Case/subject-verb agreement	Agentivity and semantic roles/syntactic functions (S, O, etc.)
Tense morphology Grammatical mood inflections (e.g. indicative vs. subjunctive or conditional)	Temporal settings and sequence of events Temporal, conditional, hypotetical relations between events/states Background vs. foreground information
Prosodic stress	Information status Focus
Article system	Definiteness and information status
Unmarked overt conjunctions	Inter-clausal relationships

Agentivity and Semantic Roles In contrast to English, Italian and most Indo-European languages, Chinese is an isolating language without a great number of affixational morphological processes (Chao 1968; Ho 1993; Chen 1995). Thus, Chinese lacks morphosyntactic markers, such as case and subject-verb agreement that overtly mark syntactic functions (subject, object, etc.) and signal semantic roles (agent, patient, etc.).

Temporal Sequence Another implication is that tense and mood are not marked on the verb; Chinese cannot rely on tense markers or verbal inflections to convey the time settings and the *consecutio temporum* of events and states.

Stress and Focus As Chen (1995) points out, Chinese is a syllable-timed language, which means that "stress does not play as important a role in conveying information status as that of stress-timed languages" (p. 218). As a consequence, focal elements (comparative focus, informational focus, etc.) and emphasis are usually not signalled through prosodic stress and need to be encoded by means of other devices.

Definiteness and Information Status Chinese lacks an article system, which usually marks definiteness in nouns through definite and indefinite articles and helps signal the information status of linguistic elements. This also entails the need for another means to encode givenness, definiteness and information status.

Inter-clausal Relationships While English and Italian require making interclausal relationships explicit through the use of conjunctions, in Chinese the use of overt clause connectives need to be "semantically motivated, that is, they are only used when needed to make semantic distinctions clear" (Li 2005: 50).[2] Hence, Chinese also needs to differentiate marked vs. unmarked interclausal relationship, but through a different form.

Chinese needs to rely on other means to encode the functions corresponding to the forms it lacks. The next sections are devoted to discussing how such functions (agentivity and semantic roles, temporal sequence, stress and focus, definiteness and referentiality, and unmarked inter-clausal relationships) are in fact associated with some specific word order forms and patterns. The lack of overt syntactic expressions of tenses in a Chinese verb, agent-patient roles in a Chinese pronoun and subjunctive mood is compensated by word order variations in a sentence for the information structuring of the sentence (Kirkpatrick 1993). This entails that word order has a high functional load, defined as the relative degree to which a linguistic element is used to encode meaning, particularly in comparison with other elements. This is likely to cause potential acquisitional difficulties since (1) learners are used to a wider range of devices and forms to express such functions, and (2) this one-form, multiple-function association can cause confusion, at least at early acquisitional stages.

[2] As Li observes, a fundamental difference between Chinese and other Indo-European languages like English and Italian is "the lack or marking in Chinese to indicate interclausal relationships" (Li 2005: 49).

5 Salience of Chinese Word Order Roles and Functions

Word order has been the focus of several linguistic investigations, which have explored its different aspects and phenomena according to their respective theoretical frameworks. In this section, significant studies are mentioned for reference and, when relevant, corpus-based investigations and neurolinguistic research integrate the description of each function-form association. The intent of this review is not so much to cover in detail all the studies, but to present them within a new integrated perspective as pieces of a puzzle that taken together can help clarify the functional load of word order in Chinese. With the progression of our discussion, it will become clear how a comprehensive account of such functions is crucial to an effective understanding of Chinese word order phenomena. These functions, in fact, are often investigated separately, failing to account for the interplay among all factors and principles and resulting in partial, and therefore less effective, descriptions and pedagogy of word order phenomena.

5.1 Agentivity and Semantic Roles

As highlighted in Sect. 3, the isolating nature of Chinese entails the lack of morpho-syntactic markers, such as case and subject-verb agreement, that overtly signal syntactic functions/semantic roles. In fact, it is word order that mainly provides cues that allow for identification of the roles of event participants. In a simple sentence presenting a transitive verb like (1a), native speakers interpret the pre-verbal NP as the agent (subject) and the post-verbal as the patient (object) (Table 2).[3]

Table 2 Word order and event participants

	Form	Cross-linguistic comparison
(1a) 老虎在吃狮子。 laohu zai chi shizi Tiger ADV eat lion	Word order (agent-verb-patient/SVO)	Basic, unmarked word order No morphological markers
(1b) The tiger is eating the lion	Word order (SVO) + S-V agreement	Rigid SVO order Morpho-syntactic markers (S-V agreement)
(1c) La tigre sta mangiando il leone the tiger eat-3SG the lion	Word order (SVO) + S-V agreement	(More flexible) word order Richer morpho-syntactic system (SV agreement: gender, number, etc.)

[3] There has been a long-standing debate over whether modern Chinese has basic SVO or SOV word order and whether there exist syntactic functions of subject and object. For a better account, see Chappell et al. (2007), Keenan (1976), and LaPolla (1993). Nevertheless, this issue is beyond the scope of the present work, and the notions of subject and object are employed in the following analysis because they are useful in outlining our cross-linguistic comparison.

While in English (1b) and Italian (1c) subject-verb agreement is available (3rd person singular conjugation of the verb) in addition to the surface order of constituents (SVO), in Chinese only the positional cue helps the reader understand who is the agent and who is the patient. This is consistent with the general tenet asserting "word order is one of the primary devices languages offer speakers to express who does what to whom" (Gershkoff-Stowe and Goldin-Meadow 2002: 377). Though, compared to inflectional languages, Chinese word order has a higher functional load with respect to this function (role assignment) because Chinese displays a higher degree of reliance on word order to convey this type of information; however, Italian and English L1 learners are used to more cues to identify and encode agentivity and subjecthood.

The relationship between semantic and syntactic roles is an aspect that is worth exploring further. Depending on the semantic relationship between the subject NP and the verb, Loar (2011: 25–28) for example distinguishes between *agents* (学生们在打扫教室。 "The students are cleaning the classroom."), *external causers* (大水冲毁了桥梁。 "The flood damaged the bridge."), *experiencers* or *affectees* (老奶奶摔倒了。 "The old grandmother fell down."), and *recipients* (篮球队获得了参赛的资格。 "The basketball team got the qualification to enter the competition."). Similarly, depending on the verb valency, the clause element direct object can display various roles. The most common is the *(affected) patient* (both animate or inanimate) (农民在挖地。 "The farmer is digging the ground"), which is different from the *resultant object* (农民在挖个洞。 "The farmer is digging a hole"), while the *locative object* is required by locative verbs (他们去电影院。 "They went to the cinema").

Nevertheless, although word order is the only means available to interpret the participants of events, it is a well-known fact that the linear sequence of constituents in Chinese can differ from that of subject-verb-object (or agent-verb-patient), according to different communicative needs or speaker's intentions. The next section is devoted to discussing these aspects.

5.2 Discourse-Related Aspects

Table 1 shows that, compared to English and Italian, Chinese also usually lacks the means other languages typically use to code functions such as definiteness, information status, focus, and unmarked textual cohesion (in the sense specified in Sect. 4). These functions belong to the discourse-pragmatic domain and are specifically investigated by discourse analysis.

Discourse analysis, as its primary goal, investigates "the decisions a speaker can make regarding what and what not to say, and the mechanisms and patterns that are available to him for implementing the results of those decisions" (Grimes 1975: 30). It looks at the context in which alternative forms occur and determines the different communicative functions they play in discourse, thus accounting for units larger

than the single sentence. Hence, it investigates aspects like information structure and status, communicative functions, and devices creating intra- and inter-sentential cohesion, which play a crucial role in explaining different word order patterns: "it is even impossible to achieve a correct grammatical analysis of a language without accounting for its discourse level conventions" (Pickering 1980: 4).

Studies on discourse analysis of Chinese began to flourish in the 1970s, and one of the most relevant and widely discussed issues was the 'topic-comment' nature of Chinese. Li and Thompson's (1976) new typology distinguished *subject-prominent* languages (like English) from *topic-prominent* languages (like Chinese); accordingly, Chinese sentences could be more adequately described as topic-comment rather than subject-predicate structures. Tsao (1990) later pointed out that topic and subject belong to different levels of grammatical organization: subject is a syntactic notion at the sentence level, while topic belongs to the level of discourse. Hence, he considers Chinese a discourse-oriented language where topic chains rather than sentences are recognized as basic functional units. A considerable amount of subsequent literature investigated topics and topic-related phenomena, suggesting that topic-comment structures should be considered the basic, unmarked sentence structure.[4] Unlike in English and Italian, topics can be base-generated and not extracted or moved from other loci[5]. Among the main features of the topic found in the literature, it represents the point of departure for discourse (Dik 1978), the centre of attention (Li and Thompson 1976), and the speakers' perspective (Grimes 1975); it also limits the applicability of the main predication to a restricted domain, setting its temporal, spatial, or individual frame (Chafe 1976: 50). The topic is generally agreed to be the NP occupying the first position in a sentence.[6] It tends to be definite (or generic) and conveys given information. These two features make it a convenient introduction to the main point of a message, which conveys new information and resides in the comment. Such features contribute to determining other important function-form associations related to specific positions in the sentence, which encode functions such as definiteness, focus, and information status (Table 3).

In (2a), the preverbal NP 客人 (*keren*) is interpreted as definite ("the guests"), whereas the same NP occurring after the verb in (2a') is perceived as being indefinite ("some guests"). While English conveys this function by means of articles and

[4] According to Ho (1993: 26), the relevance of the topic is such that "even in structures that would not be recognized as thematic because of obvious selectional relations between the sentence-initial element and the predication, there is a deliberate effort made by the speakers of Chinese to divorce the two parts" (i.e. topic and comment) (Ho 1993: 26).

[5] There is no unified consensus as to whether all topics are base-generated; however, most linguists agree that structures such as the so-called "hanging topics" cannot be derived through movement.

[6] There is no unified consensus as to whether all first NPs in sentences are to be analysed as topics. For a more detailed description of topic properties with reference to discourse analysis, see Li (2005).

adjectives, in (2a') definiteness is related to a specific position in the sentence.[7] Italian, on the other hand, uses both forms, displaying a more pragmatic word order than English. Definiteness tends to be correlated to another discourse property, namely information status, which is also often signalled through different word order patterns (Table 4).

Table 3 Word order and definiteness

	Form	Cross-linguistic comparison
(2a) 客人来了。 keren lai le guest arrive-MOD (2a') 来了客人了。 Lai le keren le arrive guests MOD	Word order (NP-V) NP is definite versus (V-NP) NP is indefinite	Word order (Pre- vs. post-verbal position helps encode definiteness and referentiality[a])
(2b) The guests have arrived. (2b') Some guests have arrived.	Definite article Indefinite adjective	Rigid SV order Definite/indefinite articles and adjectives
(2c) Gli ospiti sono arrivati. DEF.ART guests have arrived (2c') Sono arrivati (degli) ospiti. Have arrived (PART.ART) guests	Definite article + SV Versus Partitive article + VS	Pragmatic word order Definite/indefinite articles and adjectives

[a]For a more detailed account of definiteness and referentiality with respect to topics, see Chafe (1976)

Table 4 Word order and information status

	Form	Cross-linguistic comparison
(3a) 圣马可广场, 我已经去过。 Sheng Make guangchang, wo yijing qu guo. St. Marks' sq., I already visit ASP	Word order (OSV)	Word order Topic (first NP) encodes given information
(3b) I have already been to St. Marks' Square.	Prosodic stress	Rigid SVO order Prosodic stress
(3c) Piazza S. Marco, l'ho già visitata. St. Marks' sq., (I) PROCL. have already visited	Word order (OSV) Prosodic stress	Pragmatic word order Topic (first NP) encodes given information Prosodic stress

[7] Please note that this pattern is restricted to specific classes of verbs such as verbs of existence, appearance, etc. However, due to practical constraints, this paper cannot provide a complete discussion of the issue. Another means of allowing subjects to be interpreted as indefinite is provided by the verb 有 "to exist," when it occurs in the sentence-initial position. This form is very common at the beginning of a text/discourse, as for example with: 有一个学生,他的名字叫许仙, […]。 Lit. "There was a student, his name was Xu Xian, […]" (Ho 1993: 195).

In (3a), the first NP 圣马可广场 (*Sheng Make guangchang,* "Saint Mark's Square") is the locative object, but represents, in the specific context in which such a sentence can occur, old information (e.g. because it is already mentioned in the previous context). In such circumstances, it is natural for Chinese native speakers to place it in the sentence-initial, topical position, anchoring the utterance to the previous discourse. This is not the case in English, which has a more rigid syntactic order. Italian, inversely, adopts a similar order, with left dislocation of the object, and a coreferential proclitic pronoun is used in the following part (*l'*).

Furthermore, word order also signals the focus of an utterance (information that is new to the hearer and is of high information value), which is associated with the end of the sentence (Table 5). In this example by Hu (1995: 83), 学校 (*xuexiao,* 'the school') in (4a) is the topic, whereas the postverbal NP 新老师 (*xin laoshi*) is interpreted as the informational focus and as new information (a new teacher). Inversely, in (4a') 新老师 (*xin laoshi*) becomes the topic, while 到了学校 (*dao le xuexiao,* 'came to the school') is the focal message. While the referent of the initial NP is known to the listener, as it is co-textually or contextually accessible, elements in the sentence-final position have the highest communicative dynamism (CD) and increase the addressee's knowledge of the referent. English, on the other hand, displays a more rigid order, regardless of the focal element (4b vs. 4b'). Italian, conversely, has a more pragmatic word order and, like Chinese, it encodes the informational focus in (4c) and (4c') through the sentence-final position; however, other cues are also provided such as articles or stress, which also play an important role in focus marking.

Table 5 Word order and focus

	Form	Cross-linguistic comparison
(4a) 学校到了新老师。 xuexiao dao le xin laoshi school arrive-ASP new teacher (4a') 新老师到了学校。 xin laoshi daole xuexiao new teacher arrive-ASP school	Word order (SV) - Subject is definite versus (VS) - Subject is indefinite	Word order (Informational focus occurs in sentence-final position)
(4b) A new teacher came to the school.	Indefinite article vs.	Rigid SVO order
(4b') The new teacher came to the school.	Definite article	Articles and adjectives
(4c) A scuola è arrivata una nuova maestra. at school arrived INDF. ART. new teacher	Definite article + SV	Pragmatic word order (Informational focus also tends to occurs in sentence-final position) Articles and adjectives
(4c') La nuova maestra è arrivata a scuola. DEF.ART. new teacher arrived at school	Indefinite article + VS	Stress and prosody

Table 6 Word order and textual cohesion

	Form	Cross-linguistic comparison
(5a) 那辆车$_i$,Ø$_i$ 价钱太贵, na liang che $_i$ Ø$_i$ jiage tai gui that-CL car$_i$, Ø$_i$ price too high, Ø$_i$颜色也不好, Ø$_i$yanse ye bu hao Ø$_i$ colour also not good, 我$_j$不喜欢Ø$_i$, Ø$_j$不想买Ø$_i$ wo$_j$ bu xihuan Ø$_i$ Ø$_j$ bu xiang mai Ø$_i$ I $_j$ not like Ø$_i$,Ø$_j$ not want buy Ø$_i$.	Topic chain (Juxtaposed sentences linked by co-referent zero NPs); adverbs	First NP (topic) as a linking cue, through subsequent non specification of coreferential NPs Topics as interclausal connectives
(5b) That car is too expensive, and its colour is not good either, so I don't like it and don't want to buy it.	Overt conjunctions	Overt interclausal connectives Coreference: pronouns
(5c) Quella macchina è troppo costosa e pure il colore non è bello, quindi non mi piace, non la voglio comprare.	Overt conjunctions	Overt interclausal connectives Omission of coreferential subjects

From an SLA perspective, it is noteworthy that Italian adopts the same word order changes as Chinese in all three examples (2c, 3c, and 4c) and tends to place old information toward the beginning of the sentence and new information toward its end, regardless of its syntactic function. Italian has proved to be more sensitive to topichood and discourse needs than English and often displays a more discourse-oriented word order. This might predict that Italian L1 learners would find the acquisition of information status and other discourse related functions less challenging than English L1 learners; however, Italian tends to mark the same function through more than one form and provides more explicit cues.

Another important goal of discourse analysis is to describe how languages combine clauses to form larger units of text. This is particularly important in SLA because a correct description of linking patterns "is crucial to the production of natural discourse" (Li 2005: 1) (Table 6).

Clause linking is manifested differently in the three languages: in English (5b) and Italian (5c) the four clauses are connected through overt conjunctions, resulting in coordination and subordination linking. Conversely, no overt connectives are used in the Chinese counterpart (5a). Instead, what ties the sentence together is the topic shared by the clauses, creating a topic chain (for a detailed account, cf. Chu 1999; Li 2005): 那辆车 (*na liang che*, "that car") is placed at the beginning of the sentence and is then left unspecified (encoded by zero anaphoras, Ø[8]) in the following clauses where it is coreferential with one of the arguments/NPs of each clause's predications. In Chinese, topic chains abound: statistical data show approximately one third of clauses in narrative text involve the use of topic chains (Li 2005: 3). Again, it is a word order related phenomenon (i.e. the choice of the first NP/topic,

[8] In this example, there is actually a second topic chain: the topic 我 (*wo*, "I") is coreferential with the subject of the last predication 也不想买 (*bu xiang mai,* "don't want to buy") and is therefore omitted.

regardless of its syntactic relationships within the following clauses) that encodes the function of textual cohesiveness. Again, from a CSLA perspective, this might involve difficulties for Italian L1 students who are used to more explicit means that express the relationship between clauses.

5.3 Cognitive Principles: Temporal and Spatial Sequence

In the last section, word order was described as an important device elucidating discourse- and information status-related functions. This section presents studies on word order conducted from a cognitive-iconic perspective "as a function of the perception of real-world events" (Ho 1993: 137). Such studies suggest that Chinese relies on word order also to convey other kinds of information such as, for example, the temporal sequence of events and states, and in this way compensates for the lack of forms such as verbal tense and grammatical mood.

As Huang (2005) observes, "[i]n recent years there has been growing awareness of the importance of studying language and cognition in its context of use. […] On this view, the mind is not a formal system, but is an embodied system, and language is not independent of the rest of cognition" (p. 1). This view has been corroborated by neurolinguistic findings since it is "consistent with the evolutionary view that neural circuits evolved to regulate order and reiteration in motor control, and have an important role in speech production and syntax" (Lieberman 2007). In this sense, neurolinguistic studies suggest that the mechanism underlying linguistic structures is an "action–perception simulation" in which language is grounded via simulation or reactivation of brain states associated with motor, perceptual, and internal experience. Moreover, according to Glenberg and Gallese (2012), "syntax emerges from modifying [cognitive] hierarchical control of action to produce hierarchical control of speech" (p. 914). In fact, observations of Chinese language patterns have led to the hypothesis that certain syntactic phenomena are controlled by universal and culture-specific conceptual schemata. This hypothesis has been widely investigated by Tai (1985, 1989, 1993, inter alia), who holds that "syntactic forms reflect human conceptualization of reality in different physical and cultural environments" (Tai 2005: 12). Tai (1985, 1989, 1993) identified six word order principles governing Chinese word order: Principle of Temporal Sequence, Principle of Temporal Scope, Whole-Before-Part, Container-Before-Contained, Trajector-Landmark, and Modifier-Before-Head.[9] One of the principles found to play a major role in shaping word order is the Principle of Temporal Sequence (PTS):

> The relative word order between syntactic units is determined by the temporal order of the states that they represent in the conceptual world (Tai 1985: 50).

[9] Following Tai, other linguists, such as Hu (1995), Ho (1993), and Loar (2011) investigated this issue further and elaborated a more comprehensive taxonomy of word order principles. Due to space constraints, such taxonomies and principles cannot be discussed in detail here.

Table 7 Word order and temporal sequence

	Form	Cross-linguistic comparison
(6a) 他坐车 (V1) 到这里 (V2)。 Ta zuo che dao zheli He sit bus arrive here (6a') 他到这里(V1) 坐车 (V2)。 Ta dao zheli zuo che He arrive here sit bus	Pred1<Pred2 => Time(event1)<time(event2)	Word order Principle of Temporal Sequence
(6b) He came here by bus. (6b') He came here to take a bus.	Consecutio temp. + Conjunctions + Subordinate clauses	Verbal tense system, Consecutio-temporum and conjunctions
(6c) È venuto qui in autobus. (6c') È venuto qui a prendere l'autobus.		

In other words, what is perceived to happen earlier in the time sequence of events and what exists earlier in the conceptual and cognitive experience tends to be mentioned earlier in the sentence. This allows for an explanation of another function-to-form association related to word order (Table 7). Sentences (6a) and (6a') comprise exactly the same constituents and only differ in the sequence of the two predicates. PTS helps explain their remarkable differences in meaning as shown in the English translations. In (6a), 坐车 (*zuo che* "take a bus") precedes 到这里 (*dao zheli* "arrive here"), which indicates that the action of "taking a bus" occurs before the action of "arriving here." The inverse sequence in sentence (6a') indicates the reverse temporal order. This is a remarkable L1-L2 difference: in English and Italian, temporal relations are systematically indicated by tense, *consecutio temporum*, or temporal/final subordinates and not by the linear sequence of words; in Chinese, on the other hand, the order of elements iconically and straightforwardly reflects the order in which the events occur.

Another crucial principle is that of Whole Before Part (WBP) or General Preceding Particular:

> Constituents representing a global scope (general or whole) should precede those that represent a smaller scope (particular or specific) (Ho 1993: 165).

The principle of General Preceding Particular governs the order of several linguistic elements, including temporal expressions (e.g. 2002 年 11 月 25 日下午 4 点) and locative expressions (e.g. 北京市海淀区颐和园路5号), which both in English and Italian are expressed in the opposite order (At 4.00 p.m. on 25 November 2003) and (5 Yi He Yuan Lu, Haidian, Beijing, China).

Actually, Tai observes how such cognitive principles "subsume under one general principle a large number of word order rules hitherto regarded as unrelated" (1985: 63). Because of space constraints, we cannot cover all the rules that, according to some scholars, they could help describe and learn, which include among others serial verb constructions, pre-verbal occurrence of temporal and locative adverbials, post-verbal occurrence of complements, *ba* and *bei* constructions,

comparative structures, and the order of clauses in the complex sentence, among others.[10] From a CSLA perspective, Jiang observes how such principles have contributed greatly to explaining errors as they can easily account not only for "word order errors due to ungrammaticality but also those due to inappropriateness" (2009: 81). Moreover, as Loar (2011) claims, rules governing different constructions appear to be "arbitrary and hard to remember," but if those rules are understood as manifestations of logical cognitive principles, "some of the arbitrariness disappears" and word order teaching becomes easier and more effective (xix). It is noteworthy to mention that this claim is supported by the corpus-analysis of error rates conducted by Jiang, who noticed how, among other word order principles, PTS "has been found to have the widest application range in explaining Chinese L2 word order errors since 249 (62%) out of a total of 404 categorized word order errors violate PTS" (2009: 200).

From an acquisitional viewpoint, this domain highlights significant cross-linguistic differences. As Jiang (2009) summarizes,

> Chinese word order is likely to be governed by underlying principles, such as the Whole-Before-Part Principle (WBP) in expressing spatial and temporal relationships and the Principle of Temporal Sequence (PTS) in arranging word order of relevant events and situations. In contrast, English follows Part-Before-Whole Principle in expressing spatial and temporal relationships and does not strictly observe PTS in arranging word order of relevant events and situations (p. 56).

Italian is more similar to English in this sense as it also follows Part-Before-Whole Principle (temporal and locative expressions present this pattern as well) and does not follow PTS either. Hence, unless explicitly made aware of these differences, Italian L1 learners might transfer L1 order patterns, such as part-before-whole, when producing Chinese sentences (in this case, an example of negative transfer).

6 The Interplay of Factors and Its Implications for CSLA

As we have seen, word order presents a one-form, multiple-function association with regard to sentence-initial, preverbal, and postverbal positions. This entails that functions sometimes compete with each other for the same position in the sentence. Below, an interesting case is reported that displays conflict between semantic and pragmatic functions with respect to the sentence-initial position. A possible analysis is proposed that makes reference to research based on the analysis of corpora and on neurophysiological findings.

As seen, the sentence-initial/preverbal position is associated with agentivity and subjecthood. However, a number of linguists share the view that, due to the

[10] For a more detailed introduction to cognition-based principles underlying Chinese word order and its implications for CSLA, please see Jiang (2009). For a comprehensive account of the applicability of cognitive principles to the explanation of syntactic rules and constructs, please see Loar (2011).

Table 8 Word order, animacy, and pragmatic inference

Basic propositional content	7. He ate an apple.	8. The tiger ate the rabbit.	9. The tiger ate the lion.
AVP – SVO	7a. 他吃了苹果。 He eat-ASP apple	8a. 老虎吃了兔子。 Tiger eat-ASP rabbit	9a. 老虎吃了狮子。 Tiger eat-ASP lion
PAV – OSV	7b. 苹果他吃了。 Apple he eat-ASP	8b. 兔子老虎吃了。 Rabbit tiger eat-ASP	9b. 狮子老虎吃了。 Lion tiger eat-ASP
APV – SOV	7c. 他苹果吃了。 He apple eat-ASP	8c. ? 老虎兔子吃了。 Tiger rabbit eat-ASP	9c. * 老虎狮子吃了。 Tiger lion eat-ASP
VPA – VOS	7d. 吃了苹果,他。 Eat-ASP apple he	8d. 吃了兔子,老虎。 Eat-ASP rabbit tiger	9d. 吃了狮子, 老虎。 Eat-ASP lion tiger
PVA – OVS	7e. 苹果吃了,他。 Apple eat-ASP he	8e. ? 兔子吃了, 老虎。 Rabbit eat-ASP tiger	9e.? 狮子吃了,老虎。 Lion eat-ASP tiger
VAP – VSO	7f. * 吃了他,苹果。 Eat-ASP he apple	8f. * 吃了老虎,兔子。 Eat-ASP tiger rabbit	9f. * 吃了老虎,狮子。 Eat-ASP tiger lion

discourse-oriented nature of Chinese, the preverbal position is more associated with discourse functions (new information, high referentiality, definiteness, and topichood). Is word order then more immediately associated with semantic, role-related constraints or with discourse functions (such as information status) and reference-related aspects? This issue has created quite a heated debate, but it is beyond the scope of this analysis to address each position or to try to persuade the reader towards any particular theory. However, the findings of three significant studies will be mentioned that shed light on the interplay of multiple functions related to the same word order form.

The first study was conducted by Tai (2008) who considered three sets of allosentences, namely sentences with the same propositional content (the same agent, verb, and patient) but with different informational content (different word order patterns which correspond to different context or communication needs[11]) and asked native speakers of Beijing Mandarin to evaluate their acceptability (Tai 2008: 32–34) (Table 8).

The first set (7a-f) presents an animate agent and an inanimate patient, and all possible orders are accepted (except VAP-VSO) by Beijing native speakers since no ambiguity of interpretation is displayed regarding who eats what. In sentences (8a-f) and (9a-f), both NPs are animate; however, in (8) world knowledge predicts it is unlikely that the rabbit eats the tiger; thus, sentences displaying all word orders (except VAP-VSO) are expected to be acceptable as in (7) because participants can be correctly disambiguated through pragmatic inference. Still, native speakers feel uncomfortable with (8c) (APV-SOV word order) with the intended meaning as "the tiger ate the rabbit" because of this agentivity conflict. In the third set, both NPs are

[11] Marked word order patterns like SOV or VOS are possible and acceptable in specific contexts and with specific communication purposes.

likely to be either the agent or the patient, and thus (9c) is ungrammatical when the intended meaning is "the tiger ate the lion." Sentences (7c), (8c), and (9c) taken together show that the functional role of word order arises to meet the need to avoid ambiguity in semantic functions (such as agent versus patient), in that disambiguation processes are sensitive to semantic traits such as animacy; only subsequently can word order encode information status and discourse functions.

A corpus based study (Huang and Chui 1994) that statistically examines a corpus of oral conversations and narratives supports this analysis: "word order in Chinese is […] more sensitive to valency roles than to discourse pragmatics, though both factors are highly predictive of word order" (p. 165). Pre- versus post-verbal positions of nominal arguments are indeed strongly associated with their information status. However, this study proves that such an association is much weaker than that between word order and valency roles: statistical data show that 100% of A (agents) and 93.4% of S (subjects intended as the sole argument of intransitive verbs) occurred preverbally compared to "only" 88% given NPs. They also claim that, when there is a conflict between semantic and pragmatic functions, inflectional languages typically resolve the conflict "by availing themselves of a syntactic role changing process (e.g. passive), while Chinese relies on a complex interplay between semantics and pragmatics for its resolution" (p. 166). Neurolinguistic findings also corroborate this analysis: Bisang et al. (2013) used the method of ERP (Event-Related Potentials)[12] to investigate the neuropsychological signature of Chinese sentence interpretation with regards to agents/subjects. They found that, despite the weak status of subjecthood in Chinese, agent/subject interpretation of sentence-initial NPs is also favored in which the processing system assigns an agent/subject interpretation to the first ambiguous argument. In other words, the first NP is preferentially analyzed as agent and only afterwards re-analyzed in terms of given-new information. These studies suggest that there is a strong form-function association between word order and argument roles, and subsequently, between word order and information status. From a pedagogical perspective, this can imply that the former function-form association should be taught before the latter.

In other cases, the principles discussed in the present study often do cooperate and actually converge, as many scholars have noticed. For example, the Principle of Temporal Sequence is actually found to be statistically and intuitively a valid explanation of the canonical word order in Chinese (SVO) since the subject usually occurs before the object in that "S is earlier in conceptualization than O" (Ho 1993: 143); in other words, the subject initiates an action or an experience and therefore is conceptualized before the object, which is usually "the target of the action or the entity experienced and processed by S" (Ibid.). The same considerations are valid for given-new information order, since given info is also earlier in conceptualization

[12] Event-related potentials (ERPs) are very small voltages generated in brain structures in response to specific events or stimuli (in this case linguistic input). Recording event-related brain potentials (ERPs) is a psycholinguistic technique that allows for a good understanding of the stages involved in language processing and their timing since it has very good temporal resolution. For further information, see for example Kaan (2007).

than new information. Moreover, conceptual considerations can help explain certain constraints concerning word order movements, such as patient/object preposing. This is exemplified by the following pair of sentences:

(10a) 他把黑板上的字擦了。
He *ba* blackboard on *de* character erase MOD
He erased the characters on the blackboard.

(10b) *他把黑板上的字写了。
He *ba* blackboard on *de* character write MOD
He wrote the characters on the blackboard.

Only patients that already existed before the onset of the action denoted by the verb takes place can occur before the verb. For example, 黑板上的字 (heiban shang de zi, "characters on the blackboard") in (10a) can occur preverbally with the BA construction, while resultant objects (such as the same constituent in 10b) cannot since, according to the PTS, the expression denoting the action must always precede the expression denoting its result. Considerations of this kind can serve as a valid integration of the presentation and explanation of some grammatical topics, both in Chinese teaching practice and material design, in that they can help students understand and remember grammatical rules and patterns, which otherwise would need to be learnt by heart.

7 Italian L1 Learners of Chinese: A Preliminary Study

In what follows, a preliminary study conducted on Italian L1 learners of Chinese as a second language will be briefly presented. The test was partly designed based on Jiang's (2009) study of CWO errors committed by English L1 students of Chinese as a second language. One of the main goals of the study was to test whether there is a correlation between L1-L2 differences with respect to form-function mappings and the percentage of the related word order errors in L2 production/comprehension due to L1 transfer. Specifically, with respect to the present analysis, the test aimed to gather some empirical evidence to verify the following four hypotheses, based on the analysis in Sect. 5:

(i) Just as in Chinese, in sentences such as (2c') Italian tends to place indefinite subjects after the verb. Thus, with sentences of the type in examples (2a–a'), Italian L1 learners might find it easier to choose the correct order for definite/indefinite subjects in Chinese.
(ii) Along the same line, both Italian and Chinese tend to associate the preverbal position with given information and the postverbal position with new information. Thus, Italian L1 learners might perform relatively well in encoding information status (given-new transition) in sentences of the type in examples (3a–3c).
(iii) Unlike Chinese, Italian follows the part-before-whole order. Thus, Italian L1 learners that have not been made aware of this difference might not order time/space expressions in Chinese according to the Whole-Before-Part principle.

(iv) Italian L1 learners are used to overt connectives and might have difficulties in understanding sentences of the type in examples (6a–a'), where the inter-clausal relationship needs to be inferred from the relative order between the two clauses.

Hypotheses (i) and (ii) involve positive L1 transfer, and thus a relatively lower percentage of word order errors is expected in related translation tasks, whereas hypotheses (i) and (iv) involve negative L1 transfer, and a higher percentage of word order errors is expected in related translation tasks.

7.1 Participants, Data Collection and Analysis

Participants in this study were students enrolled in the MA degree course in Editorial Interpreting and Translation at the University of Venice, Italy. The sample comprised 24 students who gained their BA in Chinese studies (or related) in 12 different Universities in Italy and constituted an interesting and diverse sample, representative of BA-level Italian L1 students of Chinese. For each of the three BA years, students were provided every week with an average of six to twelve hours of Chinese lessons (including both grammar and language practice lessons); 16 out of 24 students had attended a language course in a Chinese University. The test consisted of a translation task comprising 40 sentences that were translated mainly from Italian to Chinese. Sentences were designed according to the word order error taxonomy developed by Jiang (2009) and aimed to test grammar-domain, discourse/functional-domain, conceptual-domain and sociocultural-domain word order errors (see Jiang [2009] for a detailed description). The test was anonymous to prevent students from feeling the pressure of making mistakes.

7.2 Results and Discussion

The study only aimed at testing word order errors; thus, other types of mistakes were not considered. Moreover, this section does not engage in providing a complete account of the errors; only data that verified the above-mentioned hypotheses is discussed.

(i) Definiteness: in sentences of the type in examples (2a'-c'), 66.6% of students correctly placed the indefinite subject postverbally (e.g. translating the sentence 'E' arrivato qualcuno' (Someone has arrived) with '有人来了' or similar).
(ii) Information status: in sentences of the type in example (3), 79.1% of students correctly placed the informatively given object before the verb (e.g. translating the sentence 'Quel libro l'ho già restituito' (I have alredy returned that book)

with sentences like '那本书, 我已经还回去了'; four of them anticipated the object with a BA construction).

(iii) When ordering locative expressions, 41.6% of students correctly followed the Whole-Before-Part order, whereas the remaining 58.4% still followed the Italian reverse order (e.g. when translating 'Il mio indirizzo è Via Verdi 5, Milano - Italia' with '我的地址是: Verdi路, 5号, 米兰, 意大利').

(iv) When asked to translate the minimal pair of sentences: '我进去买票' (lit. I enter-go buy-ticket, 'I will go inside to buy the ticket') vs. '我买票进去' (lit. I buy-ticket enter-go, 'I'll buy the entrance ticket'), both presenting an opposite causal relationship between the clauses expressed only through the different order of words (cf. example 6), 54.1% of the students failed to perceive a difference between the meaning of the two sentences and provided the same Italian translation for both of them.

Overall, with sentences involving a positive L1 transfer, students performed relatively better (error rates 33.3% and 20.9%), while with sentences involving a negative L1 transfer error rates were higher (58.4% and 54.1%). This confirms the hypotheses (i-iv) and highlights how positive transfer has a relatively higher impact than negative transfer. As a preliminary study, the sample of participants was very limited as well as the number of tested sentences; thus the results have limited generalization power. However, it still constitutes an interesting starting point to be further developed in future research.

8 Conclusions

This study has confirmed that word order as a linguistic device plays a fundamental role in information encoding and management in Chinese, in that Chinese compensates for the lack of morphosyntactic markers, prosodic stress, and other linguistic forms by relying heavily on a common device, namely the linear order of sentence elements, as well as on a variety of word order related phenomena. Different word order patterns are used to encode a number of functions pertaining to various domains, including semantics, syntax, discourse, pragmatics, and conceptualization-related processes. Analysis of such functions has provided a number of interesting insights, which are summarized below:

1. The sequence of linguistic elements in a Chinese utterance is the result of a complex interplay of factors: rearrangement of word order marks functions such as agentivity, definiteness, information status, focus and cohesiveness in discourse, as well as temporal and conceptualization sequences of events and states.
2. CWO presents a one-form, multiple-function association with regard to different word order patterns and positions in the sentence.
3. As a result, word order in Chinese has a high functional load, both intended as degree of reliance of a language on a device to convey one or more types of

information and as the relative degree to which a language device is used, particularly in comparison with other devices.
4. It is often claimed that Chinese word order is freer than in other languages like English; however, such a claim can be quite misleading, in that it is subject to constraints. Rather than free, CWO should be described as flexible, in the sense that it encodes different functions and meanings, but at the same time it seeks to preserve the clarity of the message, as shown in Sect. 6.

These insights have a significant impact on CSLA, both in terms of teaching theory and practice. We therefore conclude with some remarks and suggestions for further research:

1. Both Italian and English L1 students are used to having many devices to convey different functions in their L1. However, in developing their interlanguage, they need to cope with the lack of such forms in Chinese (i.e. inflections, article systems, etc.).
2. Students also need to cope with the difficulty of mastering the different functions CWO displays and need to understand how the interplay of such functions works, which is rather complex and not easy to acquire if not properly taught. This entails acquisitional difficulties for students because compared to other L2 linguistic features, L2 word order is influenced more by L1 word order (James 1998).
3. Instruction should be organized by taking into account both L1 - L2 similarities and differences, which can help single out potential difficulties learners are likely to encounter in their function-to-form mapping development, due to L1 transfer. Moreover, instructions should be organized into different stages according to potential acquisitional difficulties, and learners' awareness of the different information CWO encodes should be gradually raised. This would allow learners to develop their inventory of linguistic means and rebalance their interlanguage devices.
4. A comprehensive function-to-form mapping, clarifying what forms and patterns encode what functions and meanings, can be a crucial tool for effective teaching and learning. Empirical studies have shown that making learners explicitly "aware of positional cues to constructional forms, or cues to correspondence between these forms and their meanings" has been found to be more effective in construction learning "compared to implicit learning conditions where such awareness is not promoted or demonstrated by learners" (Robinson and Ellis 2008: 14–15).
5. In this sense, CSLA requires one to commit to a multi-level analysis, as the development of the whole repertoire of devices and strategies used by learners must be examined, including the interplay of ways to express meaning. According to research in SLA, this interplay is very likely to be closer to L1 at the beginning and then slightly move towards that of L2 in later stages of acquisition. The high functional load of word order is a feature that requires particular consideration when investigating this development.
6. Lastly, CSLA needs to address more thoroughly discourse- and cognition-related issues. The difference between the syntactic level and the discourse level

are also often not clear, thus both aspects should be addressed in Chinese teaching practice. Moreover, cognitive word order principles such as PTS and WBP may constitute powerful tools in CSLA. Pitkin (1993) observes how "it is of most serious interest to note the regularities and systematicalness with which the Chinese language observes pragmatic principles of discourse organization" (i–ii). Such aspects allow an innovative and effective analysis of phenomena connected with linear order in Chinese, and should be further investigated and taken advantage of in Chinese teaching practice.

Chinese word order acquisition is a crucial research issue. In Tomlin's words, "the new second language learner often is intrigued by […] word order differences in the new language [though it] remains a tantalizing problem, both to describe the pertinent facts of word order variability and to provide some explanation for the great diversity one can see cross-linguistically" (Tomlin 1986: 1). This article hopes contribute to an innovative, integrated approach accounting for all different functions and domains, which can be of great help for an effective understanding and teaching of Chinese word order phenomena.

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Part II
Explorations into the Learning of Chinese as a Second Language

Construing CSL Writing as Meaning-Making: A Genre-Based Approach

Fei-Wen Cheng

Abstract Although a genre approach to writing instruction has emerged as the most widely advocated pedagogy in second language (L2) writing instruction, little empirical research has examined its effects on Chinese as a Second Language (CSL) writing. The purpose of this study is thus to address this research gap by examining the effects of a Systemic Functional Linguistics (SFL) approach to genre instruction on the textual quality of CSL writing. This approach is taken as the instructional framework due to its emphasis on explicit awareness of language as learning to write. This pedagogical approach was implemented in two CSL courses at tertiary level and the primary data consist of 32 essays and 16 students' responses to an evaluation questionnaire on this pedagogical approach. The quantitative analysis shows that writers of pre-intermediate level made statistically significant progress in terms of content, organization, word choice and grammar, as evident in the differences between the scores in the pre- and post-test essays. Most participants indicated positive response to the evaluation questionnaire with regard to the effectiveness of this approach in enhancing their Chinese writing competence. The findings suggest that instruction based on this approach may hold great potential for enhancing students' genre awareness and subsequent writing quality.

1 Introduction

In response to the growing demand for learning Chinese, Chinese as a Second/Foreign Language (CSL/CFL) educators have identified a number of difficulties involved in CSL/CFL learning, and thus worked to find effective pedagogical approaches to enhance students' proficiency in this regard. Part of these efforts have been devoted to exploring the acquisition of an isolated Chinese linguistic feature or unit (i.e. 'NP-topic' in Chen and Shi 1999; 'perfective aspect' in Duff and Li 2002; 'classifiers' in Kuo et al. 2011; 'Mandarin tones' in Wee 2007), and to identifying literacy-related issues, with a particular focus on word recognition and reading as

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well as radical awareness (i.e. Bassetti 2005; Chen et al. 2013; Shen and Ke 2007; Tsai et al. 2012; Wang et al. 2003). Despite the progress made in this area, little attention has been paid to the learning of CSL/CFL writing beyond the word level. Most CSL/CFL writing research is overwhelmingly focused on addressing the issue of learning how to write Chinese characters. Indeed, the lack of grapheme-phoneme correspondence (GPC) rules in Chinese orthography imposes considerable difficulties when learning Chinese characters and words. However, learning Chinese should go beyond character learning, so that students can achieve the effective communication that is required at an advanced literacy level. In other words, how to make meaning through effective manipulation of language resources is the ultimate goal of language learning, and thus requires more attention in a CSL context.

Most distinctly, L2 writing scholarship has shown that composing texts is considered beneficial for second/foreign language (L2) acquisition. Several researchers have highlighted the language learning potential involved in the practice of writing, because the act of composing itself can promote not only writing abilities but also L2 development across modalities (Byrnes 2013; Harklau 2002; Leki 2009; Manchón 2009, 2011a; Ortega 2012; Urquhart and Weir 1998; Williams 2012). This instrumental role of writing in L2 learning has been further substantiated in empirical findings, revealing how writing enables L2 knowledge internalization, restructuring and consolidation (see Williams 2012; Manchón 2011b, c, for a review of the related works). Undeniably, "second language acquisition may be triggered more through literacy activities than through oral interaction" (Weissberg 2008: 35). Nevertheless, the suggestive evidence that has been obtained about the facilitating role of writing in L2 acquisition has been primarily centered on learning English as a second/foreign language, and researchers have thus called for studies on other languages and in different instructional contexts in order to provide further insights about the instrumental role that writing can play in L2 educational settings.

Given the importance of writing in L2 acquisition and the urgency for effective communication in written language among Chinese learners, it is surprising to find out that there have been relatively few studies examining this communicative modality in CSL/CFL research. Therefore, the present study aims to address this research gap by introducing and investigating the feasibility of a genre-based approach, as informed by systemic functional linguistics, to CSL writing instruction.

2 A Systemic-Functional Approach to Writing

A systemic-functional approach to writing as informed by M.A.K. Halliday's Systemic Functional Linguistics (SFL) is a theoretical framework which conceptualizes a theory of language as a meaning-making system (Halliday 1994; Halliday and Matthiessen 2014; Martin 2009). It postulates a model of language on the basis of how languages make meaning in a wide variety of social and cultural contexts. This model of language attempts to explain how the meaning potential of this

system is realized through three metafunctions (i.e. ideational, interpersonal and textual) that work simultaneously to co-construct meanings appropriate to the situated context. The ideational metafunction encodes our experience; the interpersonal metafunction establishes social relationships between language users and the target audience; and the textual function regulates the message flow to fit in the language event. Central to this theory of language are the dynamics between the three language functions and contexts. The latter can be further divided into the broader context of culture and the immediate context of the situation. In recent years the context of culture has been developed into the notion of genre (Troyan 2014), which is realized in the register variables in the immediate context of a situation (Martin 2009). Each of the register variables, field, tenor and mode corresponds to the three metafunctions of the language system: ideational, interpersonal and textual. This dynamic account is captured in Fig. 1.

Dubbed as "an education-friendly theory of language" (Byrnes 2009: 3), an SFL-inspired approach to writing can "link the perspectives of learning to write and writing to learn under the overarching construct of genre…" (Byrnes 2013: 101), fulfilling the instrumental role writing can play in language and literacy education. That is, how we "mobilize language" (Martin 2009:13) to communicate when participating in diverse social activities. Martin defines genre as "a staged, goal-oriented social process(es)" (2009: 13). The term "staged" refers to the multiple phrases/processes involved in realizing a genre, while the term "goal-oriented" indicates that each genre intends to achieve a socially-oriented purpose. An SFL-based genre approach thus stresses the explicit instruction of the language resources affiliated with the rhetorical stages to enact the communicative purposes of a specific genre. By highlighting language as meaning-making resources, it accounts for how language functions in different contexts and attends to expanding language learners to function in a wide array of social activities.

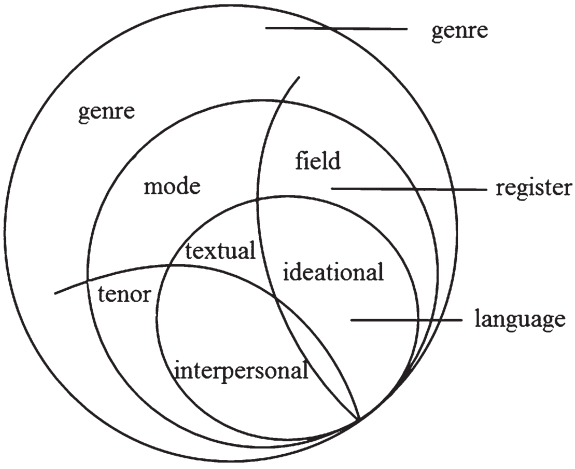


Fig. 1 SFL genre and its language metafunctions (Adapted from Martin 2009: 12, Reprinted with permission from Elsevier)

This language-based approach to writing was initially advocated and applied in an Australian context, in which the rhetorical components along with their linguistic renditions were applied to realize a wide array of elementary genre types across the curriculum (e.g. recount, explanation, or procedure writing, see Macken-Horarik 2002, for an overview), and then developed for pedagogical purposes. The results of such work subsequently inspired educational linguists and language practitioners from all over the world. Among the related studies, the current review focuses on works applying this approach to second/foreign language writing instruction. In English as a L2 language setting, writing instruction informed by an SFL approach can effectively enhance the textual quality of the English narrative and argumentative texts written by primary school students (Polias and Dare 2006), as well as the narrative writing of (Cheng 2008) and summary writing of EFL college students (Yasuda 2015). Moreover, in learning to compose German as an L2 language, SFL-inspired instruction has also contributed to the complexity of L2 writing, as observed in thematic construction (Ryshina-Pankova 2006) and use of grammatical metaphors (Byrnes 2009; Ryshina-Pankova and Byrnes 2013; Ryshina-Pankova 2015). It also seems well-suited to other language contexts, as several studies revealed its success in various language programs such as Chinese literacy at the primary school level in Canada (Mohan and Huang 2002; Huang and Mohan 2009), university-level French writing (Caffarel 2006), early to advanced levels of a Japanese program (Teruya 2006, 2009), and heritage Spanish language learning at college-level (Achugar and Colombi 2008; Colombi 2002, 2009).

As noted above, SFL-inspired approaches to writing have been applied in various L2 education settings. However, its application to CSL writing instruction at the college level has remained largely untouched. The most important contribution of this paper is thus that it elaborates the implications and applications of this approach for the L2 writing field in general, and CSL writing in particular. Therefore, the present study draws on the SFL conceptualization of genre and has the following empirical questions to guide its examination of the pedagogical effects of an SFL-inspired approach on the development of CSL students' writing. It is assumed that explicit instruction of these linguistic resources related to a specific genre can heighten CSL learners' awareness of them, and thus enable the students to achieve a specific social action and consequently foster their communicative competence in Chinese writing. The two questions examined in this work are as follows:

1. What are the effects of the genre instruction on the quality of students' writing?
2. What are students' evaluations on the usefulness of this pedagogical intervention?

3 Method

This pedagogical intervention was part of a research project intended to develop a CSL multimedia writing program inspired by an SFL genre approach to writing. The current study aims to investigate its effects on the quality of student texts based on one lesson unit, and examine their evaluations of the learning materials in order to guide subsequent development of this program. This research thus utilized a quasi-experimental design with the same participants receiving pre-/posttest treatments. This treatment was not implemented in the participants' regular Chinese classes, but in a pull-out short writing program lasting for 6 hours on two consecutive weekends, with roughly three hours each week. The participants were rewarded with a small stipend for their time and effort spent on this research.

3.1 Participants

Students enrolled in two CSL courses at a national university in Taiwan were invited to participate in this research. Initially there were 22 participants, but six of them failed to complete the whole research cycle and their data were not included in the final analysis. The 16 participants were mainly registered as post-graduate students at this university, and the majority of them were from South-East Asia, with alphabetic language backgrounds. Their ages ranged from 23 to 35, with a median of 26. All of them had learned Chinese in their home countries and had studied in Taiwan for more than one year. Their Chinese proficiency was categorized as pre-intermediate level, as indicated in the results of a simulated TOCFL (Test of Chinese as a Foreign Language) test, which is similar to the A2 or B1 level of the Common European Framework of Reference of Languages (CEFR). The participants were required to take a TOCFL test for course placement three months before this research project was undertaken.

The two CSL classes were instructed by two experienced Taiwanese CSL teachers, who are enthusiastic with regard to developing and incorporating multi-media materials in their classes. Based on the researcher's observations in their classrooms, their instruction involved a high degree of interaction among teachers and students, and thus they were considered suitable candidates to implement the proposed teaching materials in their classrooms.

3.2 Instructional Approach

This pedagogical intervention applies one lesson unit from the multimedia Chinese writing program, which was designed on the basis of systemic functional linguistics. Each lesson unit comprises three sections: language resources, writing strategy,

and assignment/assessment. For the language resources section, the ideational, interpersonal and textual features associated with the communicative purpose of the target genre were illustrated with multiple encounters of different texts and exercises. To ease the teacher's burden of learning and applying SFL-based materials, a teacher's manual was attached to each lesson unit specifying the purpose of each instructional activity and the recommended instructional strategies. The focal lesson in this research is about a descriptive genre, and the selected theme is related to food. The instructional procedure for the two meetings on consecutive weekends is detailed below, along with a description of the SFL-inspired teaching materials. This pedagogical intervention was undertaken in three stages, starting from building contextual awareness, to introducing the rhetorical stages of a descriptive genre and their associated linguistic repertoire, and finally presenting writing strategies that could help in effectively organizing these resources into cogent texts. All the instruction was conducted primarily in Chinese, except on rare occasions when students needed further clarifications, the teachers may offer explanation in English.

In the first meeting, the instruction started with fostering students' awareness of the communicative purpose of the target genre. Students were orally asked with general questions related to the communicative purpose involved in the act of describing, such as "What's the purpose of a descriptive text?" "Where can you find it?", "How will you describe an experience or an object?" and so on. The students were then asked more specific questions related to the focal theme, food, such as "What's your favorite Taiwanese food?" and "What type of food from your country do you miss very much?". Teachers then pointed to the three rhetorical stages involved in descriptive genre, as follows: a general statement of the target food, a description of different aspects, such as sensory images, and related activities, such as when/where one will taste this food. This classification of genre stages related to a descriptive genre was based on the scheme specified in Macken-Horarik (2002). The goal of these activities is to raise the students' contextual awareness by showcasing the communicative purpose and the constituent stages of the descriptive genre.

The instruction then proceeds to introduce the language resources involved in realizing the descriptive genre. To realize the rhetorical stages of this descriptive genre with a focus on the theme of food, the ideational resources consist of verbal processes of description and related activities, food taxonomy as well as sensory attributes. The interpersonal meanings include the expression of the writer's stance toward the focal objects to purposefully activate the intended attitude in readers. As regards the textual function, the materials contain the pertinent demonstratives/pronouns as well as conjunctions to offer resources for developing greater cohesion and cohesiveness. These language functions and some exemplary linguistic instances are summarized below (Table 1).

Note that we do not intend to cover all possible linguistic resources, but only key words and sentence patterns that are associated with this theme and learnable at this proficiency level. In the instructional materials, these words/sentence patterns are first illustrated in an isolated manner in order to facilitate student's recognition of the Chinese characters. However, several follow-up exercises engaged the students in analyzing various descriptive texts, so that they could relate the deployment of

Table 1 Examples of language resources related to ideational, interpersonal and textual functions

Language function	Examples of linguistic features taught
Ideational meaning	
(i) Processes: verbal acts of description	smell, taste, look
(ii) Processes: related activities	make, go to...to taste this food, when….I want to taste this food…
(iii) Food taxonomy	pork, beef, chicken, fish, vegetable, etc.
(iv) Food attributes: sensory descriptions	sour, sweet, salty, smelly, delicious, color, etc.
Interpersonal meaning	
Evaluative comments	disgusting, longing for, satisfied, fantastic, energetic, etc.
Textual meaning	
(i) Determiners/pronouns:	there, every, it, etc.
(ii) Conjunctions:	because, although…but, not only…but also, etc.

these word/sentence patterns to the purposes of the descriptive genre. Some sample instructional materials are given in Appendix A, along with their English translations.

During the first meeting, the instruction on language renditions only covered ideational and interpersonal resources, and the second meeting started with coaching the participants in the use of textual resources and proceeded to direct students to effectively incorporate them into a meaningful text. The teacher followed the writing strategy sections of this multimedia program to co-construct a text with the students, using the exemplary topic of Thai spicy soup. When brainstorming the different aspects of this food together and voicing their ideas, the students were guided through the brainstorming strategies listed in the materials, such as "What does this food consist of?" "How does this food taste like?" "When do you want to taste this food?" "Where do you go to try it?" "How do you feel after eating it?". All these questions are associated with the genre stages to realize its communicative purpose. Different organization patterns were then provided to the students, but they were advised to apply these schemes in a flexible way. Along with the teachers, the students co-constructed a text in response to the prompt of Thai-style spicy soup before they were required to compose their post-test texts independently.

Since SFL-based educational practices are not popular among CSL instructors in Taiwan, preliminary training was required to facilitate the understanding of the two participating instructors about the teaching materials based on SFL's conceptualization of genre. Both instructors were thus engaged in intensive training about the principles of this functional approach to writing (as shown in the literature review), the distinct features of SFL-inspired teaching materials (as noted above), and the instructional procedures and activities to be implemented in the current research. After the tutorial, they were asked to preview the focal instructional materials in this multimedia writing program and the teacher's manual prior to the pedagogical implementation, and extensive discussions between the researcher and instructors were held to solve any ensuing problems or questions regarding the use of these materials.

3.3 Instruments

To answer the first research question, two instruments were developed to investigate the effects of this approach on students' writing quality: writing tasks and writing assessment scheme. Three Chinese writing topics (see Appendix B for example) related to the theme of food were offered to the participants for the pre-/post-tests. Topic A asks students to describe their favorite Taiwanese food and say what is distinct about it with regard to features such as color, smell, flavor, ingredients, recipes, and so on. The instructions for Topics B and C are the same, but the theme for Topic B is the students' favorite international food, while Topic C is related to any strange food they have tasted.

Appendix C shows the assessment scheme used to score the pre-and post-test essays in terms of the textual quality. This is partially adapted from the six-point Chinese writing scoring rubric for middle school students stipulated by Taiwan's Ministry of Education, and is revised based on the typical discourse features of descriptive genre. It is composed of four dimensions: content, organization, language use and grammar. The content dimension is defined as the degree to which the writer's elaboration of the topic, and inclusion of interesting, rich and related details, such as the presentation of sensory images, a wide range of food taxonomy and related activities. The organization dimension refers to the structure of the text, with a clear introduction, body and conclusion, as well as the connections between ideas. The language use dimension is defined as the range of verbs, appraisal expressions, and use of specific vocabulary appropriate to the experience being described. The grammar dimension includes syntactic appropriateness, diversity and complexity. Note that these dimensions are not intended to specifically evaluate each respective language resource taught. Instead, it is argued that each language resource contributes to the construction of different assessment dimensions. Ideational and interpersonal resources are mainly related to the dimensions of content development and language choice, while textual resources are mostly associated with organization and grammar. The scores were derived impressionistically along a scale of "not evident", " minimum evidence of mastery", "some evidence of mastery", "adequate evidence of mastery", "outstanding evidence of mastery", and "strong evidence of mastery", ranging from 1 to 6.

To answer the second research question about the usefulness of the SFL-inspired materials, an evaluation survey was piloted, refined, and administered by the researcher and class instructors. This questionnaire comprises one open-ended question and 19 close-ended questions, which are composed of four parts: their evaluation on the learning of ideational, interpersonal, textual materials and writing strategies and their usefulness in composing this descriptive genre. All items were queried using 4-point ranking scales, ranging from "strongly agree", "agree", "disagree" and "strongly disagree". The open-ended question inquires their suggestions and comments on this multimedia writing program and the instructional the approach beyond what has been stated in the close-ended questions. Students' demographic information with regard to their age, gender and nationality were also collected. Participants were presented with a bilingual questionnaire format to prevent any misunderstanding of the items and ensuing biased data.

3.4 Data Collection and Analysis

The primary data consisted of 32 essays and 16 students' responses to an evaluation questionnaire on this instructional approach. The first set of data is composed of the pre-/post-test essays, which were written before and after the two-week period of the experimental treatment. Participants were asked to compose their pre-/post-tests in response to the same topic. It should be noted that they were not informed about their post-test topics and their post-test essays were written in class without access to their pre-test works. When the participants composed each text in a computer lab for half an hour or one hour, they were allowed to access any on-line materials, including this writing program, on-line dictionary or any other internet resources. Another data set was comprised of students' evaluation questionnaires (see Table 4 in the Results section). All participants were asked to fill in this questionnaire once they had completed their post-test essays.

With regard to data analysis, each essay was graded by the researcher using the above six-point assessment scheme. This analysis was validated through inter-rater analysis, which involved the two instructors analyzing half of the data, with each instructor receiving a randomly selected part of the whole. Both instructors received a standardized training procedure to help them achieve this, and each needed to score two sample essays with the researcher using the assessment scheme. If an essay received two scores differing by more than one point for each scale, the disagreement was resolved through a thorough discussion between the researcher and instructor. After the training sessions, the two raters scored 16 texts in individual sessions. To calculate the inter-rater reliability, the Pearson's correlation coefficients were run to examine whether the assessment criteria used by the three raters for the 16 texts were consistent and reliable. The inter-rater correlation coefficients among the researcher and the two instructors ranged from 0.85 to 0.98 for the four writing dimensions, indicating that the three raters reached a consensus on the assessment of textual quality. Paired-samples *t*-tests were then undertaken to examine the pre-/post-test essays with regard to each dimension listed in the assessment scheme. On the questionnaire, percentages were determined for all close-ended questions and descriptive statistics were adopted to analyze students' perceptions of this pedagogical intervention.

4 Results

4.1 Effects on Writing Quality

The relative effectiveness of the proposed approach is reported here, though no hard conclusions regarding the development of CSL writing can be drawn because of the sample size and the specific genre taught. As shown in Table 2, the results of the paired-samples *t*-test illustrated that students made statistically significant progress

Table 2 Results of paired-samples t-test on the pre- and post-test essays

Features	Pre-test		Post-test		Gain score		*t*	*df*	*p*
	M	SD	M	SD	M	SD			
Content	2.56	0.73	3.81	0.91	1.25	0.86	5.84	15	.000*
Organization	2.25	0.93	3.63	0.96	1.38	1.02	5.37	15	.000*
Vocabulary usage	2.56	0.73	3.81	0.66	1.25	0.68	7.32	15	.000*
Grammar	3.13	1.02	3.88	0.75	0.75	0.68	4.39	15	.001*

*Significance at the 0.01 level

in all writing features based on the assessment scheme, as evident in the difference between the scores in the pre- & post-test essays.

With respect to the quality of content, scores for the post-test essays were significantly higher than those for the pre-test essays, $t(15) = 5.84$, $p = .000$. This indicates that although the pre-test writing texts addressed the subject, they were not developed with vivid and interesting details with regard to the different aspects of the target food and relevant activities involved in tasting it. The more concrete details, sensory images and emotional responses offered in the post-test texts supported the descriptions, although adding even more specific information would have improved the quality of the texts. Likewise, the students' scores on the organization dimension for the post-test essays were significantly higher than those for the pre-test essays, $t(15) = 5.37$, $p = .000$. The structure of the pretest essays was generally clear, but the wrong spelling or inaccurate use of certain phrases or lack of transitions often distracted the readers. While the learners' post-test samples were better organized, with apparent and appropriate deployment of transitions, some lapses were still found. In terms of vocabulary usage, the scores for the post-test essays were significantly higher than those for the pre-test essays, $t(15) = 7.32$, $p = .000$. Their language is rather basic, with limited word choice, in the pre-test essays, but more descriptive words/phrases were effectively presented in the post-test writing, suggesting the learners' progression towards more mature language use. Similarly, their scores on grammar usage for the post-test essays were significantly higher than those for the pre-test essays, $t(15) = 4.39$, $p = .001$. Obviously, several problems or errors with sentence structure, such as run-on sentences or sentence fragments, appear in the pre-test essays. However, most sentences are better constructed in the post-test texts, though simple sentences are still used repeatedly and some errors remain.

It seems that improvement in the quality of the learners' post-test writing correlates strongly with their heightened awareness of the discourse features associated with the taught genre. The scaffolding with regard to the rhetorical stages and the relevant linguistic resources of a descriptive genre enhanced the participants' ability to construct more extended messages. The instruction has been an enabling tool in their writing since it broadened their understanding of what should be included in this genre, and thus guided them to search for their intended meanings from online resources in order to effectively convey their message. Generally speaking, the students' performance on the pre-test was relatively under-developed for all the features examined in this work. Except for grammar, their average scores were all

below three on a scale of six for the three remaining traits. This indicates that most of the learners failed to elaborate the content, organize their ideas in a clear manner and express their ideas effectively via appropriate vocabulary and syntactic expressions. After the intervention, they expanded their textual repertoire and showed greater control of these features. As shown in the gain scores, the students made the most progress on content, organization and vocabulary usage, but the least progress on grammar. It is plausible that as students add more supporting information to the texts, they may utilize more varieties of sentence structures, some of which may not be successful attempts. This may explain why their progress with grammar was less significant than that seen with the other writing features.

4.2 Textual Analysis of One Set of Writing Samples

For these CSL students, scaffolding the language resources associated with a genre improved the quality of their descriptive writing in a relatively short period of time, just two weeks. To exemplify to what extent the participants improved their writing in terms of several genre features after this treatment, one set of pre- and post-test texts was analyzed in terms of the genre stages and three language resources. This set of writing samples were chosen since it represents the average gains between the pre-test and post-test among the participants. The examples, showing gains of 1-2 points on all writing features listed in the assessment scheme, illuminate the average gain from 0.75 in the pre-test to 1.38 in the post-test with respect to the focal writing features. This set of essays was written by Mohammad (pseudonym) responding to topic A about one's favorite Taiwanese food. His Chinese texts shown below are also reproduced with pinyin transcriptions. The English translation (see Appendix D) of the Chinese essays is semantically based in order for non-Chinese readers to catch the meanings elicited in the Chinese texts and thus all the grammatical errors in the original ones were removed. Figure 2 below illustrates the genre stages manifested in the participant's pre-/post-test writing.

As can be seen, the post-test work was more elaborated, not only with richer supporting details in each rhetorical stage, but also with inclusion of more genre stages. His pre-test response was restricted to a general statement of his favorite food but failed to offer any description of its various aspects or associated activities or functions. After the instructional scaffolding, his post-test work was better constructed, with two more rhetorical stages that offered the ingredients of the selected food, sensory details and related activities.

This student's use of different language resources to realize these generic stages can further illuminate his progress made after the pedagogical intervention. Table 3 shows the shift from pre-test to post-test essays with regard to the prominent language features associated with the descriptive genre.

As can be observed in the post-test writing, Mohammad made noticeable efforts to build up the extended meanings by adding more verbal descriptions, such as, with the use of *kàn qǐ lái* 看起來 look like or wén qǐ lái 聞起來 smell like, increasing the

Genre stages	general statement	→	description of aspects	→	related activities
Pre-test essay	在台灣我吃了一些台灣食物. 我覺得台灣食物有自己的特色.但是在這裡有一道菜我最喜歡的應為我覺得很特別而且在我們國家我沒有看過有人賣這種食物. 這道菜就是火雞肉飯. Zài tái wān wǒ chī le yì xiē tái wān shí wù. Wǒ jué de tái wān shí wù yǒu zì jǐ de tè sè. dàn shì zài zhè lǐ yǒu yí dào cài wǒ zuì xǐ huān de yīng wèi wǒ jué de hěn tè bié ér qiě zài wǒ men guó jiā wǒ méi yǒu kàn guò yǒu rén mài zhè zhǒng shí wù. Zhè dào cài jiù shì huǒ jī ròu fàn.				
Post-test essay	我是印尼來的學生.在台灣我吃了一些台灣食物. 我覺得台灣食物大部分都很好吃,每一道菜也有自己的特色.但是在這裡有一道菜我最喜歡的. 因為我覺得很特別而且在我們國家沒有人賣這食物. 這道菜叫座火雞肉飯. Wǒ shì yìn ní lái de xué sheng. Zài tái wān wǒ chī le yì xiē tái wān shí wù. Wǒ jué de tái wān shí wù dà bù fèn dōu hěn hǎo chī, měi yí dào cài yě yǒu zì jǐ de tè sè. Dàn shì zài zhè lǐ yǒu yí dào cài wǒ zuì xǐ huān de. Yīn wèi wǒ jué de hěn tè bié, ér qiě zài wǒ men guó jiā méi yǒu rén mài zhè shí wù.	→	這道菜的材料主要有火雞肉, 米飯, 和醬油. 雖然看起來很簡單, 但是這道菜聞起來很香, 吃來也很好吃 .Zhè dào cài jiào zuò huǒ jī ròu fàn. Zhè dào cài de cái liào zhǔ yào yǒu huǒ jī ròu, mǐ fàn, hàn jiàng yóu. Suī rán kàn qǐ lái hěn jiǎn dān, dàn shì zhè dào cài wén qǐ lái hěn xiāng, chī lái yě hěn hǎo chī.	→	我最常去火車站附近的一家飯館吃這道料理. 在嘉義這道菜很有名, 很多人喜歡吃這道菜. 所以沒吃過這道菜的人一定要試試看 .Wǒ zuì cháng qù huǒ chē zhàn fù jìn de yì jiā fàn guǎn chī zhè dào liào lǐ. Zài jiā yì zhè dào cài hěn yǒu míng, hěn duō rén xǐ huān chī zhè dào cài. Suǒ yǐ méi chī guò zhè dào cài de rén yí dìng yào shì kàn.

Fig. 2 The stages of descriptive genre in Mohammad's pre-test/posttest texts

variety of related activities, such as, *qù huǒ chē zhàn fù jìn de yì jiā fàn guǎn chī* 去火車站附近的一家飯館吃 go to a restaurant around the train station to taste, or *shì kàn* 試試看 try, expanding food taxonomy, such as, *cái liào* 材料 ingredients, *jiàng yóu* 醬油 soy sauce, *liào lǐ* 料理 cuisine, as well as varying their conjunctions, for instance, *suī rán…dàn shì* 雖然 但是 although…but, suǒ yǐ 所以 therefore. Most distinctively, Mohammad failed to present any sensory images in the pre-test but incorporated vivid descriptions to capture reader's attention in the post-test work, such as, *hěn hǎo chī* 很好吃 delicious, *hěn xiāng* 很香 sweet-smelling. He was also more capable of enacting interpersonal relations by incorporating more evaluative comments in the post-test writing, for instance, *hěn jiǎn dān* 很簡單 very easy or

Table 3 Shift in the use of language resources from Mohammad's pre-test to post-test essays

Language function	Pre-test writing	Post-test writing
Ideational meaning		
(i) Processes: verbal acts of description	jué de (feel)	jué de (feel)
	xǐ huān (like)	xǐ huān (like)
		kàn qǐ lái (look like)
		chī lái (taste like)
		wén qǐ lái (smell like)
(ii) Processes: related activities	chī (eat)	chī (eat)
	mài (sell)	mài (sell)
	kàn (see)	qù huǒ chē zhàn fù jìn de yì jiā fàn guǎn chī (go to a restaurant around the train station to taste….)
		shì kàn (try)
(iii) Food taxonomy	shí wù (food)	shí wù (food)
	cài (dish)	cài (dish)
	huǒ jī ròu fàn (turkey rice)	huǒ jī ròu fàn (turkey rice)
		cái liào (ingredients)
		huǒ jī ròu (turkey)
		mǐ fàn (rice)
		jiàng yóu (soy sauce)
		liào lǐ (cuisine)
(iv) Food attributes: sensory descriptions		hěn hǎo chī (delicious)
		hěn xiāng (sweet-smelling)
Interpersonal meaning		
Evaluative comments	yǒu zì jǐ de tè sè (unique)	yǒu zì jǐ de tè sè (unique)
	hěn tè bié (very special)	hěn tè bié (very special)
		hěn jiǎn dān (very easy)
		hěn yǒu míng (well-known)
Textual meaning		
(i) Determiners/pronouns:	wǒ (I)	wǒ (I)
	zhè dào (this dish)	měi yí dào (every)
		zhè dào (this dish)
(ii) Conjunctions:	dàn shì (but)	dàn shì (but)
	yīng wèi (because)	yīn wèi (because)
	ér qiě (moreover)	ér qiě (moreover)
		suī rán…dàn shì (although…but)
		suǒ yǐ (therefore)

hěn yǒu míng 很有名 well-known. These noteworthy improvements, as manifested in their post-test works, suggest the students' developmental growth in constructing more elaborated messages with smoother connections and more personal comments, and thus demonstrates proficient capability in making meanings appropriate to the conventions of the target genre.

4.3 Students' Evaluation of This Approach

As noted, the present study is the first attempt to apply an SFL approach to CSL writing instruction at tertiary level, and the major purpose of this research is to understand its pedagogical effects on learners' development of writing proficiency for developing a CSL multi-media writing program. The participants' perceptions of its advantages and disadvantages in scaffolding their writing can provide further insights into the design of this program, and thus help to maximize its learning potential. As shown in Table 4, in response to items 1–6, 8–9, 11–14, 16 and 18, dealing with the students' learning of these different language resources, the overwhelming majority of the participants felt that the instructional materials helped them to acquire the focal language features and writing strategies. As regards items 7, 10, 15, 17 and 19, which asked about the effectiveness of these resources or strategies in sharpening the students' writing performance, over 80% of them either strongly agreed or agreed that this approach was effective in achieving the intended goals, with only three respondents (19%) feeling otherwise.

The students' responses to open-ended question 20, requesting any other suggestions or comments on the materials, may help explain the above findings. These comments can be grouped into two major problems related to the design of the instructional materials and implementation procedures, as follows: (1) the lack of 'pinyin' in all the instructional materials imposed difficulties on learning and subsequent application of these new language features; (2) the students were not able to absorb so many new items in such a short time span. The first reason is more associated with the design of the instructional materials, and are actually not related to the SFL theory and application. Given that most of the participants were placed at the pre-intermediate level and Chinese is their second foreign language, we assumed that students should be able to grapple with Chinese texts in the absence of pinyin. However, as half of the participants mentioned the importance of pinyin in facilitating their learning, this comment is applied in follow-up revision and development of this on-line CSL writing program. One updated example of the instructional materials is shown in Appendix A (Example 2) and one slide of the old version in Example 1. The second problem was related to the first one, since without the scaffolding of pinyin, the students may find it somewhat intimidating to learn the new language features and apply what they have been taught to their own writing within a two-week time span. It may also partially elucidate why the skeptical attitudes observed in some participants' evaluation centers on the application of these resources to their writing. A small number of participants, particularly the less-proficient learners, were not able to directly apply the focal linguistic exponents in their writing, and this may have caused them to feel more negative about the value of the pedagogical materials. The other possible factor accounting for this problem is that there is a wealth of food items to be selected as the students' writing theme, and it is impossible to cover all relevant language resources in the teaching materials. Another factor contributing to this problem is there were several mini-exercises and activities in each subsection of the language resources and writing strategy, and

Table 4 Evaluation of instructional materials and pedagogical approach

Ideational resources		Strongly agree	Agree	Disagree	Strongly disagree
1	The instruction helps me learn basic words related to meat.	11	5	0	0
		69%	31%		
2	The instruction helps me learn basic words related to seafood.	8	8	0	0
		50%	50%		
3	The instruction helps me learn basic words related to fruits, vegetables and ingredients.	11	5	0	0
		69%	31%		
4	The instruction helps me learn the verbs used to describe foods.	4	12	0	0
		25%	75%		
5	The instruction helps me learn the adjectives used to describe food flavors.	3	13	0	0
		19%	81%		
6	The instruction helps me learn the sentence patterns used to describe activities/functions related to my choice.	1	14	1	0
		6%	88%	6%	
7	**The instruction of ideational resources is useful for my writing.**	**4**	**9**	**3**	0
		25%	**54%**	**19%**	
Interpersonal resources					
8	The instruction helps me learn how to use the words to talk about the foods I like.	8	8	0	0
		50%	50%		
9	The instruction helps me learn how to use the words to talk about the foods I dislike.	8	8	0	0
		50%	50%		
10	**The instruction of interpersonal resources is useful for my writing.**	**4**	**9**	**3**	0
		25%	**54%**	**19%**	
Textual resources					
11	The instruction helps me learn how to use conjunctions.	1	13	2	0
		6%	81%	13%	
12	The instruction helps me learn how to use pronouns.	3	13	0	0
		19%	81%		
13	The instruction helps me learn how to use demonstratives and related sentence patterns.	4	11	1	0
		25%	69%	6%	
14	The instruction helps me learn how to use common adverbs and conjunctions.	1	13	2	0
		6%	81%	13%	
15	**The instruction of textual resources is useful for my writing.**	**8**	**5**	**3**	0
		50%	**31%**	**19%**	
Writing strategies					
16	The instruction helps me learn how to use the brainstorming steps.	3	10	3	0
		19%	63%	19%	
17	**These brainstorming strategies are useful for my writing.**	**4**	**10**	**2**	0
		25%	**63%**	**13%**	
18	The instruction helps me learn how to use the organization map.	3	13	1	0
		19%	81%	6%	
19	**The organization map is useful for my writing.**	**3**	**13**	0	0
		19%	**81%**		

the students may have encountered unfamiliar words in these and thus felt overwhelmed. Implementation of this program in regular Chinese courses with sufficient time to complete the in-class and after-class activities would prevent this problem, and may provide a more comprehensive profile of the effectiveness of this program. However, time constraints and scheduling worked against this method in the current study. The purpose of this research was to evaluate this approach based on only one lesson unit prior to the subsequent development of a complete multimedia CSL writing program. As such, the implementation needed to include a lot of materials and activities for the focal lesson unit in order to provide a comprehensive view of the students' strengths and weaknesses. Unfortunately, many instructors of regular CSL courses were not keen on taking up this research in their classes, because it did not fit in with their scheduled lessons, and the implementation would require too many class hours.

Despite these drawbacks, the questionnaire data obtained in this work show that most participants felt that these instructional materials, as developed based on the concept of an SFL genre approach, could improve their writing competence. This finding complements the results of the textual analysis and gain scores from the students' pre-tests to their post-tests, demonstrating that explicit instruction in the language and discourse features related to a genre was able to enhance their awareness of the target features and improve the textual quality of their writing. Stated in another way, the results of this study show that the students moved along a continuum of literacy development that enhanced their generic mastery, an ability that counts as one of the key characteristics of advanced literacy (Colombi 2009).

5 Discussion

The results of this study on the quality of students' pre-/post-test writings and their responses to the questionnaire reveal that the proposed SFL-inspired approach holds great potential for supporting students' meaning making in one educational setting. The CSL participants, as both writers and language learners, expanded their Chinese writing abilities, as observed in their genre awareness and lexicogrammatical choices to realize the genre. Interestingly, scaffolding the ideational, interpersonal and textual resources appeared to push students to explore the relevant expressions in these dimensions beyond what was included in the instructional materials, as they responded to the writing promot that present textual challenges for these L2 learners. It suggests their change in genre knowledge affected their subsequent language choices. This research thus corroborates the findings of other studies that demonstrate making salient connections between the meaning and language forms associated with a specific genre can foster students' writing development across languages, literacy levels and genre types (Byrnes 2009, 2013; Cheng 2008; Gebhard et al. 2014; Harman 2013; Liardét 2013; Moore and Schleppegrell 2014; Polias and Dare 2006; Ryshina-Pankova 2006, 2015; Ryshina-Pankova and Byrnes 2013; Yasuda 2015).

Although the findings from this small-scale research cannot be used to make generalizations regarding the implications for second or foreign language writing instruction, certain tentative implications can be drawn on two related issues: teacher training and material design for SFL pedagogy, and the function of writing in L2 acquisition. Despite the benefits shown in SFL-informed practices, some researchers contend that SFL theory is too technical to be an applicable framework for teacher education, and may impose overwhelming demands on teachers and teacher educators (Bourke 2005; Tardy 2009). Indeed, it requires greater knowledge about language than is expected in the other approaches to L2 teaching. This may thus discourage teachers and teacher educators from applying this theory for literacy or language instruction (Schleppegrell 2004). In response to this critique, Macken-Horarik (2008: 43) argues for " a good enough grammatics". She maintains that while teachers require a level of SFL language that is "functional, stretchable and good for teachers to think with," re-training teachers as theoretical linguistics is not necessary (Macken-Horarik 2008: 47, see also Macken-Horarik et al. 2001). One study conducted by Gebhard, Chen, Graham, and Gunawan on SFL and teacher education (2013) evinces that a "good enough grammatics" is achievable in the context of a 14-week MA TESOL course, in that the teachers on this were able to learn basic SFL theory, and later to use SFL genre-based pedagogy to design curricula and instruction for a variety of learners in a variety of contexts. Another study by Macken-Horarik et al. (2015) proposes a framework to enhance English teachers' linguistic subject knowledge based on systemic functional linguistics. Their study also indicates that English teachers who received short-term training in SFL grammatics were able to enhance their awareness of the relationship between genre and its grammatical resources, and to apply this functional approach to literacy instruction in their specific contexts. These studies offer some indications of how to successfully implement SFL theory in L2 education, but more research is necessary in order to reveal its potential applications to L2 instruction beyond English.

The present study demonstrates the language learning potential of L2 writing, as proposed by several researchers noted above. As well-argued by Cumming (1990) and Swain and Lakpin (1995), the act of writing is inherently a problem-solving activity, which is conducive to consolidating and increasing mastery over one's L2 knowledge, as well as generating new linguistic knowledge. This assumption is further supported by empirical studies exploring the interface of SLA and L2 writing. As summarized in Manchón (2011a), these studies find that during writing learners tend to focus their attention on linguistic forms, formulate hypotheses about these and the related functions, generate and assess linguistic options, as well as engage in metalinguistic reflection. This indicates that cognitive restructuring is triggered in L2 learning, though most writing tasks utilized in these earlier studies were not self-produced compositions but controlled and grammar-focused activities (i.e. cloze tests) or editing tasks. Nevertheless, to establish any causal relationship between composition writing and L2 learning, further research is needed to examine the writing-to-learn language dimension of L2 writing development and instruction across different language and instructional settings.

The progress made by CSL inexperienced writers in this study offers hope that instruction in this approach may prove effective in raising CSL writing skills. Nevertheless, due to the lack of a comparison group, it seems impossible to attribute their improvements from the pre-test to the post-test, purely to the effects of this pedagogical intervention. However, by taking participant responses to the questionnaire into account, this research can conclude that this approach positively influenced students' textual meaning-making in Chinese. As an exploratory study examining the pedagogical affordances in relation to CSL/ CSL instruction, further research is strongly recommended to adopt a more robust method to measure causality (e.g. an experimental approach) to verify the empirical findings uncovered in this work and show to what extent the SFL approach can outperform other educational options in different educational levels and settings, and for a broader variety of learners. This line of studies can perhaps convince CSL/CFL textbook writers or material developers to apply this approach as a viable framework to designing Chinese learning materials. Such an undertaking could alleviate the burden for Chinese language teachers who are interested in adapting this approach for their classroom, but could be baffled by its technical complexity. The present study thus throws some light on this issue by presenting an revelatory case, in which carefully designed SFL-informed materials were offered to the two participating teachers with no prior knowledge or experience of SFL theory.

Another limitation of this study is the rather short-time span of the pedagogical implementation. Although participants were allowed to access this instructional software during the experimental period, it undeniably takes a greater amount of time and practice to transfer receptive language knowledge into productive knowledge, as indicated in students' comments on the open-ended question. Repeated exposure to this multi-media writing program for a longer period of time would probably be more effective than a limited number of classroom lessons in learning to compose better Chinese texts. Further research can thus conduct a longitudinal study of this approach using these online instructional materials to learn more about in what ways and to what extent it can benefit CSL novice writers.

The third flaw of this study, common to most contrived research, is that it was not conducted in a natural classroom setting. Several learner variables, such as affect, motivations, beliefs and goals, may play a mediating role in their text construction and perceptions of this pedagogical approach stated in the questionnaire. Given that the writing completed for this project was not related to their course assessment, they may not have been well-motivated to do their best. Additionally, the participants were informed beforehand of the purpose of this study, and may have been inclined to provide positive answers in the questionnaires. All these practical limitations of data collection should be borne in mind while interpreting the current findings and thus the present study opens several avenues for future research as discussed above.

6 Conclusion

As a pilot study to investigate the feasibility of incorporating an SFL-informed approach to CSL classroom, some tentative findings observed from the progress made in students' written texts and positive evaluations in their responses to the questionnaire suggest that the instruction attending to the ideational, interpersonal and textual features associated with a specific genre can contribute to a heightened awareness and deployment of genre-related language resources, and so improve the learners' subsequent construal of textual meaning. Given the very exploratory nature of this research, it is hoped that the present study can motivate more CSL research to study learners' communicative competence at the discourse level and endeavor to extend the current study to more advanced Chinese learners, or to uncover other effective pedagogical approaches that can be used to improve their communicative abilities. This line of research is urgently needed, as in the future more CSL learners will need Chinese as their working language to meet their academic and career needs.

Appendices

Appendix A: Sample Instructional Materials

Example 1
One screenshot of ideational function (old version)

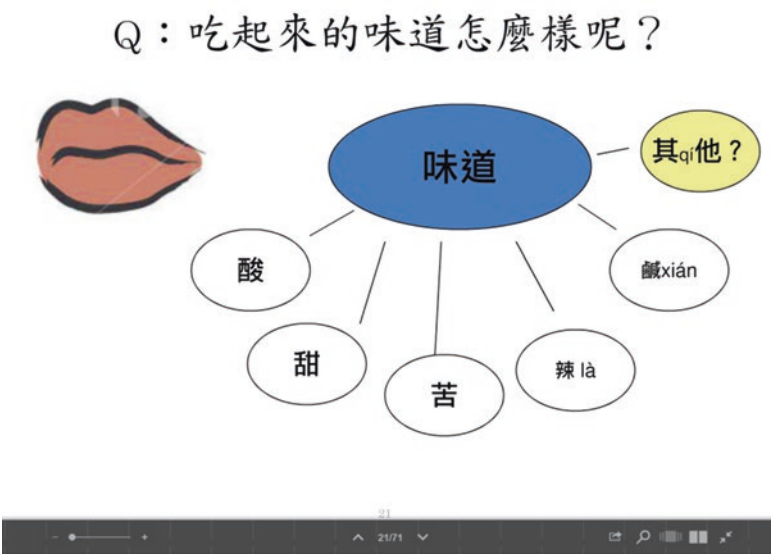
English Translation of Example 1 Materials

2. Ideational language resources
   * How to describe a dish
     2.1: Food taxonomy
       Basic terms for major food types
     2.2: Food description
       Adjectives and verbs to describe food flavor

2.1: Food taxonomy	2.2: Food description
Meat	**Verbs**
chicken, pork	taste, smell
Seafood	**Adjectives**
crab, shrimp	sour, sweet, bitter, spicy
Fruit	
apple, orange	

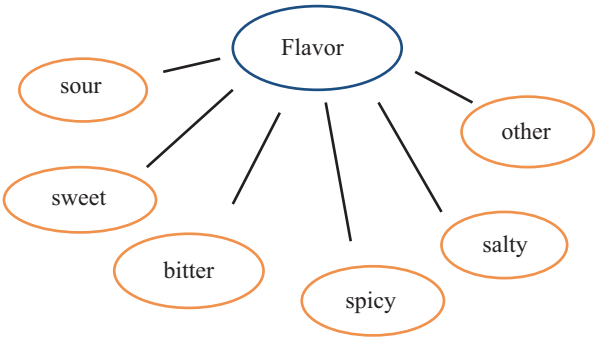
Example 2

One screen shot of ideational function (new version)



English Translation of Example 2 Materials

Q: What does it taste like?

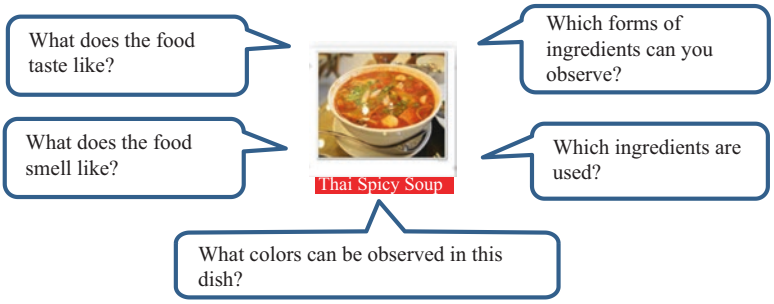


Example 3

One screenshot of brainstorming strategies

English Translation of Example 3 Materials
Brainstorming strategy: Step 2: writing aspects

First, brainstorm some questions related to the topic.
Take the topic "My favorite food is Thai Spicy Soup" for instance.



Appendix B: An Example of Chinese Writing Prompt

Topic A 我最喜歡吃的一種台灣食物
請你班上的同學說明,你所吃過的台灣食物中,有哪一道菜或小吃你很喜歡? 這道菜或食物有什麼特別的地方(顏色/氣味/味道/材料/做法...)? 你為什麼會特別喜歡吃這種食物?

English Translation of Topic A
Among the foods/dishes that you have ever tasted in the past, what's your favorite meal or snack? Please show your classmates in what ways this food is special with regard to its color, smell, flavor, ingredients, or recipes from your own perspective.

Appendix C: Assessment Scheme for Pre-/Posttest Essays

Category	1	2	3	4	5	6
Content development	Little attempt is made to state the subject of the text. The content is poorly focused on the topic.	The text attempts to address the subject of the essay but few details are given and some ideas are unclear.	The text focuses on the subjects of the essay but sometimes strays from the topic. Ideas are not well-developed and more details are needed.	The text focused on the topic and main idea is clear but the supporting information is general. There are a few vivid details in the essay.	The text is well-focused on the topic. Concrete details, sensory imagery and emotional response adequately support the description of the selected food. Ideas are well-supported with details.	Clear ideas are well-supported with interesting and vivid details. Several relevant, telling, quality details give the readers important information that allows the readers to picture, smell, feel or imagine tasting things described.
Organization & coherence	There is no clear organization and no transitions. The text is impossible to follow.	The text is poorly organized with few transitions and is difficult to follow.	The structure of the text is clear, but some details and transition words and phrases are not in a logical or expected order, which distracts the readers.	The structure of the text is clear but some lapses in organization. It is usually easy to follow with apparent use of some transitions.	The text has logical organization and excellent transitions with occasional lapses. It is easy to follow.	The text is well-structured with introduction, body and conclusion. Details and transition words and phrases are placed in a logical order and the way they are presented effectively keeps the interest of the reader.

(continued)

Category	1	2	3	4	5	6
Word choice	The language is too basic and weak; ineffective for description.	The language is somewhat weak with very limited word choices.	The wording is bland and little apparent effort to replace common words with vivid words. More descriptive words are needed.	The writer uses words that communicates clearly and includes some vivid words but sometimes the words are used inaccurately.	The writer employs vivid and somewhat varied word choices. It demonstrates reaching towards mature language, but occasionally the words are used inappropriately.	The writer effectively uses precise, interesting and vivid words/phrases that linger or draw pictures in the reader's mind. The writer can command a wide variety of word choices.
Grammar	Sentences lack structures and are incomplete or rambling. There are serious errors that interfere with the reader's understanding of the essay.	There are frequent errors in sentence structure that distract the readers.	There are some problems or errors with sentence structure. Occasional sentence fragments or run-on sentences.	Most sentences are correctly constructed but simple sentence structure is used repeatedly. There are some errors but these errors do not distract the reader.	Most sentences are well-constructed with varied structure. There are few errors in grammar.	All sentences are well-constructed with varied structure and lengths. There are no errors in grammar.

Chinese version of assessment scheme

評量向度/級分	1	2	3	4	5	6
文意發展 Content development	文章內容不甚符合題目要求,且大部份內容與主題無關。	雖嘗試依據題目及主旨選取材料,但所選取之材料相當不充分或未能具體描述食物相關內容;部分內容難以理解。	嘗試依據題目及主旨選取材料,但部分所選取之材料不夠適切或具體食物陳述發展不夠充分。	能依據題目及主旨選取材料,但具體食物陳述、感官的描寫以及感受的鋪陳仍不夠充分。	能依據題目及主旨選取相關材料並能充分提供具體食物的細節、感官的描寫以及感受的鋪陳。	能依據題目及主旨選取適當材料,並能進一步提供具體有力食物相關細節支持、詳盡生動的感官描述、以及活潑的感受鋪陳,以凸顯文章之主旨。
結構組織 Organization & coherence	沒有明顯之文章結構,文句銜接極差。	結構本身不連貫,文句銜接不佳。	文章雖具結構(有起頭也有結尾)卻鬆散,且前後不連貫;文句銜接不甚理想。	文章結構稍嫌鬆散(前後發展比例欠妥),或偶有不連貫、轉折不清之處;文句銜接大致良好。	文章結構大致完整(前後發展比例恰當),但偶有轉折不流暢之處;文句銜接良好。	文章結構完整(有開頭、發展、及結尾),段落分明,內容前後連貫,並能運用適當之連接詞連貫全文;文句銜接極佳具邏輯性。
語詞使用 word choice	用字遣詞有很多錯誤或甚至完全不恰當。	用字遣詞常有錯誤。 描述食物詞彙量相當有限。	描述食物用字遣詞不夠精確,或不夠豐富,出現錯誤。	描述食物用字遣詞還算豐富但有些用語使用不當,文意表達尚稱清楚,但有時會出現冗辭。	描述食物用字遣詞較豐富,僅有少數用語使用不當,能正確使用與主旨相關語詞,語意表達清楚。	描述食物用字遣詞豐富,能正確使用與主旨相關語詞,並能應用成語,語意表達清楚細膩。
文法句構 (grammar)	文句支離破碎,語法掌握極差。	構句常有錯誤,基本語法掌握不佳。	構句不甚精確,或出現錯誤,或贅句過多,且語法錯誤較多。	大致能正確使用構句,僅有少數語法錯誤。	能運用各種句型,使文句通順,語法少有錯誤。	構句正確文句流暢,並活用各種句型,語法幾乎無誤。

Appendix D: Student's Chinese Texts with English Translations

Mohammad's Writing Samples

Pre-test 在台灣我吃了一些台灣食物. 我覺得台灣食物有自己的特色. 但是在這裡有一道菜我最喜歡的應為我覺得很特別而且在我們國家我沒有看過有人賣這種食物. 這道菜就是火雞肉飯.

In Taiwan, I have tasted some Taiwanese food. I think Taiwanese food has its own unique features. But there is one Taiwanese food I love most, because I think it is very special and in my country I have never seen anyone selling this kind of food. This is the turkey rice.

Post-test 我是印尼來的學生.在台灣我吃了一些台灣食物. 我覺得台灣食物大部分都很好吃,每一道菜也有自己的特色.但是在這裡有一道菜我最喜歡的. 因為我覺得很特別而且在我們國家沒有人賣這食物. 這道菜叫座火雞肉飯. 這道菜的材料主要有火雞肉, 米飯, 和醬油. 雖然看起來很簡單, 但是這道菜聞起來很香, 吃來也很好吃.我最常去火車站附近的一家飯館吃這道料理. 在嘉義這道菜很有名, 很多人喜歡吃這道菜.所以沒吃過這道菜的人一定要試試看.

I am a student from Indonesia. In Taiwan, I have tasted some Taiwanese food. I think most Taiwanese food is very delicious. Each has its own unique features. But there is one Taiwanese food I love most. This is because I think it is very special, and in my country no one sells this kind of food. This dish is called the turkey rice. The main ingredients are turkey, rice and soy sauce. Although this food looks easy to make, it smells sweet and tastes delicious. I often go to a restaurant near the train state to try this food. In Chiayi this food is well-known, and many people love this food. Therefore, if you have not tried it, you must give it a try.

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Learners' and Teachers' Beliefs About Learning Tones and Pinyin

Juan Yang and Jane Medwell

Abstract This paper reports a study of the perceptions of English-speaking learners and teachers about the challenges and difficulties of Chinese as a Second Language (CSL) learning in England. The study involved a Likert-scale questionnaire and follow-up interviews with 37 university student learners, 443 school students and the 42 teachers of both groups.The questionnaires and interviews explored beliefs about language learning, about Chinese language learning and about language learning strategies. This paper focuses on the findings concerning the perceived challenges of speaking Chinese and of tones in learning Chinese. The findings of this study present a picture of teachers who are keen for their students to learn to speak and communicate in Chinese, and of students who are keen to take risks in speaking. However, in contrast to earlier findings about learners' views about learning Chinese, the learners in this study claimed to be very tone aware and reported that they found listening and understanding Chinese more difficult than production. This is explored in relation to the pupils' views about learning tones and pinyin and raises questions about the ways they address tones and pinyin learning in the context of their expressed aim of communicating and taking risks in speaking. The discussion raises issues about the possible effects of communicative teaching of languages in English schools. We ask whether an emphasis on communicative approaches may affect how learners address difficulties of the Chinese pronunciation system and the use of pinyin.

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1 Introduction

A British Council strategic analysis of the UK's long-term language needs (Tinsley and Board 2013) placed Chinese as the fourth of ten languages which will be of crucial importance for the UK's prosperity, security and influence in the world in the years ahead. However, a recent survey conducted for the British Council highlighted that 75% of the adult UK population are unable to hold a conversation in any of the ten languages identified as important and, indeed, that less than 1% of the UK population could do this in Chinese (YouGov 2013).

Against this background of recognized need, but a poor track record, of languages learning, England is currently experiencing a wave of popular and political good will towards the learning of Chinese, evidenced by statements by politicians, the press and popular publications (e.g. Watt and Adams 2013). Entries for Chinese A-level (an examination taken aged 18) have grown rapidly, making Mandarin Chinese the fourth most popular language in schools after French, German and Spanish. Mandarin Chinese is available at degree level in around 30 universities in England, Scotland and Wales (JCQ, 2013; SQA, 2013).The UK has 13 Confucius Institutes as well as a network of school-based Confucius Classrooms. This is despite the perception that Chinese is difficult for English speakers to learn (Stevens 2006).

In England, language learning remains optional for both children and adults and motivation is known to be one of the most significant predicators and determinants of success in second and foreign language learning. (Coleman et al. 2007; Dörnyei 1994; Oxford and Shearin 1994). A large-scale survey of UK secondary students' motivation to learn foreign languages conducted by Coleman et al. (2007) reported declining motivation towards foreign language learning, the causes of which have been debated at length in a number of substantial articles (Coleman 2009; Coleman et al. 2007). In this context it is particularly important that learners' beliefs about their learning and language are understood by teachers and policymakers.

2 Review of Literature

2.1 The Importance of Beliefs About Language Learning

Pajares (1992) examined the "messy construct" of teacher beliefs in a substantial review of the literature and discussed the way that poor definitions of what is meant by beliefs has caused difficulties in this area of study. Pajares (1992) argues argued that knowledge is based on objective fact, whereas belief is based on evaluation and judgment. Woods (1996: 195) suggests suggested that while knowledge "refers to things we 'know'- conventionally accepted facts, beliefs refer to an acceptance of a proposition for which there is no conventional knowledge, one that is not demonstrable, and for which there is accepted disagreement". Most authors agree that

beliefs are created through a process of enculturation and social construction (Fleet 1979; Lasley 1980; Pajares 1992; Poulson et al. 2001) but while a number of studies describe how teacher beliefs appear resistant to change (Brousseau and Freeman 1988; Golombek 1998), more recent research, most usually in the teaching of languages to adults using a particular survey instrument devised by Horwitz (1988) (Beliefs about Language learning Inventory- BALLI) suggests that beliefs about language may be susceptible to change over time.

Learners bring to language learning a complex set of beliefs about language learning and a number of authors have emphasised that failure to address unrealistic language learning expectations can lead to reluctance and loss of motivation in pupils (Richards and Lockhart 1994); a breakdown in learning (Ellis 1996); and language learning anxiety for students (Riley 2006; Young, 1991). This echoes the arguments about beliefs outside the ELT world (Medwell et al. 2001) that if learner beliefs are consistent with good learning practices, the effect of beliefs is likely to be positive, but that inconsistent beliefs and practices may have negative learning consequences. Studies such as that by Kern (1995), using the BALLI referred to above, investigated the stability of pupil beliefs in relation to teacher beliefs and challenged the accepted wisdom that language learners' beliefs remained stable, whilst suggesting that the beliefs of individual pupils were influenced by those of their teachers. In this context it is interesting to see whether adult students and child pupils share the same beliefs about learning Chinese, and whether these reflect the beliefs of their teachers.

Beliefs about language learning, and in particular Chinese learning, may affect teacher and student practices at all levels. One area in which this is important is in risk taking, That is, speaking up in class learning situations and taking the risk of being wrong. This risk-taking is important in successful classroom learning of a language (Thoma 2011; Zafar and Meenakshi 2012). High risk-taking does not always result in positive outcomes in FL learning (Ely 1986). Good learners are perceived more likely to take the medium-risk tasks rather than make wild decisions, on the basis of their judgment of success or failure under the actual circumstances (Beebe 1983). However, learners need to believe the risk worth taking, if they are to use their language in class and learn from feedback. Beliefs about risk-taking may affect the degree to which learners are able to practice language use. In addition, beliefs about the challenges presented by a language may affect both motivation to learn and strategy use (Dornyei 2003).

2.2 The Challenge of Tones and Pinyin in Learning Chinese

One of the significant challenges for foreign learners is the tonal nature of the Chinese sound system, which poses a particular challenge for a beginning learner in speaking and reading Chinese (Wang et al. 2003). Chinese is based on single syllables, each of which is normally formed by an initial consonant and a final vowel or vowel-like element and (with the exception of –er), individual syllables are

generally pronounced independently from each other. Unlike intonations in English, Chinese tone is a supra-segmental marker used to help foreigners pronounce the characters, including 21 consonants and 36 vowels or semi-vowels, which combine to form the syllables in Chinese.

For speakers of alphabetic, non-tonal languages, the challenge in pronouncing Chinese therefore lies both in pronouncing the difficult sounds from Pinyin representations, involving positioning the tongue accurately, and changing the relative pitch of one's voice when sounding out not only the isolated but also large number of homophones renders tone discrimination problematic. Studies suggest that the slight differences of the five tones are difficult for foreigners to discriminate, especially for beginning learners (Lin 1985) and that difficulty with pronunciation is related to difficulty in discrimination (Hao 2012). Because the syllable (the rime or vowel ending) is a carrier of the tone, the processing of syllables involves segments and tones simultaneously. This means that the spoken syllable is temporally integrated and can be difficult to decompose by non-tonal language speakers (Lee and Nusbaum 1993). In short, it is likely to make listening and understanding difficult for English speaking learners.

Wang et al. (2003) found that English-speaking beginner learners encountered great difficulty in acquiring tone skills. Wang et al. used a matching task to test beginning Chinese learners' phonological processing skills. When matching was based on perceiving the same tone in two syllables, the Chinese learners showed poorer performance than when the matching was based on syllable onset and rime. This is probably because onset and rime are phonological components of syllables in both English and Chinese, whereas tone is a feature of Chinese but not English.

The high degree of homophony in Chinese is also a discrimination issue for English-speaking learners. Taylor and Taylor (1995) identify around 1300 tonal syllables in spoken Chinese and that number represents almost all of the characters (morphemes). This means that a large number of homophones exist in the language creating difficulty especially in listening, when learners are likely to be exposed to many similar sounds which in fact have different meanings. A spoken word can be of one, two or, in some cases, three syllables and the combination of the syllables compensates for the lack of sufficient phoneme compounds. However, Hu (2010) noted that this can result in particular difficulty for the CFL learners, who have to try to detect the semantic borders among the flowing single syllables which bear more or less equal stress.

Pinyin as a Romanisation system represents the syllable elements (onset and rime) and each syllable is marked by one of the four pronounced tones or the neutral tone which vary in terms of pitch, amplitude and duration level (Liu et al. 2011). This allows learners of Chinese to mimic the pronunciation of Chinese, which is not always evident in characters. Chinese is usually taught through both pinyin and simplified characters in England, but there is little literature about how early characters and pinyin should be used in Chinese learning, although plenty of general debate among teachers. However, the area which has not been explored is the beliefs of pupils and teachers about this issue.

2.3 Investigating Beliefs About Chinese Language Learning

Horwitz's (1988) Beliefs about Language Learning Inventory has been used extensively to examine beliefs about language learning and to align these with pedagogical "orientations", especially with adults. Horwitz's (1988) survey with participants learning German, French and Spanish suggested that most believed that it was easier to read and write their target language than to speak and understand it. This inventory has been used to investigate the beliefs of small numbers of adult learners of Chinese.

A small study by Samimy and Lee (1997) collected the beliefs of 10 language instructors and 34 first-year university students studying Chinese in the US, using a modified BALLI, and reported that students and instructors perceived speaking Chinese as more difficult than understanding the language, while reading/writing skills (taken together) were more difficult than the oral skills of speaking and listening. Indeed, Samimy and Lee also found that the majority of their participants, both students and teachers, believed that, of reading, writing, speaking, listening and cultural behaviors, writing was the hardest aspect of learning Chinese, followed by speaking which was the second most difficult for both teachers and pupils. Listening was rated the third most difficult by the students (although cultural behaviors was third for the teachers) and reading (ranked least difficult by both groups).

In a study investigating the major difficulties encountered in learning Chinese, Huang (2000) asked fifteen intermediate and advanced university students (including nine from a Cantonese background) to rank eight areas of potential difficulty: pronunciation; tones; grammar; writing Chinese characters; vocabulary building; oral communication; delivering a prepared oral presentation; and written compositions. There was a clear distinction between the rankings of those with English as their primary language, who mostly selected written compositions as most difficult, and Cantonese participants for whom pronunciation and tones were the main concern. L1 background has a large part to play in what learners find difficult.

In contrast to these two studies Chiang's (2002) research did not find that writing was considered the greatest difficulty. In her study, which asked more open questions, 20 second-year Chinese students in the US were asked to write down which aspects of learning Chinese they found easy or difficult, from which the researcher identified nine difficulties in the following descending order: memorization; tones; speaking; listening; characters and writing; semantic distinction; reading; integrating; and thinking deeply.

To identify the kinds of learning difficulties encountered by anglophone CFL learners at UK universities, Hu (2010) used an adapted form of the BALLI with 164 19–25 year old university students. A factor analysis was used to extract six factors which were named as Grammar, Aural Reception, Words, Oral Production, Pronunciation and Recall. Hu's (2010) sample included university students taking Chinese as a major, some taking it as additional work and some school pupils. As students' level of proficiency rose, so, in general, Hu found them to perceive the

factors identified above as less 'difficult'. However, when the six factors were examined individually, a link between proficiency level and perceived difficulty was only found for Aural Reception and Oral Production at significance level ($p < 0.05$). In other words, tone production was perceived as difficult by both novices and experts, although tone perception was perceived as less difficult by more expert students.

These studies have provided some interesting initial findings concerning the learning difficulties of Chinese for University students, but University students are, by definition, those who have been academically successful and this restricts the conclusions which can be drawn about the wide range of younger learners on the basis of these studies. Moreover, as Song (2002) pointed out, in the UK, it is likely to be non-major students of Chinese who find language learning most useful and the British Council report discussed above, called for the greatest growth of languages learning among school children, who might reasonably be seen to have that as a life focus and for whom a language has future personal potential gains.

The school learners in this study were studying the national Curriculum- a languages curriculum which Block (2005) has described as a particular version of communicative language teaching. Although often non-statutory, this curriculum is used in primary, independent and academy schools and includes speaking, listening, reading and writing. The public examinations at 16 and 18 years of age also include speaking and listening as well as reading and writing. This paper seeks to explore school students' and teachers' beliefs about the relative difficulty of spoken aspects of Chinese learning.

3 Method

This study used a 4-point attitude scale to examine learners' beliefs about language learning, including items about the relative difficulties of different aspects of Chinese as a Foreign Language (CFL) learning, risk taking strategies, and use of pinyin. A number of statements about these issues in different situations were used to measure the strength of the respondents' agreement and disagreement. This Likert-scale instrument was first applied to beliefs research by Horwitz (1988) and the Beliefs about Language Learning Inventory (BALLI) is now a well-established instrument that has been used in many studies of EFL (Diab 2006; Hong 2006; Kern 1995; Peacock 1999, 2001; Truitt 1995; Wang 2006; Wu 2010; Yang 1999) and other foreign languages, such as Spanish, German and French (Horwitz 1988; Kern 1995; Kuntz 1996; Mantle-Bromley 1995).

Horwitz (1999: 558) pointed out that, although the original aim of BALLI is to identify "the individuality in beliefs about language learning", in the general sense, the inventory has also been used to investigate whether common beliefs were shared among different language learner groups, as well as learner groups and their teacher groups. Nearly all BALLI studies have focused on alphabetic languages so the questionnaire was adapted to the CFL context, to provide new insights into beliefs, by

making comparisons with previous findings on ESL and FL learner groups, as well as teacher groups. Question items specifically for Chinese features were added to the BALLI inventory based on studies with self-designed questionnaires about perceptions of linguistic difficulties of Chinese learning, and learning strategies for Chinese tones and characters (Hu 2010; Hu and Tian 2012; Shen 2005, 2010). A Chinese beliefs questionnaire with 25 items in total was generated for this study (See Appendix A).

Both student and teacher surveys included questions about the nature of CFL learning; the difficulties of CFL learning and the strategies respondents used, but the questions in the background section and the wording was slightly different for each group. This paper considers the findings relevant to tones and pinyin in these areas. The questionnaire responses were analyzed using SPSS software.

This questionnaire was supported with interviews with school and university students and teachers. The interview questions in this study were based on the focused aspects discussed previously in the review and participants' answers to the questionnaire statements.

The focus topics generated from the questionnaire items were:

(a) Difficulties of Chinese linguistic items, i.e. tones, Pinyin, words, grammar and characters;
(b) Comparison of the four skills in Chinese learning: speaking, listening, reading and writing;
(c) What is good to start for beginner Chinese learners, Pinyin, characters or oral words?
(d) How to learn pronunciation, including tones?
(e) How to learn Chinese characters and words?

These interviews were semi-structured and were recorded and transcribed. Analysis used NVivo to seek themes and links between them.

3.1 Learners- School and University Students

The difficulties of locating CFL students and teachers in England have been documented in other studies (CILT 2007). This survey sought access to teachers and students nationwide through electronic fora, Confucius Institutes and CFL teaching associations. A convenience sample of school children in 10 secondary schools across England, teachers in 15 schools and CFL learners in a University in the West Midlands of England was selected, so that the students in the classes and their teachers were included in the study. This sample cannot claim to be stratified, but it did include whole classes and their teachers in state, independent and academy schools at all relevant age phases.

In total, 443 school students, 37 University students, and 42 teachers responded to the questionnaire (a return rate of 95%). One adult learner, 67 school students and 13 teachers were interviewed, including teachers and students from all age phases

and types of school. 92% of students ($N = 408$) were first language English speakers, and only 8% of students ($N = 35$) reported that they came from other language backgrounds.

54.6% of students ($N = 242$) were boys and 45.1% of them ($N = 200$) were girls. This is slightly surprising because there is a longstanding trend of more girls than boys choosing to study languages at secondary school and entering for examinations in England. In 2013, 64% of A level languages examinations were girls (Board & Tinsley, 2014). 39.5% of students ($N = 175$) were aged 7–11 and so in primary school, 58.7% of students ($N = 260$) were aged 12–15, and 1.8% of students ($N = 8$) were aged 15–18 years, all in secondary schools. The pattern of few children choosing to take language qualifications is an established pattern in England. Studying a language qualification at 16 or 18 is seen by pupils as difficult, compared with other options, of limited practical value and risky (Coleman et al. 2007; Stables and Wikeley 1999).

In contrast with the studies of University students reported by Hu (2010) and Huang (2000), the sample of school students in this study is heavily weighted to beginner learners. 369 school pupils (83.3%) reported that they had been learning Chinese for less than a year, 53 students (12%) had been learning for 1–2 years, and 21 students (4.7%) were in their third to fifth year of learning. The pupils' own estimations of their expertise reflected their experience. Nearly a third of students classified themselves as total beginners, 20% as experienced beginners with less than 5% of students reporting that they had reached intermediate level. Less than 1% of students thought they were at the advanced level. The small number of intermediate and expert learners, might be expected, as so many children give up languages before age 14 and languages are optional before age 11.

3.2 CFL Teachers

Forty two teachers participated in the survey. 83.3% of them ($N = 35$) were L1 Chinese speakers, only 16.7% ($N = 7$) were L2 speakers of Chinese (six L1 English speakers and one L1 French). 88.1% of the teachers were female ($N = 37$), with only five male. Seven teachers taught both primary and secondary pupils. Eight were teachers of Chinese in secondary schools but not of exam classes, nineteen were GCSE Chinese teachers for all children, two were GCSE teachers for Chinese or heritage Chinese students. There were also university teachers of Chinese, two of them for non-Chinese major students, and only one for students who was majoring in Chinese. One teacher was a trainee teacher, and one was the tutor of an online Mandarin course.

Most of teachers in this sample had been teaching Chinese for about 3–5 years in England ($N = 11$) and somewhere else in total ($N = 15$). Some teachers had taught Chinese, to L1 Chinese students for more than 10 years in China, and had started to teach Chinese in England in the last year through Hanban or Taiwan government programs.

4 Findings

The questionnaire used a number of Likert-type statements about the learning of Chinese against which respondents chose scores ranging from 1 to 4, signifying levels of disagreement and agreement. To prevent bias, both positive and negative statements were included and, as part of data analysis, the scores were reversed to follow the regular cognitive pattern (Coolican 2004). Therefore, the higher scores of 3 and 4 represent positive views about the items. In contrast, lower scores of 1 or 2 are negative views. With 2.5 operationalized as a baseline for degree of difficulty, scores above 2.5 signify that an item is was regarded as difficult by respondents and a score below 2.5 signifies that respondents found the item relatively easy. The overall descriptive analyses of beliefs about learning Chinese related to tones and Pinyin is set out in Table 1. The interview results are presented in relation to the questionnaire data.

4.1 Is Learning Chinese Difficult?

Although both the adult students and school students agreed quite strongly (3.35 and 3.10) on statement 12 that "Everyone can learn to speak a foreign language", they are were slightly less strong in their agreement with the proposition that "Everyone can learn to speak Chinese" (2.84 and 3.03), suggesting both groups of students recognized that it is a difficult language for English speakers to learn. School students agreed with the statement that "learning Chinese will be more difficult than learning European languages" (2.89). However, the teachers were neutral about whether Chinese is more difficult than European languages for English speaking learners (2.50), possibly because most of them were L1 Chinese speakers. Teachers estimated the difficulty students face in learning Chinese as lower than students. The interviews confirmed this pattern, and both school pupils and adult learners discussed why learning Chinese is likely to be harder than learning European languages, due to the non-alphabetic features of Chinese language. One school student stated,

> "I am learning German as well. I find that is easy because it's the same alphabet as English. … With Mandarin you have to learn the characters with the Pinyin, and learn to say it."

The degree to which students believed that "I will ultimately learn to speak Chinese very well" differed between the groups. Adult students were more confident (2.95) whereas the school students were ambivalent (2.50) about their ultimate success. This may reflect the positive choice to learn Chinese made by adult learners, whilst primary and secondary pupils below the age of 14 had no choice.

Table 1 Descriptive analyses of responses to statements of beliefs about learning Chinese

Items	Mean responses		
Section 1 Level of difficulty of these items of Chinese Learning (1- strongly disagree, - 4, strongly agree)	School students	Adult students	Teachers
1. Learning Chinese is harder than learning a European language	2.89	3.11	2.50
2. I believe that I will ultimately learn to speak Chinese very well.	2.50	2.92	2.71
3. It is easier to speak than understand Chinese.	2.21	2.38	2.64
5. Homophones are confusing	2.86	N/A	3.05
Section 2 How difficult are the following aspects of Chinese? (four point scale of very easy- very difficult)			
6. Matching sound with characters	2.73	N/A	2.90
7. Chinese tones	2.62	3.11	3.21
8. Pinyin	2.31	1.81	1.98
9. Vocabulary	2.70	2.65	2.76
10. Grammar rules	2.83	2.49	2.38
11. Chinese characters	2.68	3.08	3.00
Section 3 Chinese language learning	Pupil	Adult	Teacher
12. Everyone can learn to speak a foreign language	3.10	3.35	3.12
13. Everyone can learn to speak Chinese	2.84	3.03	3.00
14. Girls are better than boys at learning Chinese	1.96	2.05	2.07
15. Girls are better at learning foreign language	1.92	2.03	2.24
16. Learning how to carry on conversation in Chinese is more important than learning to read and write.	2.34	N/A	2.67
17. It is better to start Chinese learning with Pinyin.	2.70	3.00	2.74
18. It is better to begin Chinese learning with oral words.	2.55	2.81	2.93
19. It is better to begin Chinese learning with individual characters.	2.70	2.51	2.33
Section 4 Risk-taking in speaking and pronunciation	School students	Adult students	Teacher
20. If you are allowed to make mistakes in the beginning, it will be not be difficult to get rid of them later on.	2.51	2.62	2.69
21. It is important to repeat the sound of words several times in order to say it correctly.	3.00	3.43	3.24
22. It is important to speak Chinese with correct pronunciation and intonation.	3.03	3.35	3.00
23. You should a go at speaking, even if it means making mistakes.	2.95	3.16	3.69
24. Aware of tones when speaking	2.73	2.76	2.50
25. I do not mind making mistakes if I can learn to communicate.	2.85	n/a	3.21

4.2 What Is Important in Learning Chinese?

The results suggest some interesting differences between teachers' and pupils' beliefs about what is important in learning Chinese. The responses of the teachers were rather communication-oriented, showing a belief that learning how to converse in Chinese is more important than learning to read and write ($M = 2.67$). In contrast, students held a slightly negative view about this point ($M = 2.34$). In terms of the importance of grammar, half of students believed that grammar rules are important in learning Chinese ($M = 2.48$), whilst the teachers were rather less positive ($M = 2.21$). This suggests that, while the teachers were communication focused, students focused more on the linguistic forms and written scripts of Chinese, rather than on spoken Chinese, possibly because they believed that the linguistic forms and written scripts were more problematic for them.

The teachers and the adult learners in this study were very positive (3.69 and 3.16) about the need to have a go at speaking, even when they made mistakes, and the school pupils agreed, although to a much lesser degree (2.95) than their teachers. However, all three groups agreed strongly that "It is important to speak Chinese with correct pronunciation and intonation" (3.03, 3.35 and 3.00) and this apparent contradiction could suggest that, whilst excellent pronunciation is a goal, they all recognized the need to take risks and make mistakes. In the interviews this was a view shared by pupils students and teachers. As one school pupil pointed out:

> "Because if you don't make mistakes at start, and you will make mistakes when you are older in China or speaking to people, then the meanings are different and they won't understand you."

The adult students and teachers agreed with the item "If you are allowed to make mistakes in the beginning, it will not be hard to get rid of them later on" (2.62 and 2.69), but the pupils were unsure or ambivalent about this (2.51).

4.3 Is Speaking More Difficult than Listening and Understanding?

Overall, students and teachers had different opinions about the relative difficulty of speaking and listening for understanding. Teachers tended to rate speaking (production) as more difficult than understanding (adjusted $M = 2.64$), whereas both school and adult students thought that listening for understanding is actually harder than speaking ($M = 2.21 < 2.50$). However, the interviews revealed that most pupils thought that whether speaking is easy or not depends on what they are saying. For instance:

> "Speaking is probably the easiest, because you just say it and you don't have to know how to write the characters. It doesn't involve the characters at all. It just the Pinyin."

An adult learner expressed the beliefs that speaking is easier than writing, but was still clearly concerned about tones. As she pointed out,

> "Speaking is all about pronunciation which makes a bit more difficult, if you want to get a correct intonation and the accuracy of your speaking you have to add the tone, that's what perhaps makes it a slightly difficult, I suppose."

The interviews also revealed multiple interpretations of what speaking and listening meant.

> "If it is pretty long sentence it is quite hard, but if it is just something that we keep going over and over, like I am late, I remember, yeah, it's easy."

So speaking can mean repetition of a phrase or sentence, or composition and pronunciation of a meaningful utterance.

4.4 What Is Difficult in Learning Chinese?

When asked how difficult they found key elements of Chinese learning (tones, pinyin, vocabulary, grammar rules and characters), both groups of students identified the most difficult aspect as homophones, descending in difficulty through grammar, matching the sound with the forms, remembering words, remembering characters, with tones and pinyin as the easiest aspects of Chinese learning. However, this was not the order of difficulty for teachers, who identified tones as the most difficult, followed by homophones, descending in difficulty through characters, matching sound with characters, words, grammar and pinyin. Tones were rated as the most difficult aspect of learning Chinese by the teachers (who might be expected to understand students actual performance) and least difficult by both adult students and school pupils.

The interviews included a great deal of discussion of tones by school pupils and adult students. The degree of discussion about tones and analysis of the discussion suggested that school pupils' and adult students' understandings of tone, and their difficulties with them, were not straightforward. Typically, adult learners and school pupils made it clear they understood the importance of good pronunciation, and pupils in the interview overwhelmingly agree it was because of the tones. They pointed out,

> "There are four tones, they could be the same words with different tones, with meanings are completely different. So you have to make sure you say them properly, otherwise you could say something completely different."

However, some responses about tones cast doubt on the understanding of them by learners. One adult learner said,

> "There is nothing that sounds anything like an English word. So Chinese is much harder…. The tones for me are much harder than the pronunciation."

This suggests that this learner (and the others who made this point) saw pronunciation of the onset and rime of the syllable as separate from the tone.

Moreover, many of the school-aged pupil interview responses gave the impression that they did not attend very closely to tones in their speaking, despite the claim to the contrary in the questionnaires. For instance:

> "I know tones mean different things, but I don't have the feel for tones, so I probably just say it wrong." and "We don't really focus on tones. Probably when you say it, sounds like the accents." or "You can just say it, because sometimes when you say the tones, it sounds different. Anyway, it's not so important every time." And, very clearly "if you get the pronunciation right. Well, you are supposed to get the tone right but it's not really possible, is it?"

These comments are typical of a school-aged pupil view that tones were not so important that they needed constant attention.

Whilst there was a consensus about pinyin being the easiest aspect of Chinese, the interview results suggested that this may be based on misconceptions about pinyin by students. Many school-aged pupils did not seem to know the term 'Pinyin' well and merely considered it as a tool for pronunciation. One pupil stated,

> "Pinyin could be more complicated than the rest of the Chinese, because not like some English vowels make the same sounds. For instance, 'i' in Pinyin is like 'yi', but we don't have that similar things, so it's quite different."

All the teachers claimed to teach pinyin and most thought it was a good way to start Chinese, but a large proportion of the teachers expressed concern that pinyin and characters were "a lot to take on at the start" and some of the teachers also said they did "a very little" pinyin. One Year 7 and 8 teacher stated,

> "I just do a little pinyin to give them confidence. They need to hear the words most of all."

Another suggested

> "I do Pinyin very lightly - with just the main points and not too much emphasis."

It was noticeable that many of the school-aged pupils had a limited understanding of pinyin and there was doubt about how much it helped in learning Chinese.

> "I am ok when I speak tones, but when I write them (in Pinyin) it's a bit confusing."

Listening and understanding Chinese on the basis of tone was perceived as a major obstacle for English speaking learners in the interviews. As one school pupil pointed out,

> "We have been trying to recognize which tone it was and know them. It was pretty difficult to get them just from someone speaking in Chinese. I'm not sure how we would necessarily get to recognize which tone it actually was."

Other pupils mentioned the discrepancies of tones spoken by themselves and Chinese L1 speakers, saying that

> "I think listening probably the hardest of all, because you know your own voice well, but when you listen to other people saying Chinese, that's another thing."

Some pupils believed listening was comfortable for them. However, their comments suggest that "listening" was not always listening on their own, but listening with some additional help from their teacher. They mentioned their Chinese teacher provides English translations or uses simple words when speaking to them.

> "Listening is OK when I know what words are coming. Or she (the teacher) points out words as they come up on the tape."

For this reason, they did not think that listening to Chinese was a problem. Some pupils pointed out the fast speed did affect listening comprehension. Sometimes the speech was

> "so fast that I cannot get my head around it quickly enough."

4.5 What Is a Good Starting Point for Learning Chinese?

When asked what to start with when learning Chinese, teachers most strongly supported starting with oral words ($M = 2.93$), as might be expected based on their global goal of communicating in Chinese. An early emphasis on oral words was repeated a number of times in interviews, for example

> "I do not even want to write down the Pinyin for them. The character sounds like this. You just have to listen to what the teacher says."

However, the school students believed that starting with pinyin and characters was preferable, with the adult students, and teachers, showing a preference for pinyin. As one school student said

> "Pinyin gives me a way to know how something sounds when the teacher isn't there. I mean, you don't know otherwise, see?"

This may reflect the experiences of pinyin, discussed above.

5 Discussion

The beliefs of the students and teachers about learning spoken Chinese in this study are likely to affect their experiences of learning and teaching and so are important. The emphasis on learning and using spoken Chinese is reflected in the communicative orientation of the teachers, but the learners clearly found the linguistic elements and written forms to be an important focus.

Both the school pupils and the adult students in the present study believed that speaking was easier than listening to or understanding Chinese. This finding does not reflect the pattern of belief in older studies of University students in the USA (Samimy and Lee 1997), which reported that students and instructors perceived speaking Chinese as more difficult than understanding the language. However,

Gabbianelli and Formica (Gabbianelli and Formica 2017, this volume) in a study of 85 beginner learners of Chinese in Italy, also found that students perceived aural reception as more difficult than speaking, and they note that aural reception is generally perceived as the most difficult ability to achieve in language learning (Krashen 1982). The findings of the present study could be related to the beginner students and pupils' need to focus on the new, salient elements of speaking in Chinese and the theoretical argument above, that listening and discriminating Chinese homophones on the basis of tone is particularly difficult for English speaking learners. To explore this further, it is interesting to consider the teacher and student beliefs about difficulty for sound related elements of Chinese.

It is somewhat surprising that the questionnaire findings suggested that tones, a very complex item which English L1 students are unlikely to have experienced before, were not seen as the most problematic element by pupils, but were believed to be a major difficulty by teachers. As the teachers were likely to have evaluated the students' performance and understood the significance of tones better than the pupils, it is possible that the learners were underestimating the challenge that tones pose or the importance of the tones for comprehensibility.

This finding might be related to the expectations of learners and teachers in a language learning setting that emphasized spoken language, a communicative approach and risk taking in speaking. An alternative explanation could be that learners simply do not attend to tones in the beginning stages of learning Chinese. Although the students agreed that "I am aware of my tones when speaking Chinese" in the survey, the interview showed that students said they did not think this was a priority. A typical comment from a school student was

> "I try, but it is not so easy. I just can't get them all right or I wouldn't say anything."

And

> "I think tones are OK but I sometimes just pronounce it anyway and don't worry about the tone."

A great many of the school students interviewed knew about the importance of tones but also discussed them as an addition to a syllable, rather than an integral part. It is reasonable to assume that English-speaking learners might find the phonological aspects of Pinyin familiar from the onset-rime structures of English syllables, whereas the tones are likely to be unfamiliar. This may also explain the school students' approach.

Some further information can be derived from what the pupils, students and teachers thought should be introduced at the very start of Chinese learning. Whereas teachers favored beginning with oral words, pupils were much more strongly in agreement with starting with characters and pinyin. This may reflect beliefs about what is important in language learning, because pupils did not agree that carrying on a conversation was more important than reading and writing, whereas the teachers did. The teachers seemed to have a greater focus on oral performance than the pupils, at least at this beginner level.

Finally, it was interesting that the interviews suggested a "pinyin-lite" approach for beginners in this sample, which may be the result of teachers' wish not to over burden beginner learners. Learners may have a very limited understanding of pinyin and be over-optimistic about the challenges it presents.

This study is based on students' and teachers' reports about their beliefs, which may not be a direct basis for their actions. More research in this area is needed to establish a robust understanding of the beliefs of students, especially those of school age.

6 Conclusion

This study presents the beliefs about Chinese language, language learning and, particularly, aspects of spoken language learning of school and university students, and their teachers. It is a picture of teachers who believe their students need to use language and take the risks inherent in speaking in a new language, and necessary to benefit from feedback. In this respect, the student's own beliefs reflect those of their teachers. They aim to use their limited Chinese in class, but find the unfamiliar linguistic elements are important and seem to be ambivalent about how much attention to allocate to them. Moreover, there seems to be a tension between the teacher's beliefs about to focus on spoken language, at least initially, and the student's wish to use pinyin and concentrate on the familiar, phonological aspects of pronunciation. It would be useful to explore further how students can engage with tones from the outset of their studies.

Appendix

Beliefs About Chinese Language Learning (Student Survey)

The purpose of this survey is to help us find out more effective ways of teaching and learning Chinese. Your feedback is important to us. Please answer the questions below. This survey will take about 20 minutes to complete. Your participation in this survey is completely voluntary, and your responses will be kept confidential and anonymous.

Part 1 About You

1. Your first language is..? A. English B. French C. Chinese D. Others, please specify _____
2. Your age is...? A. 7–11 B. 12–15 C. 16–18 D. 19–22

3. Are you...? A. Male B. Female
4. Are you a...? A. School pupil B. University student C. Part-time student of Chinese
5. How long have you been studying Chinese? A. Less than a year B. 1–2 years C. 3–5 years D. 6–9 years E. 10 years or longer
6. At what level do you think you are regarding the Chinese language skills listed below? Total Beginner, Experienced Beginner, Intermediate. Advanced.

   a. In general
   b. Speaking
   c. Listening
   d. Reading
   e. Writing

7. Have you learnt other foreign languages other than Chinese? A. No B. Yes, please specify the language you have learnt_____
8. Have you been to China? A. Yes B. No
   If yes, how long did you stay in China? _____
   What was the purpose of your stay? _____
9. Why did you choose Chinese instead of other foreign languages?
10. What is your goal(s) for learning Chinese?
11. Do you think what you are learning in your Chinese class is valuable to you?
    Not at all valuable 1 ……..2 ……...3 ……..4 ……..very valuable
12. Do you enjoy learning Chinese?
    Not at all 1 …..….2 …….3 ……4 …….very much

Part 2 Is Chinese Difficult to Learn?

Please tell me to what extent you agree or disagree with the following statements.

1. Learning Chinese is not as difficult as learning European languages (e.g. French, Spanish).
2. Some languages are easier to learn than others.
3. I believe that I will ultimately learn to speak Chinese very well.
4. Recognizing the Chinese character is easier than writing the character.
5. It is easier to speak than understand Chinese.
6. It is easier to read and write Chinese than to speak and understand it.
7. I find it confusing that Chinese words have same pronunciations but different characters and meanings.
8. Matching pronunciation of words with characters is very difficult.
9. How difficult do you find the following aspects of Chinese learning?

   a. Tones
   b. Pinyin (e.g. nǐ hǎo)
   c. Vocabulary
   d. Grammar rules

e. Chinese characters
f. Chinese language in general

10. If someone spent one hour a day learning Chinese, how long do you think it will take him/her to become fluent?
11. If you have other comments on the difficulty of Chinese learning, please share them here:

_____

Part 3 What Are Good Language Learners Like?

Please tell me to what extent you agree or disagree with the following statements.

1. It is easier for children than adults to learn Chinese.
2. Some people are born with a special ability which helps them learn Chinese.
3. It is easier for someone who already speaks an Asian language to learn Chinese.
4. I have the ability to learn Chinese.
5. Girls are better than boys at learning Chinese.
6. English students are very good at learning Chinese.
7. How much students learn from the Chinese course mostly depends on the quality of the teacher.
8. I have a foreign language aptitude.
9. Everyone can learn to speak a foreign language.
10. Everyone can learn to speak Chinese.
11. Students who do not do well in the Chinese class simply do not work hard enough.
12. People who are good at Maths and Science are not good at learning Chinese.
13. People who speak Chinese are very intelligent.
14. It is easier for children than adults to learn a foreign language.
15. Girls are better than boys at learning a foreign language.
16. Some people are just born smart to learn a foreign language.
17. How much you can improve your proficiency in Chinese depends on your effort.
18. The really smart students don't have to work hard to be able to speak Chinese well.
19. If you have other comments on good language learners, please share them here.

_____

Part 4 What Is Important in Learning a Language?

Please tell me to what extent you agree or disagree with the following statements.

1. It is necessary to know the Chinese culture in order to learn Chinese.
2. It is better to start Chinese learning with Pinyin.
3. Learning vocabulary is the most important part of Chinese learning.
4. Learning grammar rules is the most important part of Chinese learning.
5. It is better to begin Chinese learning with oral words.
6. Learning how to carry on conversation in Chinese is more important than learning to read and write.
7. It is important to learn character components (radicals) when learning characters.
8. It is better to learn Chinese in China.
9. Learning Chinese is different from learning other school subjects.
10. Learning Chinese is mostly a matter of translating from English.
11. It is better to begin Chinese learning with individual characters.
12. Learning to write Chinese characters is a waste of time.
13. I would like to learn Chinese from a teacher who is a native speaker of Chinese.
14. It is important to know some basic writing rules (i.e. types of strokes, stroke order) of Chinese characters before learning to write.
15. If you have other comments on the importance in learning a language, please share them here.

Part 5 What Are Your Views About Learning Strategies?

Please indicate to what extent you agree or disagree with the following statements.

1. It is important to repeat and practice a lot.
2. If I heard someone speaking Chinese, I would go up to them so that I could practice speaking Chinese.
3. It is okay to guess if you don't know a word in Chinese.
4. I feel self-conscious speaking Chinese in front of other people.
5. If you are allowed to make mistakes in the beginning, it will be hard to get rid of them later on.
6. When studying Chinese words, I try to think how each character is related to the meaning of the whole word.
7. It is important to repeat the sound of words several times in order to say it correctly.
8. It is okay to guess the meaning of the character if you only know part of it.
9. Learning Chinese characters involves a lot of handwriting practice and memorization.
10. It is important to speak Chinese with correct pronunciation and intonation.
11. You should not say anything in Chinese until you can say it correctly.
12. When you come across a word you do not know, the surrounding context gives you a good idea of what it means.

13. I do not mind making mistakes if I can learn to communicate.
14. I am aware of my tones when speaking Chinese.
15. When I study a new character, I try to recognize its parts.
16. It is necessary to have some mechanical grammar drills exercises.
17. Sometimes you just have to learn a new word as a whole, even if the meanings of component character seem to be unrelated to the whole meaning.
18. It is okay to guess the sound of the character if you only know part of it.
19. I pay attention to my grammar when speaking Chinese.
20. It is important to practice in language laboratory with audio-visual and e-learning materials.
21. If you have other comments on learning strategies, please share them here.

Part 6 Why Do You Learn a Language?

Please indicate to what extent you agree or disagree with the following statements.

1. If I learn to speak Chinese very well, I will have many opportunities to use it.
2. I believe English people think that it is important to speak Chinese.
3. I would like to learn Chinese so that I can get to know Chinese people better.
4. If I learn Chinese, I will learn more about how other people think.
5. I would like to learn Chinese characters so that I can understand Chinese materials.
6. If I learn Chinese I will learn more about my own language.
7. I don't want to learn how to write Chinese characters because it is boring.
8. I believe Chinese people think that it is important to learn characters.
9. If I learn to speak Chinese very well it will help me get a good job.
10. If you have other comments on the purpose of learning a language, please share them here.

- Thank you for your time and cooperation. If you are interested in this study and would like to get further involved in the follow-up interview, please tell me your email address.

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Toward a Corpus of Chinese Classroom Teacher Language

Xia Cui

Abstract Despite having a negative impact on student progress, most Chinese language classes in Australian schools are conducted in English (e.g. Orton J, Tee J, Gong J, McCulloch J, Zhao YL, McRae, Profiles of Chinese language programs in Victorian schools. The University of Melbourne, Chinese Teacher Training Centre, 2012). This happens because teachers who are second language users (L2 teachers) themselves generally lack the language needed for running lessons, while first language user teachers (L1 teachers) find their unrestrained language is more than learners can cope with. To improve their students' proficiency both sets of teachers need to learn to use frequently an accurate and natural, but reduced, corpus of classroom Chinese, which gets gradually developed. This paper presents the findings from research undertaken to start building that basic corpus.

The sources for a corpus of natural classroom language were recordings of the language used naturally in L1 teachers' lessons in subjects across the curriculum in three Sinophone locations: Beijing day schools, a Hong Kong Mandarin-English bilingual school, and a Chinese Community School in Melbourne, Australia. A total of 18 lessons, ten primary and eight secondary, were recorded. Content included Mathematics, Discovery, Politics and (L1) Chinese. Analyses of these data isolated the language most commonly used in instructing, sequencing lesson stages, organizing activities, managing the learning process, and regulating classroom behavior. The results show that, regardless of the subject matter and the setting of the class, there was a shared set of teacher classroom talk that was finite and recurrent.

By reducing synonymous expressions to one high frequency term, and identifying key vocabulary and grammatical structures, a first corpus of natural, accurate, but pared down language was built. Tests of this corpus with L2 teachers revealed a very small volume of language new to them, and a learning challenge residing largely in mastery of spontaneous, fluent expression of connected complex clauses. The language was then divided into sequences to be used by teachers for managing

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activities in which students would only need to understand, and language that students would also need to be able to use actively and hence would need to be taught directly. On the basis of these analyses, professional development has begun for L1 and L2 teachers in running their lessons in natural but reduced Chinese only.

1 Introduction

Studies over decades in second and foreign language acquisition show that time spent in meaningful engagement with their target language will result in students' increased language proficiency (e.g. Krashen 1985; Met and Rhodes 1990). For students who have little access to natural target language outside their classroom, the use of the language in class is essential, whereas the use of their mother tongue undermines this process by diverting attention from the object of their learning (Dickson 1996: 1). More specifically, appropriate and extensive target language use has been shown to improve listening skills and sensitivity to pronunciation and intonation patterns; develop strategic and discourse competences; and increase opportunities to create genuine communication which challenge students to express personal meaning (Levine 2003: 163).

A key challenge in realising these benefits, however, lies in teachers' management of the content, complexity, range, and speed of delivery of what they say in the language, as well as in the support they provide to students (Levine 2003). As revealed by recent studies (e.g. Orton et al. 2012), despite having a negative impact on student progress, most Chinese language classes in Australian schools are conducted in English, as is often the case with other languages and in other contexts. It happens because teachers who are second language users themselves generally lack the language needed for running a lesson, while first language user teachers find their unrestrained language is more than learners can cope with and so they tend to default to English. To improve their students' proficiency, both sets of teachers need to use frequently an accurate and natural, but reduced, corpus of classroom Chinese, which gets gradually expanded.

The project, *Chinese Language in the Classroom*, reported here was undertaken to start building that basic corpus. The aim was to document the language used by L1 Chinese teachers in their conduct of lessons, and from that data to establish a corpus of classroom language that is natural and manageable for L1 and L2 teachers of Chinese to learn to use with Australian school students. This article presents the procedure and findings of the project, and the implications of these for teacher training programs.

2 Procedure

The project was collaboratively conducted by two Melbourne researchers from the Chinese Teacher Training Centre at the University of Melbourne, and three researchers from the College of Chinese Language and Culture at Beijing Normal University. The first step was to gather language used naturally by L1 teachers in lessons from across the curriculum in three Sinophone locations: a Chinese Community School in Melbourne, Australia, Beijing day schools, and a Hong Kong Mandarin-English bilingual school. The lessons were part of the ordinary schedule for the day and were audio recorded with observational notes also taken by the researchers. The three sites were chosen so as to include the language for local Australian meanings; the contemporary Chinese language used in modern Beijing education; and possibly contemporary Chinese language used for the full range of teaching activities (and hence language) used in Australia, which the Hong Kong classrooms might be more likely to include than those of the Mainland. To be able to assist primary and secondary teachers, as well as because differences in how teachers may speak to students in the two groups could provide a wider range of language, lessons were recorded at both primary and secondary levels.

Data gathered comprised audio recording of 20 × 45-min lessons, two each taught by five different primary and five secondary teachers, four in Beijing, four in Hong Kong, and two in Melbourne, as well as the observational notes made by the researchers. Lesson content included Mathematics, Discovery, Politics and Chinese. Eighteen of these lessons have been analysed and are the sources of the corpus of the classroom Chinese. The two lessons taught by the Melbourne secondary teacher have been excluded upon consultation with the researchers in Beijing. This is because, although the language samples from these lessons contain many modern expressions popularly used in the public media in Mainland China, which initially seemed appealing, the samples overall, however, were not considered meeting the standards of teacher classroom talk that should be modelled, in aspects of both vocabulary choice and grammatical accuracy, hence its exclusion from the analysis.

Initial analysis of the eight lessons recorded in Beijing was undertaken by the three researchers in Beijing, while those in Hong Kong and Melbourne were first analysed by the Melbourne researchers. Results were then exchanged and discussed in a series of face-to-face meetings. Each group of researchers proceeded according to the following steps:

- The teacher's speech in each lesson was transcribed (only student utterances needed to make sense of the teacher's talk were included)
- Teacher utterances concerning content information only were separated from that used for all other communication
- This remaining language – the initial corpus (ranging from 7 to 52% of original) – was coded according to utterance type
- The frequency of use of each type was tallied
- Initial corpus language was analysed to show its function in the lesson

- Key grammatical structures and vocabulary listed
- The results of lesson analyses gathered on each site were synthesized.

After the above analysis, the two teams of researchers had a series of face-to-face discussions of each set and a further reduction to the corpus was made by removing utterances that were not considered sufficiently standard teacher talk. Other utterances were modified on the same grounds. By keeping high frequency terms in replace of synonymous expressions, the whole was reduced to a set of classroom language that is natural but manageable in volume.

Results of the analyses show that, regardless of the site and subject matter, the teacher classroom talk was finite and recurrent. Their language display similar features in terms of utterance types, the range of function the language plays, key grammatical structures and volume of vocabulary. These are presented in the next section.

3 Results

The results present the first version of a corpus derived from the data, showing: (1) the types of utterances and the spread of these across the lessons; (2) the cluster of utterances based on the function they perform at various lesson stages; (3) the most frequently appearing language structures used; (4) differences in teachers' language across three sites; and (5) feedback from L2 Chinese teachers on the range and nature of the language. In the sections below where Chinese characters appear in examples, the pīnyīn of these are given next to them, followed by the English translation of these in brackets.

3.1 Types of Utterances

Utterances which were recurrently used by teachers on all three sites were categorised into five major types: *directives*, *announcements*, *questions, comments and feedback,* and *thanks and greetings. Directive*s were utterances used to give instructions, for example, 大家读一读… dàjiā dú yi dú… [You all have a read of …], 你和你的同桌讨论 nǐ hé nǐde tóngzhuō tǎolùn [You and your desk mate discuss], and 大声一点儿 dàshēng yīdiǎn er [Louder]. *Announcements* were utterances used to sequence lesson stages, such as 今天我们来讲… jīntiān wǒmen lái jiǎng… [Today we will talk about…], 我们下节课再看… wǒmen xià jié kè zài kàn… [We will have a look at… in the next lesson], and 下课 xiàkè [Class over]. The announcement category also includes utterances used to describe what was going on in the class, such as 绿组有四个人读 lǜzǔ yǒu sì ge rén dú [Four people in the green group are reading] and 你找到四个段落 nǐ zhǎodào sì ge duànluò [You have found four paragraphs].

Questions in the analysis were of four types. The first type is *general* questions using particles "吗 ma" "吧 ba" and "呢 ne". Some examples of these are: 准备好了吗?能看清楚吧?谁没发过言呢? zhǔnbèi hǎole ma? néng kàn qīngchǔ ba? shuí méi fāguò yán ne? [Ready? Can you see clearly? Who hasn't spoken yet?]. The second type is *affirmative-negative* questions, for example: 是不是这样?对不对?可不可以?你能不能告诉大家? shì búshì zhèyàng? duì búduì? kěbù kěyǐ? nǐ néng bùnéng gàosù dàjiā? [Is this right? Correct or not? Will this do, or not? Could you tell the class?]. The third type is questions with *interrogative pronouns*, for example, 什么叫全球化?谁给我一个数字?多少页?哪儿不明白? shénme jiào quánqiú huà? shuí gěi wǒ yí ge shùzì? duōshǎo yè? Nǎ'er bù míngbái? [What is globalization? Who can give me a number? Which page? Where do you not understand?]. There is also the type of questions using "怎么 zěnme [how]", as in 中文怎么说? zhōngwén zěnme shuō? [How to say this in Chinese?], and 这个字应该怎么读? zhège zì yīnggāi zěnme dú? [How should we read this character?].

Comments and feedback were utterances in response to students' performance, for example, 说对了,100分。 shuō duìle, 100 fēn. [Correct, 100 points.]; 他解释得非常清楚。 tā jiěshì de fēicháng qīngchǔ. [He explained very clearly]; S 同学补充得很好。 S tóngxué bǔchōng de hěn hǎo. [Student S added to it well]. Finally, there was a small number of utterances used to exchange greetings and express thanks.

The five types of utterance were tallied to show frequency of use. The tallies are presented in graphs (Figs. 1, 2, 3, 4, 5, 6 and 7 below). Figures 1, 3 and 5 show results for lessons taught on each site in primary, and Figs. 2 and 4 show the secondary results for Hong Kong and Beijing, respectively. Figure 6 shows a comparison between primary and secondary lessons in Hong Kong, and Fig. 7 shows a comparison of primary and secondary lessons in Beijing.

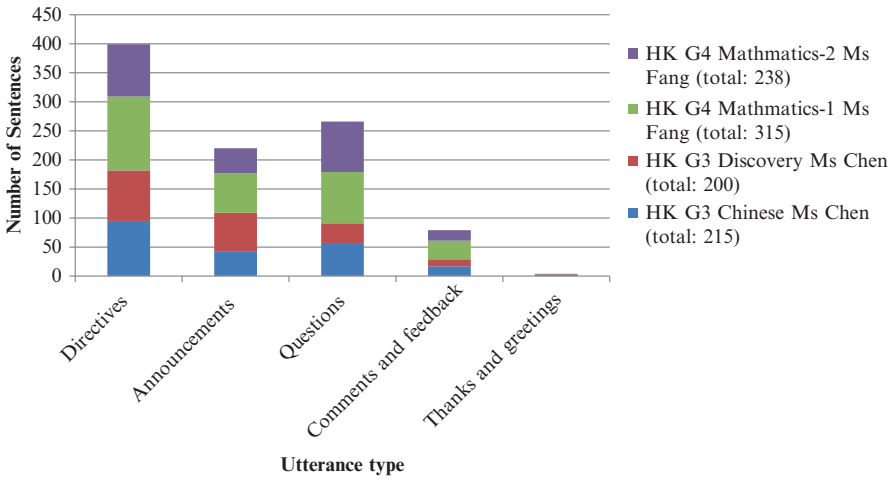

Fig. 1 Tallies of utterance types – Hong Kong primary lessons

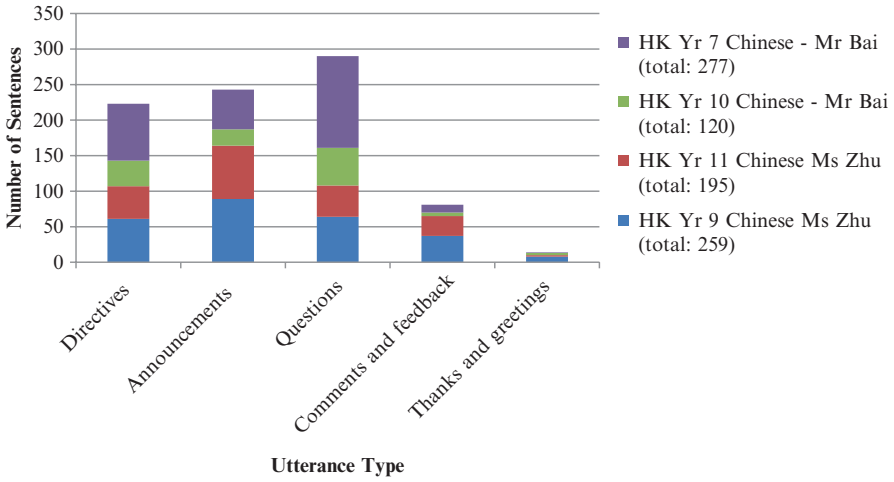

Fig. 2 Tallies of utterance types – Hong Kong secondary lessons

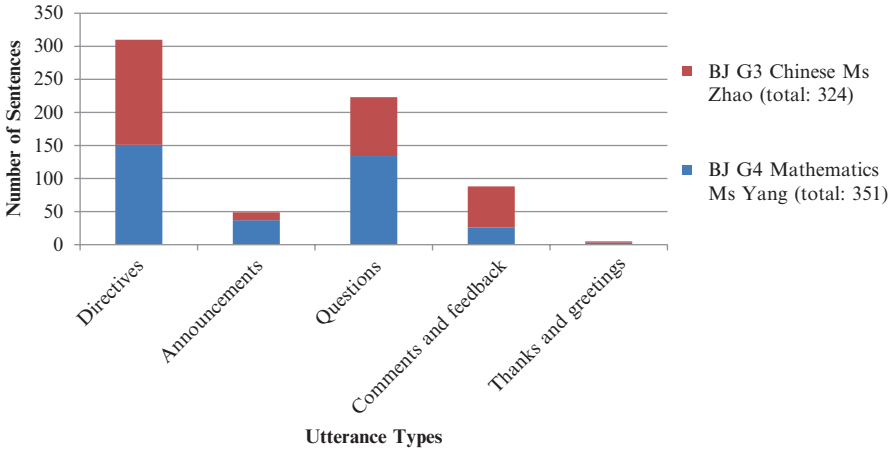

Fig. 3 Tallies of utterance types – Beijing primary lessons

Hong Kong lessons are color coded to show the volume of each utterance type made by the one teacher in one period of 45 min, while the Beijing and Melbourne lessons are color coded to show the volume of each utterance type made by the one teacher in one period of 90 min. Although subjects sometimes had the same name, the actual lesson focus was not always the same and hence the volume of language used could be quite different. Sentences in the figures refer to grammatically complete units of meaning, for example, 好,开始。 hǎo, kāishǐ. [Okay, let's start]; 动作快。 dòngzuò kuài. [be quick]; and 好,今天呢,我们要上的是新的单元,叫做… hǎo, jīntiān ne, wǒmen yào shàngde shì xīnde dānyuán, jiàozuò… [Okay, today, we

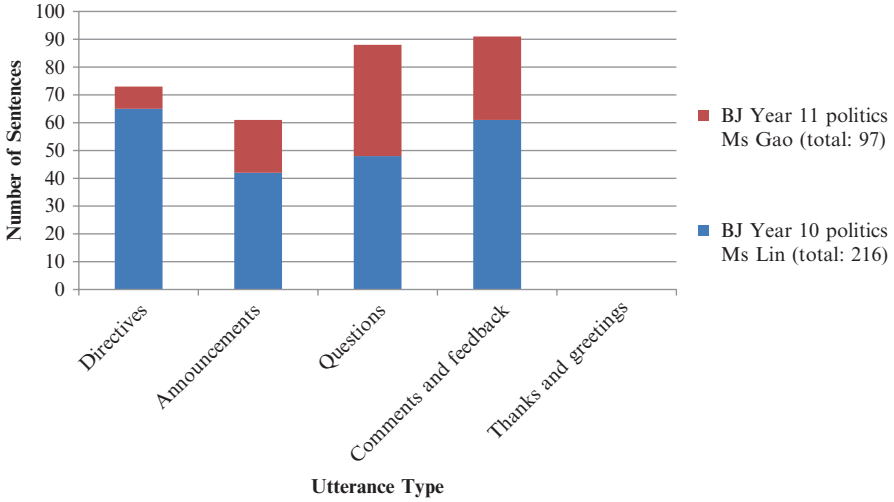

Fig. 4 Tallies of utterance types – Beijing secondary lessons

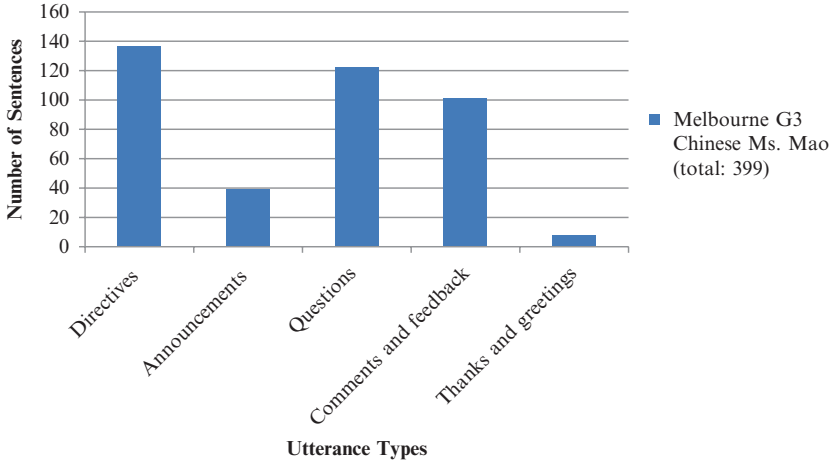

Fig. 5 Tallies of utterance types – Melbourne primary lessons

are gonna study a new unit, called …]. Teachers' names as shown in the figures are fictitious.

As shown in all figures, primary teachers as a group on all three sites used significantly more directive utterances than other types. Almost half of the teacher utterances in Beijing (310/675–45.9%) and Hong Kong (399/968–41.2%) primary lessons are directive statements. The utterance types of Secondary teachers, by contrast, are more evenly distributed. Hong Kong Secondary teachers as a group used slightly more questions (290) than directive statements (223) and announcements (243), and Beijing secondary teachers used just slightly more questions (88), com-

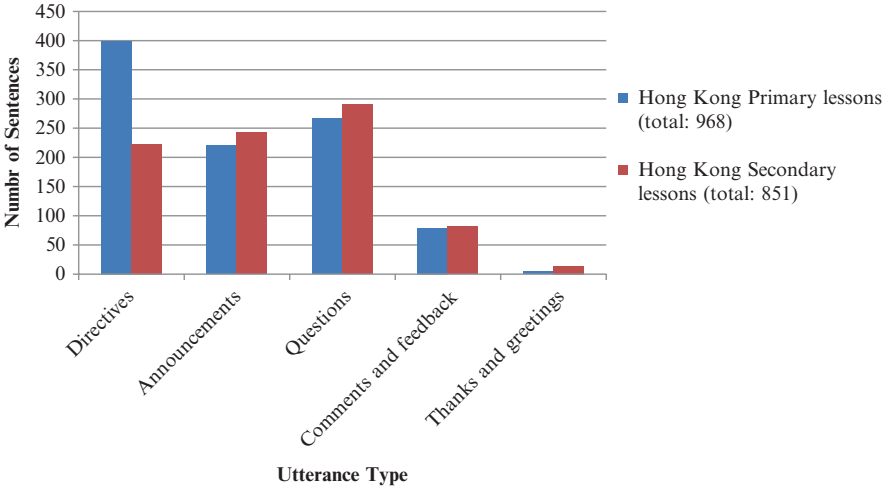

Fig. 6 Tallies of utterance types – all Hong Kong lessons

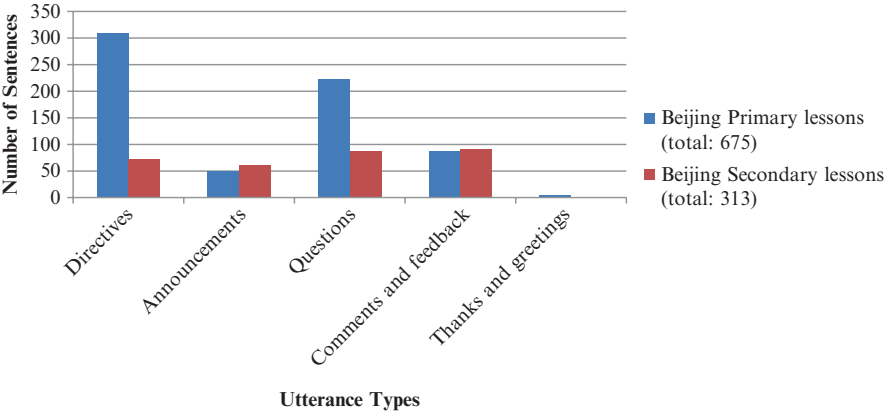

Fig. 7 Tallies of utterance types – all Beijing lessons

ments and feedback (91) than the other utterance types, directives (73), announcements (61).

Comparing the volume of utterances, primary teachers overall have produced more utterances than secondary teachers in both Hong Kong (968 vs. 851) and Beijing (675 vs. 313). When considering these figures, however, it needs to be kept in mind that the utterances concerning content knowledge only have been removed from this analysis. The number of utterances differs across the lessons, and in the case of Hong Kong, it also differs between the two lessons taught by the same teacher. The most notable is that Ms. Gao's year 11 politics lesson (Fig. 4) in has only 97 utterances, far fewer than the other teachers in Beijing (216, 351, and 324

by Ms. Lin, Ms. Yang, and Ms. Zhao respectively); while Mr. Bai's (Fig. 2) Year seven Chinese lesson in Hong Kong has more than double the utterances than his year ten Chinese lessons (277 vs. 120). A major factor contributing to such differences is the nature of activities in these lessons. In Ms. Gao's lesson, students were giving mini speeches, while a significant part of Mr. Bai's year ten lesson was devoted to students' discussing in groups and then reporting back to the teacher.

3.2 Functions of the Language

After tallying the utterances, the language gathered in all lessons was combined and organized according to the function it performed at various stages of the lesson. The purpose of this procedure was to identify the various utterances which fulfilled the same function, which could then be reduced to just one high frequency expression without synonyms. In the first step, four major functions emerged from the language data. They comprised the language to (A) organize lesson stages, (B) run learning activities, (C) ask questions, and (D) manage classroom behaviour.

The language for *organizing lesson stages* consisted of the following nine sub-categories, Table 1 below shows what these are and gives some examples for each.

The language for *running learning activities* was used for five purposes. Table 2 summarizes these and gives an example for each.

Due to the volume of language involved, as well as the necessity to analyse its grammatical structures, the language for asking questions was made a separate

Table 1 The language for organizing lesson stages

Sub-categories	Examples
1. checking readiness to start	都准备好了吗? dōu zhǔnbèi hǎole ma? [Are we all ready?]
2. announcing the start of the lesson	好,我们上课。 hǎo, wǒmen shàngkè. [Okay, let's start.]
3. calling the roll	今天XX同学还没来,是吗? jīntiān XX tóngxué hái méi lái, shìma? [Today, XX is not here yet, right?]
4. reviewing previous learning and checking homework	我们上节课上的是什么?现在打开你的作业。 wǒmen shàng jié kè shàngde shì shénme? xiànzài dǎkāi nǐde zuòyè. [What did we learn in our last lesson? Now open your homework.]
5. introducing the new lesson	今天我们要讲的是… jīntiān wǒmen yào jiǎng de shì… [Today, we are going to talk about…]
6. sequencing lesson stages	下面,我们看一看… xiàmiàn, wǒmen kàn yī kàn… [Next, let's take a look at…]
7. announcing the next lesson	下节课我们继续来学习… xià jié kè wǒmen jìxù lái xuéxí… [In our next lesson, we are going to learn…]
8. setting homework	今天先留下作业。 jīntiān xiān liú xià zuoyè. [Today, let's give the homework first.]
9. ending the lesson	好,下课。 hǎo, xiàkè. [Okay, class dismissed.]

Table 2 The language for running learning activities

Sub-categories	Examples
1. dividing students into groups	这个工作我们分组完成。 zhège gōngzuò wǒmen fēnzǔ wánchéng. [We complete this task in groups.]
2. assigning tasks	我想请一个组到前面来。 wǒ xiǎng qǐng yīge zǔ dào qiánmiàn lái. [I want to invite a group to come to the front.]
3. explaining rules of the activity	好,给你们五分钟。 hǎo, gěi nǐmen wǔ fēnzhōng. [Okay, I will give you five min.]
4. asking students to report	哪组先来? nǎzǔ xiān lái? [Which group goes first?]
5. giving feedback on students' performance	读得很好。 dúde hěn hǎo [You read well.]

functional category. The questions asked by the teachers consisted of four types: (1) *general* questions using particles "吗 [ma]" "吧 [ba]" and "呢 [ne]" ; (2) *affirmative-negative* questions; (3) questions with *interrogative pronouns* such as 什么 shénme [what], 谁 shuí [who], and 多少 duōshǎo [how many/how much]; and, (4) questions using "怎么 zěnme [how]". Examples of these four types of questions have been given earlier in Sect. 3.1.

A large number of the teachers' utterances related to managing students' behaviour. This language included directing students to

1. listen: e.g. 好好听。 hǎohǎo ting. [Listen carefully]
2. take notes: e.g. 在你的笔记本上写。 zài nǐde bǐjìběn shang xiě. [Write on your notebook.]
3. read: e.g. 读的时候把每一个字读清楚。 dúde shíhòu bǎ měi yīge zì dú qīngchǔ. [Pronounce each word clearly when you are reading.]
4. speak with the appropriate volume: e.g. 大声说。 dàshēng shuō. [Speak loudly.]
5. speak at the appropriate time: e.g. 一个一个来。 yíge yíge lái. [One at a time.]; S先说。 S xiān shuō. [S first.]
6. behave themselves: e.g. 坐好了, 不要晃。 zuò hǎole, búyào huàng. [Sit well, don't move around.]

Analyzing the function of the utterances showed teachers used multiple ways of expressing the same or similar meanings. For example, when sequencing lesson stages, to introduce a shift in activity, they might use 下面 xiàmiàn, 等一下 děng yīxià, 接着呢 jiēzhe ne, or 接下来 jiē xiàlái, which all mean 'next'. When reviewing previous learning, they would say one of the following: 我们之前讲过 wǒmen zhīqián jiǎngguò [We talked about it before], 我们上节课已经说了 wǒmen shàng jié kè yǐjīng shuōle [We've already mentioned it in our previous lesson], 我们上节课上的是… wǒmen shàng jié kè shàng de shì… [What we learned in our last class is…], 我们有学过 wǒmen yǒu xuéguò [We've learned], 老师跟你说过 lǎoshī gēn nǐ shuōguò [I've said to you]. At the same time it was found that several key language structures were very commonly used by all to perform particular functions. These common utterances will be presented in the next section, while the multiple form expressions will be dealt with later in the discussion of the corpus.

3.3 Key Language Structures

Several key structures were commonly used by all teachers to fulfill particular lesson functions. For example,

1. *Sequencing lesson stages was done using the following expressions*:

好 hǎo [Okay]: e.g. **好**,我们再等一下。 hǎo, wǒmen zài děng yīxià. [Okay, let's wait a moment.] **好**,接下来… Hǎo, jiē xiàlái… [Okay, next…].

那 nà [so/now] at the start of a sentence: e.g. **那**我们来看啦。 nà wǒmen lái kàn la. [Now, let's have a look.]

"Verb+ 一下 yīxià [a short while]" structure: e.g. 我们往前**看一下**。 wǒmen wǎng qián kàn yīxià. [Let's read forward.]

接下来/接着 jiē xiàlái/jiēzhe [next]: e.g. **接着**我们谈… jiēzhe wǒmen tán… [Next, let's talk about…]; 我们**接着**来看一下… wǒmen jiēzhe lái kàn yīxià… [Next, let's have a look at…]; **接着**我们来看屏幕。 Jiēzhe wǒmen lái kàn píngmù. [Now let's have a look at the screen.]; **接下**来我们再来看看… jiē xiàlái wǒmen zàilái kànkan… [Next, let's have another look at…]

继续 jìxù [continue] + Verb: e.g. 下节课我们继续学习… xià jié kè wǒmen jìxù xuéxí… [We will continue to learn in the next class]; 明天我们继续讨论… míngtiān wǒmen jìxù tǎolùn… [Tomorrow we will continue to discuss…].

看 kàn [look] to indicate what to do next: e.g. 我们先**看**… wǒmen xiān kàn… [Let's have a look at…]; 我们往下看… wǒmen wǎng xià kàn… [Let's move on to have a look at…]; 我们再**看**一下。 wǒmen zài kàn yīxià. [Let's have another look.]; 我们来**看一看…** wǒmen lái kàn yi kàn… [Let's have a look at…]

2. *When assigning learning tasks, directive utterances with the following verb structures were used*:

把 structure: e.g. 同学**把**它记住。 tóngxué bǎ tā jìzhù. [Class, remember this]; **把**这一句读一读。 bǎ zhè yijù dòu yi dú. [Read this sentence]; **把**你刚才说的那句话再说一遍。 bǎ nǐ gāngcái shuō de nà jù huà zàishuō yībiàn. [Say what you just said again.]

Verb + Verb Complement: e.g. 把手放下来。 bǎshǒu fàng xiàlái. [Put your hand down.]; 打开 dǎkāi [Open]; 拿出来 ná chūlai [Take out]

The imperative: e.g. 读一读这个题目。 dú yī dú zhège tímù. [Read this title]; 开始 kāishǐ [Start]; 继续 jìxù [Continue]; 找出答案 zhǎo chū dá'àn [Find the answer].

让/**要**/给 ràng/yào/gěi to start a command: e.g. 老师**要**你圈起来。 lǎoshī yào nǐ quān qǐlái. [I want to you circle this.]; 我**要**你想一想。 wǒ yào nǐ xiǎng yī xiǎng. [I want you to think about it.]

Pivotal structure: e.g. 请大家分好工。 qǐng dàjiā fēn hǎo gong. [You divide the tasks please]; 请同学们读一下实验的要求。 qǐng tóngxuémen dú yīxià shíyàn de yāoqiú. [Class, please read the requirements of the experiment]; 我想请三组来读一读。 wǒ xiǎng qǐng sānzǔ lái dú yī dú [I want to invite group three to have a read.]

Verb + 一下 yīxià [for a short duration] structure to indicate brief duration: e.g. 我们回顾和总结一下第一课。 wǒmen huígù hé zǒngjié yīxià dì yī kè. [Let's recap and summarize the first lesson]; 能举例说一下么? néng jǔlì shuō yīxià me? [Can you give an example?]

Verb + 一 yī [one] **+ Verb** structure to indicate brief duration: e.g. 我们来读一读第二部分。 wǒmen lái dú yī dú dì èr bùfen. [Let's read part two.]

Verb + Verb duplication structure to indicate brief duration: e.g. 我们读读这两句。 wǒmen dúdu zhè liǎng jù. [Let's read these two sentences.]; 现在你估计估计… xiànzài nǐ gūji gūji. [Now you have an estimate of…]

来 lái **+ Verb** structure to suggest actions: e.g. 我们来看一下… wǒmen lái kàn yīxià… [Let's have a look ·at…]; 哪组先来? nǎ zǔ xiān lái? [Which group goes first?]

Mitigating questions such as 可不可以/能不能 kěbù kěyǐ/néng bùnéng [could or couldn't]: e.g. 你能不能告诉大家… nǐ néng bùnéng gàosù dàjiā… [Could you tell the class…]

Among the above, the imperative was frequently used to manage students' behaviour. For example: 注意听,别说话。 zhùyì tīng, bié shuōhuà [Listen carefully, don't talk]; 看老师。 kàn lǎoshī. [Look at me]; 快坐下。 kuài zuò xià. [Sit down quickly]; 动作快。 dòngzuò kuài. [Be quick]. The mitigating question, such as 可不可以 kěbù kěyǐ, 觉不觉得 jué bù juédé, and 对不对 duì búduì, was often used to prompt students' responses. [Note: These phrases can be literally translated into 'can or cannot', 'you think so or not', 'correct or not'. However, the role this type of structure plays in an utterance is similar to using "could you please…', 'would you think… ' and 'would you agree'].

3. *In all the utterances, the use of the "*的 *de" segment across the various stages of the lesson stood out as a high frequency structure in the language of all the teachers.* There were four main types of"的"segment used. Table 3 below summarizes these and gives an example for each.

Table 3 Types of "的" segment

Types of "的"segment	Examples
1. subject +verb + 的	我们刚才读**的**这篇文章… wǒmen gāngcái dúde zhè piān wénzhāng… [The article we read just now…]
2. 的 suffixed to a verb or verb phrase to refer to something or somebody associated with a certain action	读一次的同学举手。 dú yīcì de tóngxué jǔ shǒu. [The students who have read it once raise your hand.]
3. prepositional link	他对这个文章的分析非常透彻。 tā duì zhège wénzhāng de fēnxī fēicháng tòuchè. [His analysis of this article is very thorough.]
4. 是…的 construction	这个工作我们是按组来完成的。 zhège gōngzuò wǒmen shì àn zǔ lái wánchéng de. [To complete this task, we will work in groups.]

As noted, comparison of the language gathered from all three sites revealed a high degree of similarity in several key language structures. However, there were also several differences in teacher language from one site to another. These are presented in the next section.

3.4 Differences in Language Used

There were three major differences in the language used by teachers across the three sites. These required wider consideration as to what would be included in the corpus.

The first difference concerned the extent to which the language might be considered 'standard' by the Mainland Chinese language experts involved in this study. The teachers' language in the Beijing lessons was characterized by this authority as accurate in grammar, appropriate in word choice, and succinct in structure. Hence this was the language considered to be meeting the standard for a teacher. The language used by one of the Melbourne teachers, someone originally from northern China who has been teaching for over 40 years, was also considered to be standard teacher language. In comparison, the teachers' language in the Hong Kong lessons, notably word choice and sentence structure, was occasionally deemed to have been influenced by the teachers' own dialect (e.g. Cantonese) or English. Some examples of these are: 我需要你举手说话 wǒ xūyào nǐ jǔshǒu shuōhuà [I need you to raise your hand if you want to speak]; 你要做完批改的动作。 nǐ yào zuò wán pīgǎi de dòngzuò [You need to complete the action of correcting.] It was also at times considered more colloquial than it should be (e.g. 差点儿,咱说完它。 chàdiǎn er, zán shuō wán tā. [There is still a little undone. Let's finish it.] These variant utterances were not included in the corpus.

The second difference in the language was related to the inclusion of group work in the lesson or not. There were no group activities in the Melbourne primary lessons but in the Beijing lessons, pair or group work was used in three out of the four primary lessons. Although small in quantity, utterances gathered from these lessons contained those for (1) dividing students into groups: 两个人一组 liǎng ge rén yī zǔ [Two people one group]; (2) assigning tasks: 请大家分好工 qǐng dàjiā fēn hǎo gōng [Class, please divide tasks]; (3) explaining rules of the activity: 每对一道题是一颗星 Měi duì yīdào tí shì yī kē xīng [A star for each correct answer]; (4) asking students to report: 好,说下,从第一组开始 hǎo, shuō xià, cóng dì yī zǔ kāishǐ [Okay, let's report, from group one]; and, (4) giving comments on students' performance: 刚才我们做了四组,第一组第二组没有争议,对不对? gāngcái wǒmen zuòle sì zǔ, dì yī zǔ dì èr zǔ méiyǒu zhēngyì, duì búduì? [Just now we did four groups, and there is no dispute in group one and two, correct?] A fuller range of language for use in running groups appeared in both primary and secondary lessons in Hong Kong, where almost all lesson activities were carried out in groups or pairs. Hence these lessons provide a comprehensive range of utterances on conducting group activities. Hong Kong data added expressions such as 好,现在自己去找三个人,三个人一组

hǎo, xiànzài zìjǐ qù zhǎo sān ge rén, sān ge rén yī zǔ [Okay, now you go and find three people, three people one group], for dividing students into groups; 这是你们的两个任务 zhè shì nǐmen de liǎng ge rènwù [This is the task for you two] for assigning group tasks; 给你们五分钟… 还有一分钟… 好了没有? gěi nǐmen wǔ fēnzhōng… hái yǒuyī fēnzhōng… hǎole méiyǒu? [I give you five min… one min left… is it done?] for explaining rules of the activity; 全对的举手 quán duì de jǔ shǒu [Raise your hand if you got it all correct] for asking students to report; and, 每一组得五分 měi yī zǔ dé wǔ fēn [Every group gets five points] for giving comments.

The third difference in the teachers' language was that certain utterances appeared only in the data of certain types of teachers. For example, language concerning student behaviour came largely only from the primary lessons. They ranged from statements reminding students to sit well, listen to the teachers and their classmates, to requests for them to speak with an appropriate level of volume. In her two lessons, the Melbourne teacher used a number of original utterances involving her relationship with the students. For example, she gave rather extensive positive feedback: 还有S。他非常的好心啊,非常的爱小动物, 我们同学的理想老师听了都特别高兴 hái yǒu S. tā fēicháng de hǎoxīn a, fēicháng de ài xiǎo dòngwu, wǒmen tóngxué de lǐxiǎng lǎoshī tīngle dōu tèbié gāoxìng [There is also student S. He is very kind and likes small animals very much. I feel very happy to have heard about your future plans.]; expressed encouragement: 有个别的同学可能对这个意思还不完全理解,因为有几个同学是今年才来的嘛,而且他们的家里面也不讲中文; 你们的英文都是我的老师 yǒu gèbié de tóngxué kěnéng duì zhège yìsi hái bù wánquán lǐjiě, yīnwèi yǒu jǐ ge tóngxué shì jīnnián cái lái de ma, érqiě tāmen de jiā lǐmiàn yě bù jiǎng zhōngwén; nǐmen de yīngwén dōu shì wǒ de lǎoshī [Some students might not understand because you only joined us this year. They also don't speak Chinese at home. In terms of English, you all are my teachers]; and told the students how she cared for them: 你上星期生病了是吧,今天呢?好了没有? nǐ shàng xīngqí shēngbìngle shì ba, jīntiān ne? hǎole méiyǒu? [You were sick last week, right? How about today? Are you feeling better?]

3.5 Feedback from L2 Teachers

During the analysis as presented above, the set of language gathered from Hong Kong lessons organized by its functions was presented to two L2 teachers in Australia. Individually, the teachers were invited to read through the list of utterances in short sections, and then tell the researcher what they thought of the language with respect to degree of conciseness, relevance in local classrooms, and volume of language known to them. Their feedback and suggestions have been incorporated in producing the corpus of classroom Chinese.

Two L2 teachers in Australia were asked to assess the set of language gathered in Hong Kong with respect to the degree of conciseness, relevance in local classrooms,

and volume of language already known to them. They reported that although language itself was not considered new or difficult, getting the tone, rhythm, phrasing, and particular modal particles right in complex sentences was challenging. In addition, they also felt there were some expressions they are unlikely to use, such as those having students recite and write from memory. Their feedback and suggestions were considered when producing the classroom Chinese corpus.

3.6 The Vocabulary

The initial corpus produced contains 1260 lexical items, 1024 of which appear in the HSK 5000 word list. The spread of these is shown in Table 4.

By eliminating synonyms and any unnatural or overly colloquial expressions, removing expressions that were not considered standard teacher talk, and keeping only high frequency terms in replace of synonyms, the initial corpus was produced contains a total of 109 utterances, and 159 lexical items. A comparison of the lexical items against the HSK 5000 word list shows 95.1% of these appear in the list [Table 5].

The words that do not appear mostly are those content specific words used as examples to make the sentences complete, such as 图标 túbiāo [icon] and 启动 qǐdòng [turn on].

4 Producing the Corpus for Teaching Chinese

Results of analysis of the 18 lessons show that, regardless of the subject matter and the context, teacher classroom talk is finite and recurrent. Teachers' language in these lessons is similar in terms of key structures and range of the vocabulary and the range of functions these play.

The next step of the project was to produce a restricted but natural corpus of usable classroom language from the refined data. The process of doing this involved consulting with research partners from Beijing Normal University to eliminate unnatural language or language they felt should not otherwise be modelled to those learning Chinese.

Table 4 Distribution of initial corpus items in the HSK word list

Level 1 (150)	Level 2 (300)	Level 3 (600)	Level 4 (1200)	Level 5 (2500)	Level 6 (5000)
11.6%	**8.8%**	**12.2%**	**21.7%**	**28.8%**	**16.9%**

Table 5 Distribution of reduced corpus items in the HSK word list

Level 1 (150)	Level 2 (300)	Level 3 (600)	Level 4 (1200)	Level 5 (2500)	Level 6 (5000)
45.3%	**18.9%**	**19.5%**	**6.3%**	**3.8%**	**1.3%**

A second procedure was to reduce the volume of language by keeping only the most commonly used phrases and eliminating any synonyms. L2 teachers' advice on this was sought, as well as the consultation with contemporary Chinese word frequency database (e.g. http://www.dwhyyjzx.com/cgi-bin/yuliao/). For example, a discussion with L2 teachers of Chinese results in the exclusion of utterances such as 明天我会查背诵课文 míngtiān wǒ huì chá bèisòng kèwén [Tomorrow I'm gonna check to see if you can remember the text by heart]on the grounds of relevance, as well as reducing 今天时间就到这里 jīntiān shíjiān jiù dào zhèlǐ [Today our time is up] to 时间到 shíjiān dào [time up] as the latter is more manageable to themselves and their students. There are also utterances that the BNU research partners consider are influenced by teachers' local dialect and need to be slightly modified, such as to change 我需要你举手说话 wǒ xūyào nǐ jǔshǒu shuōhuà [I need you to raise your hand if you want to speak] to 请举手说话 qǐng jǔ shǒu shuōhuà [Raise your hand to speak]. Using the Chinese word frequency database, for example, 想 xiǎng [think] is kept in place of its synonyms, such as 回忆 huíyì, 回顾 huígù, 思考 sīkǎo, because it is the most frequently used among these. The outcome of this process is the first cut of a pared down, natural and manageable corpus of Chinese classroom language. As can be noticed in this corpus, the language can be divided into two types, the sequences to be used by teachers for managing activities, which students would only need to understand, and the language that students would also need to be able to use actively and hence need to be taught directly. On the basis of these analyses, professional development for L1 and L2 teachers of Chinese, as well as learning activities for students to learn the classroom language, has begun to be developed.

5 SBUs in the Classroom

Situation-bound utterances (SBUs) are utterances that are highly conventionalized and prefabricated use of language which are tied to standardized communicative situations (Kecskes 2000, 2003, 2010). According to Kecskes (2010: 2891), "SBUs often receive their 'charge' from the situation they are used in (conventions of usage) [, and] it is generally this situational charge that distinguishes SBUs from their freely generated counterparts". The way the term is formed highlights the "strong tie", "the boundedness to a particular situation" of such utterances. SBUs are a sub-group of pragmatic idioms as opposed to semantic idioms. Unlike semantic idioms which have no ties to particular situations, and therefore can occur in any phase of a conversation where found appropriate, SBUs only make sense in particular well-definable situations (Kecskes 2010).

SBUs fulfil important social needs. This is because they are prefabricated and repetitive expressions, and people know they are not likely to be misunderstood by using these because these phrases usually mean the same to most speakers of a speech community (Kecskes 2010: 2892).

Looking at the corpus of classroom Chinese from the perspective of situation bound utterances, many of the utterances can be categorized as SBUs, and are for-

mulaic, rehearsed, rather than freely generated. These are tied to the classroom situation and are mostly only appropriate when said by the teacher to his or her students. Broadly there are four major categories of these utterances: *lesson starters*, *directives*, *announcements*, and *lesson concluding* utterances.

A typical lesson starter is teacher calling the roll: 我们现在上课, 我先来点名 wǒmen xiànzài shàngkè, wǒ xiān lái diǎnmíng [Let's start class now. I will call the roll first], 到没到 dàoméidào [here or not here]?. Utterances such as these are only said at the start of lessons. Similarly, utterances such as 好,下课 hǎo, xiàkè [Okay, class dismissed] are only used in the very end. Expressions like these are only found in a classroom situation and remain the same regardless where the lessons are conducted, Bejing, Hong Kong, or Melbourne.

A large number of classroom teacher language are directive utterances, such as 举手说 jǔ shǒu shuō [Raise your hand to speak], 一个一个来 yīge yīge lái [One at a time], and 坐好 zuòhǎo [Sit straight]. Lacking the use of *please*, these expressions would be considered abrupt if said in everyday situations. However, in a classroom setting, they are appropriate and used with high frequency. The announcing utterances such as, and 现在我们分组练习 xiànzài wǒmen fēnzǔ liànxí [Now we do the exercise in groups], are unlikely to be said in any other setting than a classroom, and therefore again situation bound utterances.

Understanding classroom teacher language from the perspective of SBUs explains that, although L2 teachers of Chinese are highly competent Chinese language users themselves, they have not acquired the repertoire of classroom Chinese because this set of language is often unique to the classroom situation, and are not included in the Chinese language curriculum in their language education or teacher training. It is not the language itself that is not learned, but how it is used in the classroom situation that is unfamiliar to L2 teachers of Chinese, and the capacity to fluently and spontaneously execute such language not developed.

6 Conclusion

The outcome of the project is a pared down corpus of classroom Chinese language. The language was then divided into sequences to be used by teachers for managing activities in which students would only need to understand, and language that students would also need to be able to use actively and hence would need to be taught directly. Tests of this corpus with L2 teachers revealed a very small volume of language new to them, and a learning challenge residing largely in mastery of spontaneous, fluent expression of connected complex clauses. On the basis of this corpus, and thinking of it from the perspective of Situation-bound Utterances, training programs can be designed so that the classroom Chinese language and its use in specific classroom situations is taught to the teachers and rehearsed until mastered with proficiency. Building on this proficiency, teachers can then develop their own repertoire of classroom Chinese language to suit their teaching needs. They can also design activities for their students to specifically learn the Chinese they need to use in class with the teacher and their classmates.

The Chinese Teacher Training Centre at the University of Melbourne ran two half day professional development sessions for L2 teachers of Chinese in 2014. Each session consists of two parts. In the first part the presenter was teaching Chinese to a group of volunteer students, and in the second part she was teaching to the participating teachers. The *Silent Way Method* developed by Gattegno (1972, 1976) was the teaching method in these sessions. The Silent Way uses target language only and engages in activities and interactions in the room. By using this method not only were the teachers provided the opportunity to immerse in the language they were to learn and develop proficiency of, but that they also got to observe how it was made possible to use Chinese only to conduct the lesson even when the students have very limited Chinese language proficiency. This first attempt at using the corpus of classroom Chinese language has received very positive feedback from participating students and teachers.

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Difficulties and Expectations of First Level Chinese Second Language Learners

Gloria Gabbianelli and Agnese Formica

Abstract The aim of this paper is to highlight the difficulties and expectations of first-level Mandarin Chinese (Throughout the paper, the term Chinese will be used to specifically refer to Mandarin Chinese) as a second language (CSL) learners, as well as to investigate the connections that exist between these factors and the learning process. The respondents who participated in the study include 85 CSL first-level learners, studying at one Italian university and three Italian secondary schools. Data was collected through a survey encompassing the following six areas: aural reception, aural production, reading, writing, grammar and spoken interaction. The influence of beliefs, concerning perceived difficulty on students' performance, was evaluated using a proficiency test created to adhere to the six areas investigated by the survey. The results revealed that the majority of respondents seemed to be aware that learning Chinese is a long and complex process, while at the same time, students enrolled in long-term language courses declared high achievement expectations. Within the framework of this study, perception of difficulty is especially focused on aural reception, writing and reading ability. The study offers a preliminary investigation on the connections between performance, expectations and perceptions of difficulty in the first-level Chinese language learning process.

1 Introduction

Chinese language learning (and, consequently, teaching in Italy) has been constantly expanding in recent years and is bound to grow further due to the interest of students and various institutions, at all levels. While Italian university instructors

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have developed a structured teaching method due to a long tradition of Chinese teaching, teaching methodology in secondary schools has only recently come under the scrutiny of researchers and still requires much in-depth study and improvement.

Chinese language teaching in secondary schools was formally recognized by the Italian Ministry of Education as an official language of the National Didactic Curriculum in 2014.[1] In 2012, the first national Chinese Secondary School Teacher Training Course was held in four different universities in Italy, training about 60 Chinese Teachers nationwide.[2] These are just two of the reasons which have led the authors to believe that the number of Italian secondary school students studying Chinese language will rapidly increase in the next few years (See and Ching 2013).

Although widely known, learning a second language which is typologically distant from the mother tongue influences the acquisition process in terms of learning time and effort (Giacalone 1994; Ellis 1994). Thus, in contrast to learning languages typologically similar to Italian (such as European languages which are part of the National Didactic Curriculum), learning and, consequently, teaching Chinese assumes different requirements of effort and time for Italian mother-tongue learners and teachers.

Researchers need to properly focus on every aspect of this new didactic area. This study is intended to offer an initial investigation of the expectations and perceptions of beginner students of Chinese in Italy. Indeed, reports from experienced CSL teachers show how, after a first few months of study, students generally experience learning frustration because of the perception that the language is too difficult. They often become demotivated to the point of failing to complete the course(s) they have enrolled in.

It is well known that in second language learning, motivation – defined as an intention "to learn the language because of a desire to do so and the satisfaction experienced in this activity" (Gardner 1985: 10) – is a very important element. Several studies have demonstrated that it is a considerable factor; capable of significantly influencing success and language acquisition speed – low motivation is generally connected to bad learning results (Gardner 1985; Ellis 1994; Csizér and Dörnyei 2005; Bettoni 2001). Although many discussions concerning various types of motivation and their correlation to many different factors involved in the learning process are still ongoing, it is undisputed that motivation is an effective impulse to learn a second language (Gardner and Lambert 1972; Dörnyei 1994). In the context of higher education explored by this study, students were learning a foreign language in their "native" setting and did not have any real communicative need to use it. For these reasons, learning motivation must be kept high; stimulating students'

[1] Italian Ministry of Education (MIUR.AOODGPER.REGISTROUFFICIALE(U).0003560.11-04-2014), www.istruzione.it.

[2] According to the Italian Ministry of Education Decree N. 249, September 10th, 2010, any secondary school teacher that desires to be employed on a long term contract is required to possess this type of training certificate.

satisfaction, enjoyment and interest in studying is fundamental, otherwise learning difficulties can easily prevail, leading to students' frustration.

Since learning satisfaction/enjoyment is considered an important motivating factor (Ellis 1994; Dörnyei 2001), expectations can play a significant role in Chinese didactics. Despite students' growing interest in learning Chinese, they generally approach it without any previous knowledge of the peculiarities of Chinese language.

Moreover, it should be considered that students who choose to study Chinese in secondary school, enroll in a long study process of 5 years that must be completed. Until recently, in Italy, Chinese language has been mainly taught at university level, where students may elect to change their curriculum or their major after an initial period of study. A different set of rules applies to the study of CSL in secondary schools. For these students, the learning process lasts for a period of up to 5 years with the added risk of affecting scholastic and even personal growth, particularly if they are not involved in and fascinated by the subject. For these reasons, exploring students' expectations, perceptions of difficulties and real difficulties in learning, becomes a crucial aspect in the learning and teaching process, allowing teachers and researchers to understand these factors in order to find ways to avoid detrimentally affecting the learning process. Therefore, the purpose of teaching does not only concern linguistic and communicative goals, but must also motivate students and increase their curiosity; offering different activities which involve cultural and social aspects, which can serve as an opportunity to also engage those students who experience difficulties in language learning.

Several studies have been conducted to offer an initial exploration of the difficulty of Chinese learning by Anglophone learners (Samimy and Lee 1997; Huang 2000; Bergman and Cheng 2001; Chiang 2002; Nisbet et al. 2005; Hu 2010).

At the same time, in Italy, with interest in Chinese learning increasing and the number of Italian learners growing constantly,[3] a limited number of studies has been carried out on teaching and learning. A number of these investigations mainly focus on teaching materials (Ardizzoni 2012), curriculum design or teaching methodology (AA.VV 2011; Langè 2012). This is probably due to the fact that Chinese teaching in secondary schools has only recently been officially established.

Despite the fact that motivation, expectations and learning satisfaction (enjoyability) are essential factors in the learning process, so far, few studies investigating beginner CSL learners' expectations have been carried out in Italian secondary schools. For this reason, the decision was made to explore beginner Chinese learners, attempting to classify aspects of difficulties that can affect the long-term process of learning Chinese. Might the learning success of some motivated learners be affected by initially wrong difficulty perceptions and expectations?

The results of this study are intended to be an initial investigation in order to find ways to facilitate the student learning process.

[3] See:http://www.ilsole24ore.com/art/notizie/2013-02-08/istituto-confucio-pisa-corsi-cinese142302.shtml?uuid=AbIxwVSH, accessed on February 8th, 2013.

2 Research Purpose

In order to find out and understand the main problems that Italian learners of Chinese must face during their first approach to the Chinese language, the following factors are explored: expectations, perceptions of difficulties and performance. Regarding these three areas, the analysis, in particular, will explore: (1) students' expectations regarding Chinese language learning; (2) students' perceptions of difficulty in learning Chinese, in order to find out which particular language features might be the cause(s) of learning frustration, when (and if) learning frustration appears; (3) how students' expectations and perceptions of difficulty affect their success (performance) in learning Chinese. Together with the focus on students' expectations and perceptions of difficulties, through the analysis of this last factor, our objective is to investigate if, and at what level, these perceptions of difficulties have a real impact on the learning process and how they affect performance.

The study aims to answer the following questions:

1. What are students' expectations with regard to learning Chinese?
2. What do students perceive as the main difficulties of learning Chinese?
3. Do these perceived difficulties affect performance? If so, in which areas do they affect performance?

3 Research Method

The research method consisted of several phases, including: selection of respondents, data collection, data analysis and the evaluation of findings. The first priority was the selection of respondents. Eighty-five students of Chinese language, belonging to four different institutions where the authors of this paper teach Chinese, took part in the research. All students participating in these Chinese classes were asked to complete a questionnaire (Appendix A) after studying Chinese for a period of 4 months. Students were informed that they were taking part in a study conducted by their teachers, aimed at improving Chinese teaching procedures (Dörnyei 2003).

3.1 The Questionnaire

The questionnaire[4] consisted of two sections. Section A focused on expectations concerning learning Chinese. It consisted of 17 statements, including two open questions, where students were asked to indicate their expectation levels on a five-point scale (completely agree, agree, partially agree, disagree, completely disagree).

[4] See Appendix A.

In section A, items A1, A2 and A3, dealt with the respondents' expectations toward the Chinese learning process. Item A4 presented an open question asking what students expected to be capable of at the end of the first year of study. Item A5 dealt with learning satisfaction, while items A6, A7 and A8 asked about difficulties encountered and the amount of effort required to learn Chinese. Items A9 through A14 concerned respondents' beliefs pertaining to the relationship(s) between Chinese and other languages they know, as a comparison of difficulty for learning or structural similarities. The questionnaire also investigated learner expectations in learning achievements (items A15, A16). Finally, item A17 asked about their intention to continue studying Chinese.

Section B focused on perceptions of difficulties. It presented 29 statements, including two open questions, addressing the following: aural reception, aural production, reading, writing, grammar and spoken interaction. Once more, students had to express their perception of the level of difficulty on a five-point scale (very difficult, difficult, medium, easy, very easy). Focus information on the contents of Section B is presented in the findings paragraph, together with the contents of the proficiency test.

All collected data referring to expectations and to perceptions of difficulties were calculated to obtain descriptive percentage values. For analysis of the data, in order to obtain results that could allow better focus on main trends, it was decided to reduce the five-point scale to a three-point scale. Elaborating the graph in such a manner meant that although only three levels were shown, it was possible to obtain a clearer observation outcome.

In order to achieve the three-point values, the analysis of data pertaining to expectations combined the results of "completely agree" with "agree", and "disagree" with "completely disagree". Thus, the interpretation of data, as obtained by the graph representation considered for analysis, was based on three groups of values: agree, partially agree and disagree. Secondly, in this section, it was decided to combine the data regarding questions that focused on similar aspects. This was carried out in order to identify the main trends referring to beginner Chinese learners according to their achievement expectations, perceptions of effort required for learning and learning satisfaction.

For the analysis of difficulty perception data, levels 1 and 2 (very difficult, difficult) were incorporated into one single value, as were levels 4 and 5 (easy, very easy). The levels represented by the graph were then changed to show three levels: "difficult", "medium" and "easy".

In the last phase, students were asked to complete a proficiency test (Barni 2000) that was created according to the six areas investigated in the survey (Appendix B). Results were analyzed and reduced to numerical values, using a scale of three-point values (excellent, sufficient, insufficient) in order to obtain descriptive statistics for the six areas.

At this point, a comparison was made between the statistical results of difficulty perception and performance in the six areas investigated in order to explore if these difficulties were merely perceived, or if they were indeed affecting student language improvement and the learning process.

4 Survey Respondents

The survey participants consisted of beginner Chinese learners from four different academic institutions all located in the Marche region, in central Italy (Appendix C). Eleven of the respondents were university students from the "University of Urbino". They were 20–27 years old and enrolled in a 3-year academic course of Chinese language as a major. During each academic year, they should receive 250 h of conversation lessons with a mother-tongue lecturer and 30 h of Chinese grammar lessons.

Three of the learning institutions involved were secondary schools that offer Chinese language courses, although conditions did vary by school. Forty-nine of the respondents were first-year students (14–15 years old) from "Liceo Linguistico Benincasa", a linguistic secondary school that offers compulsory Chinese language courses. Students of this institution were enrolled in a 5-year language course. In the first 2 years they must attend three classes every week, one of which is taught by a Chinese mother-tongue teacher. In the last 3 years, they attend four classes a week. The fourth class is dedicated to Chinese culture and literature. Besides this, in the third year, the school provides the opportunity to go on a short study tour to China. Participation is not compulsory for students, but the trip takes place during the school year and is considered a curricular activity. As we can see, similarly to the university students, this group of respondents took part in a long-term Chinese language course. This contrasted with the remainder of the respondents from "Liceo Scientifico Marconi" (11 respondents) and "Itis – Technical Secondary School Enrico Mattei" (14 respondents), who took part in short-term language courses, as their schools do not offer compulsory courses. The former offers Chinese language as curricular subject, but it is included among elective courses. The Chinese class is mixed and composed of students between 15 and 17 years old, (second to fourth year students). Students receive 50 h of Chinese lessons per year and no mother-tongue lecturer is provided. Students from the second institute take part in an 18-h per year, elective and non-curricular Chinese language course. Students are between 16 and 17 years old (belonging to the third or fourth year) and those that attend the course obtain didactic credits.

5 Findings and Discussion on Learning Expectations

This section describes findings connected to the three research questions. It begins by laying out students' learning expectations with reference to research question number one. The following part highlights two different sets of outcomes: firstly, the perceptions of main difficulties, which were drawn from the results of the questionnaire with reference to research question number two, and, secondly, the relationship between the perception of difficulty and actual performance. This is drawn from comparing responses given to the questionnaire with proficiency test results, with reference to research question number three.

Section A of the questionnaire is dedicated to expectations. Statements were created to investigate students' beliefs about the Chinese learning process.

The main area investigates students' prior information about the Chinese language and their learning expectations before commencing Chinese classes. Italian learners generally approach the study of Chinese with little or no knowledge of the language's characteristics; sometimes they even possess incorrect information. When students were asked about their familiarity with the language before starting study, results confirmed this general trend: 69% of respondents did not know anything about Chinese language, while the remainder possessed summary information concerning Chinese language. They knew it is a language that uses characters and tones. A number were familiar with the term *nihao*, used to say "hello", and some knew how to pronounce a few numbers.

Keeping in mind the fact that the students lacked any real knowledge of what they were about to face, it was of interest to discover what competences students expected to acquire during the first year of study. The most common answers referred to the following topics: "Introducing myself; talking about my life, interests, etc., basic conversation skills; asking for information if I get lost; basic, but grammatically correct, speaking skills". Students revealed realistic learning expectations, most likely due to information they had already learned. It must be considered that students took part in the research study after a 4 month period of study. Thus, the little information they had acquired up to that point could probably motivate respondents to set their answers towards a credible acquisition process.

This area also investigated students' beliefs relating to the comparison of Chinese with other foreign languages. Almost all the respondents declared that Chinese was not similar to any other language they knew; one of the respondents claimed similarities to the Japanese language, while a second respondent identified grammatical similarities with English grammar.

The second main area of research investigated students' expectations and beliefs about effort required in studying Chinese. One statement asked students to range their perception of effort referring to the Chinese learning process compared to other languages. The results indicated that 49% of respondents believed that studying Chinese requires more effort compared to other languages, 39% of respondents agreed that it is similar to studying other languages, while 17% partially agreed. Referring to expectations of learning competences in Chinese, compared to learning competences in other languages, all the respondents had quite high expectations: 52% declared that they would be as competent in Chinese as they would be in French, German, English and Spanish. A further 19% partially agreed and only 29% disagreed. The majority of students consider Chinese a 'different' foreign language, confirming the results of the study by Yang and Medwell (2017).[5] Their study investigated English university and school students' beliefs about leaning Chinese, and found that Chinese is harder to learn, compared to non-European languages.

The questionnaire also presented a statement exploring the level of effort required to learn Chinese. According to these statements, the results were heavily one-sided:

[5]Yang and Medwell's paper is contained within this same volume, Chap. 6.

90% of students expected and were prepared for the effort level required. Considering the previous results concerning effort required for studying Chinese, it can be assumed that almost all the learners expected the study of Chinese to be difficult.

Findings referring to students' beliefs on the difficulty of studying Chinese, before actually starting to learn Chinese, also proved to be of significant interest. A clear difference was noted between students of institutions/schools offering long-term and short-term language courses. The majority of the former claimed that studying Chinese was less difficult than they expected, while the latter claimed that Chinese was more difficult than they initially thought. Referring to the above results, which demonstrate that students recognized that a high level of effort is required in learning Chinese, we can assume that "effort required" most likely played a role in these responses and that students attending short-term language courses do not put enough effort into the learning process, thus perceiving it as more difficult.

For the most part, these findings demonstrated that students were aware that learning Chinese probably requires more effort compared to learning other languages, but they also showed that students firmly believed that they could obtain high competence in Chinese.

The remaining research statements explored expectations on learning achievement and satisfaction. The majority of respondents, 74%, thought that achieving a high level of competence in Chinese is difficult, 19% partially agreed and only 7% believed it to be easy. Despite the fact that the majority considered learning Chinese to be a difficult process, the collected data registered a high level of learning satisfaction. Some statements asked students to range their satisfaction regarding teaching method, teaching pace, topics presented, etc. Data from these statements showed that most students' expectations were satisfied. This point seems to be confirmed by students' intentions to continue the study of Chinese. Although respondents gave mostly affirmative answers, the figures showed some discrepancy. 100% of the university group respondents and 96% of the "Liceo Lingusitico Benincasa" respondents claimed they would continue studying Chinese, while only 55% of the "Liceo Scientifico Marconi" respondents and 50% of the "Itis – Technical Secondary School Enrico Mattei" respondents claimed similarly. These results, as previous findings have shown, highlight the difference between respondents enrolled in long-term and short-term courses. Those students attending long-term courses were determined to continue learning Chinese, while those enrolled in short-term courses, were much less determined (a ratio of almost 2:1).

6 Findings and Discussion on Perception and Performance

This section describes the results of comparing perception and performance in the six areas investigated by the research. The cross analysis of these data will allow us to point out which aspects are responsible for student learning frustration/learning motivation during the Chinese language learning process. Focusing on sources of learning frustration, learning motivation factors, as well as the impact of frustration

and motivation on performance, is of fundamental significance for teachers, providing them with the ability to bring teaching strategies in line with precise targets.

Through questionnaire statements and a proficiency test, some light was shed on some aspects of students' preferred cognitive styles (in some parts of the questionnaire there are statements asking students about their preferred method(s) to learn pronunciation and characters); on what they consider to be the more enjoyable aspects of learning; on what the main obstacles are in the learning process. In addition, utilizing two research instruments, in this case a questionnaire and a test, enabled understanding of what students were aware of (perceived difficulties) and, conversely, unaware of.

6.1 Aural Reception

The first area investigated was aural reception. The task students were asked to fulfill matches the abilities required for first-level learners during the first months of learning, specifically concerning the field of phonetics, that is: being able to recognize monosyllables, polysyllables and their tones.

A very common method (Masini et al. 2010; Abbiati 2010; Li 2008) used to teach beginner students during the first period of teaching Chinese phonetics (the length of period varies according to the type of course) is to focus on presenting pronunciation exercises aimed at practicing the whole set of Mandarin Chinese syllables declined in the four tones. This is done in order to make students familiar with sounds they never pronounce in their mother tongue. Presenting phonetics on the basis of the syllable framework, instead of solely through initials and finals, is a method connected to the tradition of the Chinese conceptual framework of phonetics (Sun 2006).

The exercises utilized in this method are solely aimed at reproducing sounds and tones, as well as to train students to become able to identify – in the reception phase – which sound corresponds with the transcription given by the pinyin Romanization system. In this phase, the focus is not on the connection between phonetic and semantic aspects.

Based on this method, which was practiced by all the research respondents, a number of statements were formulated in the questionnaire concerning the difficulty of recognizing monosyllables, polysyllables and tones. As previously mentioned, the preferred learning method for phonetics was also explored.

During the proficiency test exercise, students were asked to listen to a recorded voice and write down what they heard. The content of the listening exercise was made up of five monosyllables (*yǒu; chén; lǜ; xiān; sǎn*) testing some of the critical aspects students come face to face with in the learning process, such as the distinction between the different tones (especially second and third); the distinction between final /ən/ and final /ɤŋ/; and the capacity to recognize and transcribe the final /y/; the transcription of the final /i̯ɛn/ (which Italian students, influenced by their mother tongue, often transcribe as "ien" instead of "ian"). The polysyllables

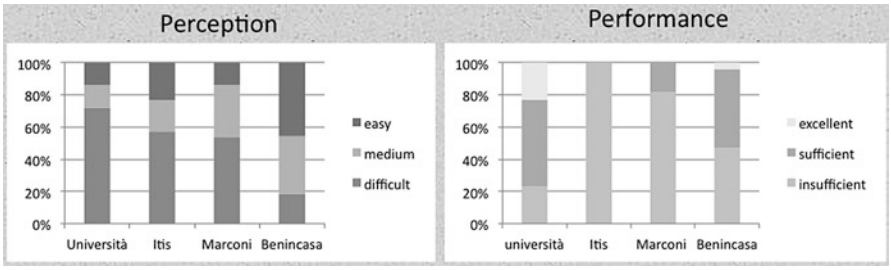


Fig. 1 Aural reception analysis

(*yīfú; shǔjià; yánjiūshēng; gōngjiāochē; zìshíqílì*) were mainly aimed at testing the capacity of students to assemble more syllables and different tones together, to recognize different finals that are transcribed with the same vowel (as in "*zìshíqílì*" where we have /i/ as opposed to /ɯ/) and to see how final pronunciation changes according to the syllable that follows in the same word.

Figure 1 shows two graphs: analyzed and aggregated data from the questionnaire (Perception Graph) on the left, and from the proficiency test (Performance Graph) on the right. The "Perception Graph" shows that students from three out of the four institutions perceive listening as "difficult" or "medium" (except for "Benincasa", where "easy" rated more than double the percentage of "difficult"). The "Performance Graph" shows that, except for "University", the majority of students had fairly high "insufficient" percentage rates.

As a third step, it was necessary to look into the relationship between perception and performance results. Analysis showed that there is a correspondence between perception and performance at three of the four educational institutions. This means that students who declared perceiving listening as "difficult", actually had high insufficiency rates. The only exception is represented by "University" students, as they declared listening "difficult", but still performed very well. This is probably due to the fact that at university level, students are conscious of the difficulty of mastering Chinese phonetics (the reason why they declare it is difficult), but during their courses they have the opportunity to engage in extensive training in this area and they generally put in more effort than secondary school students (which will be hypothesized on later).

In general, it should also be pointed out that for all of the students, as expected, the most challenging task consisted of identifying tones in polysyllabic compounds. Concerning syllabic transcription, the most challenging polysyllable was *yánjiūshēng* as, in order to transcribe it without error, students had to remember three particular features of Chinese phonetics: the sound /i̯ɛn/ must be transcribed as "yan" and not "yen" (a very common mistake); the sound /tɕi̯oʊ̯/ often transcribed as "gio", the final /ɤŋ/ often confused with /ən/.

The final piece of information which emerged from data analysis is that students that perceived listening as difficult and had the worst performance results were the ones attending short-term, non-compulsory courses, lacking a mother-tongue teacher (see Fig. 1: "Marconi" and "Itis").

6.2 Aural Production

This section presents the same characteristics of the previous section for what concerns survey statements and testing. The questionnaire asked how difficult respondents considered the pronunciation of single syllables, polysyllables and their corresponding tones. In the proficiency test, the assigned task was to: "read and pronounce" monosyllables, polysyllables and their tones. Respondents were presented with words written in pinyin on the test sheet, which they had to read aloud. Their responses were recorded.[6] The monosyllables were: *qì, lóng, zhòng, cuǐ*; the polysyllables were: *niǔyuē, shàngkè, fànmàijī, pútáoyárén*.

The most common and widespread mistakes were made with "zhòng" and "cuǐ" – especially the latter, where L1 has a negative interference. In Italian, this word would be pronounced /kui/, consequently many students pronounced /kui/ instead of /tsʰueɪ̯/. As in the previous section, here too, the majority of problems for students had to do with polysyllabic compounds and the majority of them failed to pronounce the correct sequence of tones. This appears clearly in the analysis of the proficiency test results, as we considered "tone" and "syllable" results separately. Pronunciation was generally perceived as easier than listening by students of all the institutions and, despite the mistakes described above, this perception was confirmed by testing results. In fact, in this section, success rate was much higher than before (see Fig. 2 for detailed percentages).

The above figures also show the correspondence between perception and performance, especially at "University" and "Benincasa". The students with the worst performance results were again those attending short-term, non-compulsory courses.

This data allows us to assume that motivation to achieve good competence in basic pronunciation exercises arises not from enjoyment or usefulness in terms of communicative interaction, but rather relies on the commitment to invest in future competence. This hypothesis could explain why the "University" students took this area of learning more seriously (they considered it difficult to acquire a good pronunciation level) and why they generally performed better.

This is also pointed out in Yang and Medwell (2017), where the authors emphasize that, according to their respondents, "listening for understanding is more difficult than speaking" and underlined that sometimes the importance of pinyin is underestimated by students. According to their study, students – although they recognize the importance of pronunciation and tones – very often declare that they do

	UNIVERSITY	ITIS	MARCONI	BENINCASA
PERCEPTION[10]	65%	50%	65%	70%
PERFORMANCE[11]	100%	35%	28%	55%

Fig. 2 Aural production percentages

[6] All of the students were recorded. These recording were listened to and analyzed by the same person, a mother tongue CSL teacher.

not really pay attention to them when speaking and also declare that they have a hard time identifying tones when they are pronounced by someone else.

The information drawn by these data suggests some interesting teaching implications. It has been acknowledged that phonetic exercises do not stimulate motivation, nor do they help basic communicative interaction; besides, awareness exists that long-term students require solid practice of Mandarin Chinese pronunciation. This means that short and long-term courses require different approaches. In the case of short-term courses, it is probably not worth spending time on these types of exercises. With long-term courses, especially when it comes to secondary school students, phonetic exercises should be made more gratifying, using "enjoyability" to enhance motivation.[7]

6.3 Reading

Concerning the area of reading, in the perception phase, questions were asked concerning "reading" a character in terms of understanding/seeing how many strokes it is made up of or which radicals compose it. Questions were also asked regarding recall capacity in terms of pronunciation and meaning (e.g. how difficult it is to recall a characters' pronunciation and/or meaning while reading a simple text). Finally, inquiries were made about deduction capacities, asking whether students would find it easy to deduce the meaning of unknown characters within a familiar context.

The respondents were tested on these abilities during the testing phase. The first exercise asked them to write down (in Chinese) the translation of a word presented in Italian, to write down the stroke order and the number of strokes. The second exercise asked them to identify the radicals composing an unknown character. The third exercise asked them to guess the meaning of unknown characters in a familiar phrase context (Fig. 3).

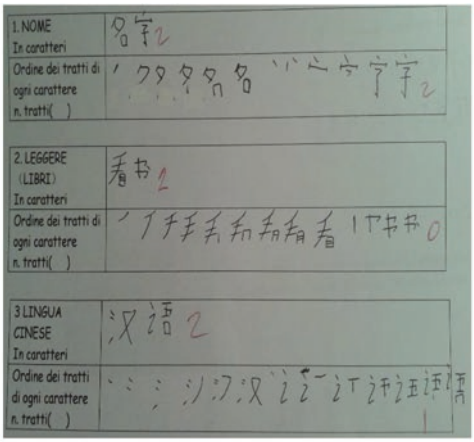
Comparing perception and performance data led to the discovery that there was no correspondence between perception and performance in this area. It was interesting to observe that most students failed to correctly identify character stroke order; it was very rare to find a test sheet with no mistakes at all. This result does not match the perception of students, who, with an average rate of 60%, declared it easy to identify the number of strokes and their order.

On the other hand, in the perception phase, they considered the identification of radicals quite difficult, but, in the proficiency test, the majority of respondents (of all four institutions) was easily capable of identifying radicals, even in unknown characters.

In the perception questionnaire, when asked how difficult it is to guess the meaning of unknown words in a familiar context, students declared it "difficult", yet testing proved their capacity for deduction to be extremely strong (40% excellent, 27% sufficient, 33% insufficient). The majority were able to deduce that the first two words were proper nouns, the third a nationality and that the fourth was a word indicating kinship.

These results lead to a number of important implications for teaching. Students' awareness of their capacity for deduction should be reinforced, while more empha-

[7] For a definition of enjoyability and motivation see Freddi (1990), Balboni (2002), Caon (2004).



What do you think to be the meaning characters in red?
你好！ 你是谁？
我是马克，我是王玉的朋友，我是台湾人，王玉的爸爸也是我的朋友。

Fig. 3 Reading test examples

sis should be placed on radicals. This would result in making radicals even more familiar to students, so that they may utilize radicals, combined with their general capacity for deduction, to strengthen reading skills, as well as their ability to memorize characters, radicals, etc.

6.4 Writing

In the written production area, perception and performance were also found to not correspond. In the perception part, students were asked about the difficulty of writing characters according to precise rules (stroke order and direction, spatial balance). Concerning performance, a number of characteristics were looked at, such as: how many characters they could remember (and consequently write down without any help), whether these characters respected correct dimensions and whether they remembered the rules for writing each character (this data was obtained through the stoke order exercise, used in the previous section).

Students did generally perceive this ability as difficult, but after 4 months of learning, they were capable of writing Chinese to a fairly good degree, although they did make some mistakes. The most frequent mistakes found in the proficiency tests consisted of: not respecting the spatial balance between the radicals composing a character, forgetting to write certain strokes, joining some strokes together, dividing a single stroke into two parts and confusing radicals (for example mixing up the radical for the word “讠” with the radical for heart “忄” or with the radical for person “亻” as in: 请, 情, 倩).

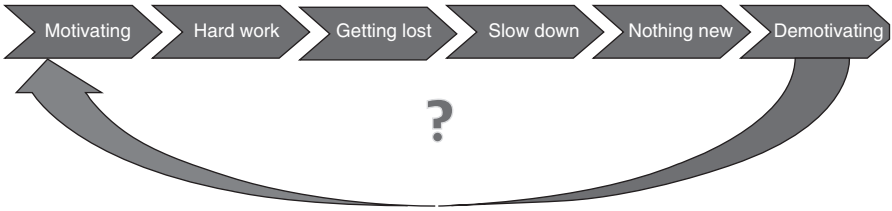


Fig. 4 The "Hanzi Empasse"

The major problem facing many students is that they have a rather hard time memorizing characters. This is a very common situation, described by the authors as the "hanzi empasse", a term invented for the purpose of this study (Fig. 4).

We know that studying characters is one of the reasons why many people take up Chinese language learning. During the first approach to learning the language, characters can be a very appealing and motivating aspect. Later on, when the number of characters grows, memorizing becomes very hard work and it is easy to get lost, especially for secondary school students, who are not as constant in their studies. When the majority of students gets lost, the teacher must slow down. As a result, adding new content becomes difficult, which may lead to learners becoming bored and demotivated. "How to get back to motivation?" is an issue that will require further research. One of the aspects that will need to be focused on in this field is whether it would be necessary and effective for teachers to train their students on specific memorization techniques, in order to provide students a sound method to cement characters in their minds.

In the questionnaire, students were also requested to rate some memorization techniques, from most to least effective. Surprisingly, students prioritized the techniques in the following order:

1. Writing the character several times
2. Writing a sentence containing the character several times
3. Memorizing the radicals composing the character
4. Looking at the character several times, without writing it down.

Students are convinced that repetition can be a good method for memorizing, but, from the teaching side, it is well-known that they do not do so. This can be attributed to various reasons (lack of effort, lack of time, etc.). Although students approve this method, this is probably not the best method for this typology of student (especially referring to secondary school students).

It is hypothesized that working on capacity of deduction (as assumed for reading) and on the fixation of radicals could also be a helpful strategy in the area of written production.

6.5 Grammar

The fifth learning area to be analyzed was grammar. In the perception phase, most students declared to perceive grammar as "easy" and grammar based tasks were not considered challenging. In the performance phase, students were first asked to place words in order to compose sentences, secondly they had to make sentences using the function words: 呢 *ne*, 的 *de*, 吗 *ma*. In fact, in the perception phase, word order and function words were specifically inquired upon.

Here, once more, perception and performance corresponded. Students perceived it as "easy" and performed quite well. It can thus be stated, that at beginner level, grammar is generally not a source of learning frustration. Generally, students performed better with function words, than with word order. Surprisingly, they perceived 呢 *ne* as the most difficult function word to learn. In light of this, perhaps less surprising was the fact that this was the area in which they performed the worst.

The general teaching implication for results gathered in this area is the fact that grammar is easy and can be utilized as a motivating aspect for students. What is more, at this stage, grammar is not an obstacle, which allows focus on other critical aspects.

6.6 Communicative Ability

Concerning communicative ability, in the perception questionnaire, students were asked to state how easy or difficult they would consider some basic communicative tasks (introducing myself, basic classroom conversation with my Chinese teacher, etc.), whereas in the testing phase they were asked to imagine a dialogue among the people represented in the image below. The dialogue could be written both in characters or pinyin, as the task objective was communication (Fig. 5).

In this area, perception and performance once more correspond. This is another area perceived by students as "easy" to master in the questionnaire and matched good performance results for the majority of them. The only exception was the 18-h "Itis" CSL course, as revealed in Fig. 6.

Interestingly, "Marconi" results (the other institute offering a short-term course), show that in the first level classes, as long as the teacher used a communicative teaching method,[8] good results (in terms of capacity of communication) could be achieved, despite the lack of a mother-tongue teacher. In fact, students participating in this course perceived communicative ability as "easy" and in the performance phase, the rate of success (sufficient or excellent) was higher than 70%.

These findings could be related to the results of Yang and Medwell's study (in this volume). They observed that according to students, the ability to converse is considered less important than learning to read and write, suggesting that students "focus more on linguistic forms and written scripts, rather than spoken Chinese". This most

[8] All the students who took part in the research were taught using a method that prefers the communicative based task approach, rather than grammar based task approach.

likely takes place because – as the learning setting emphasizes a communicative teaching approach – students believe writing and reading abilities to be more difficult, as teaching is probably less focused on those abilities (confirming our study 6.3, 6.4).

The teaching implications that can be drawn from these data is that acquiring good competence in communication is a very strong motivational aspect and an important source of satisfaction, which should be used to reinforce the more critical aspects observed above, especially in an L2 environment, where opportunities for authenticity are rare.

7 Conclusions

With respect to the first research question, the study reveals that the majority of respondents are aware that learning Chinese as a second language requires active effort. Despite this, expectations of potential capabilities for learning Chinese are very high. Data shows significant differences between students enrolled in long-term courses, who do not consider study effort an obstacle, and those students enrolled in short-term courses, who believe that effort can play a role in the continuation of their learning. Findings suggest that teachers and researchers should consider differences between short and long-term study periods when planning Chinese language courses, keeping in mind that short-term Chinese courses can influence learners in the direction of low motivation and expectation(s).

Concerning the second goal of the research – finding which linguistic features are perceived as more difficult to learn and might be a cause of learning frustration – results show that these factors are mainly represented by aural reception (listening), written production (writing) and written reception (reading).

The third phase of the study investigated the influence of perceived difficulties on students' performances according to the six areas investigated by the survey. The comparison between perception data and performance results revealed that perception and performance (for all six abilities) do not always completely correspond.

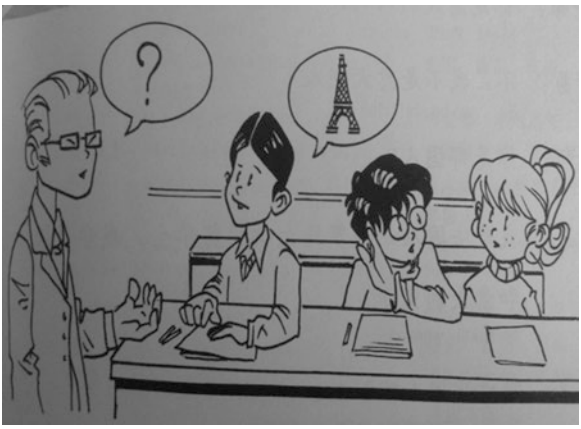


Fig. 5 Picture presented for communicative ability task (Image source: Masini et al. 2010: 59)

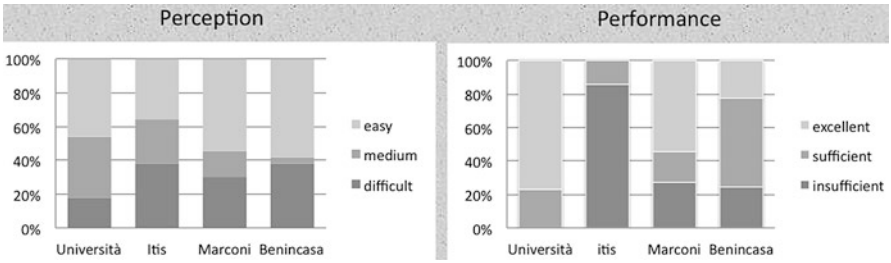


Fig. 6 Data analysis for communicative ability

Aural reception (listening) raises critical points related to the kind of course respondents are attending. Conforming to the general perception of any second language learner, aural reception is perceived as the most difficult ability to achieve (Krashen 1982; Rost 1994) and, effectively, mainly corresponds with bad performance results. According to the results of perception and performance of this ability, it can be assumed that it could be the cause of learning frustration. For this reason, teachers should motivate learners to understand that these efforts should be considered an investment in future competence and to make the acquisition of the ability of aural reception more enjoyable for learners with alternate strategies. In contrast to reception, aural production (speaking) is perceived easier and this perception is confirmed by good performance results.

Unexpectedly, written production and written reception, both perceived as difficult abilities to learn, did not correspond with performance, where students obtained relatively good results. Generally, written abilities – in the perception, as well as production phase – represent both motivating and demotivating aspects. Thus, teachers should focus on strengths, such as radicals and students' capacity for deduction, to reinforce motivation. Grammar is not a reason for concern in the first year of study. The correspondence with good performance results confirms perception data; this is a motivating factor and allows teachers to focus on more critical aspects.

For students, communicative ability is perceived as "easy" to acquire and the proficiency test showed good performance from the majority of the groups. This indicates that, during first-level learning, good performance of communicative skills is not closely related to the presence of a mother-tongue lecturer and represents a significant motivational factor.

Finally, this type of testing process and surveying serves a useful tool for language instructors to better understand their students' difficulties and expectations, and for students themselves to assess and reflect on their expectations, perceptions and performance.

The results of this study – focusing on the analysis of expectations and perceptions of difficulty and performance in CSL learning – are aimed at contributing to research, in order to find ways to facilitate learners in the CSL learning process. Nonetheless, further research is necessary in order to elaborate proper teaching approaches and strategies to confront critical learning stages faced by first-level Chinese language students.

Appendices

Appendix A

Questionnaire

DIFFICULTIES AND EXPECTATIONS OF FIRST LEVEL CHINESE SECOND LANGUAGE LEARNERS

This questionnaire aims to research expectations and difficulties in first-level Chinese language learning. Respondents' personal information will be kept confidential and will only be used for data elaboration.

PERSONAL INFORMATION

Name_____ age_____ mother tongue_____ Gender M_____ F_____
School certificate _____
Chinese course type _____
Institution _____
Course length _____
I have studied Chinese since (indicate period of time):_____

EXPECTATIONS CONCERNING CHINESE LEARNING

Please rate the level you agree with the following statements by choosing from 1 to 5 on the scale. (1) Completely agree, (2) agree, (3) partially agree, (4) disagree, (5) completely disagree.

		1	2	3	4	5
A.1	What I have learned in Chinese to the present day corresponds with expectation I had before starting.					
A.2	What I learned in Chinese to the present day is more than I expected before starting.					
A.3	Attending the whole course will allow me to acquire the linguistic competence I expected.					
A.4	At the end of the first yea,r I expect to be capable of (for example: introducing myself, talking about what I like, etc.): …… …… ……..					
A.5	I am satisfied with the pace of the course (the time the teacher spends on each unit)					
A.6	The effort required to learn how to read and write corresponds to the expectations I had before starting.					
A.7	Before starting to learn, I believed Chinese to be more difficult.					
A.8	I can easily acquire the competences presented in the course.					
A.9	I knew some features of Chinese language before starting the course (yes=1, no=5)					

A.10	Which ones? ……					
A.11	I know the following other foreign languages (even at elementary level): 1._____2._____3._____4_____.					
A.12	I think Chinese is similar to other languages I know					
A 13	Which languages?..... In which features?::::::::::					
A.14	Studying Chinese requires the same effort from me as studying other languages like German, English, French or Spanish					
A.15	Attending this course, I expect to acquire the same competences I would acquire attending German, English, French, Spanish courses					
A.16	I think acquiring a good competence in Chinese is difficult					
A.17	I plan to continue studying Chinese					

DIFFICULTIES PERCEIVED IN STUDYING CHINESE

Please rate the level of difficulty related to the following statements by choosing from 1 to 5 on the scale.
(1) Very difficult (2) Difficult (3) Medium (4) Easy (5) Very easy

		1	2	3	4	5
B.1	Ability to recognize the pronunciation of single syllables					
B.2	Ability to recognize the pronunciation of polysyllabic words					
B.3	Ability to recognize tones in single syllables					
B.4	Ability to recognize tones in polysyllabic words					
B.5	What are, according to your experience, the most effective ways to learn the pronunciation of syllables and tone (rate from 1 to 5 the methods given in the tab according to their effectiveness: 1 as the least effective, 5 as the most effective)					
	Listening to my textbook CD and repeat					
	Listening to online materials (YouTube videos, online Chinese lessons)					
	Doing classroom exercises with my Chinese teacher					
	Listening and repeating with my schoolmates					
	Listening to mother tongue friends					
	Others ……					

C.1	Ability to pronounce single syllables					
C.2	Ability to pronounce syllables in polysyllabic words (such as: *xuésheng, lǎoshīmen*)					
C.3	Ability to pronounce tones in single syllables					
C.4	Ability to pronounce tones in polysyllabic words (such as: *xuésheng, lǎoshīmen*)					

D.1	Ability to understand strokes' number and strokes' order of a character					
D.2	Ability to understand of which radicals/parts a character is made of					
D.3	Ability to read a text fluently while recalling the correct pronunciation of characters					
D.4	Ability to recall the meaning of characters while reading					
D.5	Ability to understand the overall meaning of a sentence while reading					
D.6	Ability to deduce the meaning of unknown characters within a familiar context					
D.7	Ability to distinguish the concepts of characters and the concepts of words					

E.1	Ability to write Chinese characters					
E.2	Ability to write a character while maintaining the harmony in space and dimensions					
E.3	Ability to follow the rules for characters writing (arder and direction of strokes)					
E.4	Ability to remember how to write characters					
E.5	What is, according to your experience, the most effective method to remember how to write a character? (rate from 1 to 5 the methods provided in the tab, according to their effectiveness: 1 as the least effective, 5 as the most effective)					
	Write a single character several times					
	Memorize of which radicals/parts a character is made of (for example 他 is composed by 亻 and 也)					
	Write several times a sentence containing that character					
	Look at the character several times without writing it down					
	Other …..……					

F.1	Ability to use the particle 的					
F.2	Ability to use the particle 吗					
F.3	Ability to use the particle 呢					
F.4	Ability to understand word order in Chinese sentences					
F.5	Which aspect of Chinese grammar that you have studied is easier to understand and employ for you?…….……					

G.1	Greet people, ask "how are you?" and respond					
G.2	Ask and give simple personal information (like name, nationality, address, phone number)					
G.3	Interact spontaneously with your Chinese teacher using Chinese for simple classroom conversation					

Appendix B

The Proficiency Test

Student _____ Institution _____

SECTION (B oral production)

1. Read out the following words, paying attention to syllable(s) and tone(s)

qì	lóng	zhòng	cuǐ
niǔyuē	shàngkè	fānmàijī	pútáoyárén

2. Read out the following sentences 我们都是意大利人。我学习中文。她是我的女朋友，她有中文书。

SECTION B (oral reception)

1. Listen and write down the syllable(s) and tone(s) you hear

1_____ 2_____ 3_____ 4_____5_____
1_____ 2_____ 3_____ 4_____5_____

SECTIONS (D) (E) (F)

1. What is the Chinese for these words? Fill in the blank according to the instructions.

1. NAME In characters	
Stroke order and number ( )	

2. READ (BOOKS) In characters	
Stroke order and number ( )	

3 CHINESE LANGUAGE In characters	
Stroke order and number ( )	

2. Can you identify which radicals/parts the following characters are composed of?

坐	
题	
架	

3. Characters and Words

How many characters are there in the following sentence? How many words? Can you identify some radicals/parts?

你好，我是安娜，我是中国人，我是你们的老师，我们一起看电影吗？

4. What can you deduce?

What is the meaning of the underlined characters?

你好！ 你是谁？

我是马克，我是王玉的朋友，我是台湾人，王玉的爷爷也是我的朋友。

5. Please place the characters in the correct order and form two correct sentences
爸爸 不 他 是 我 老师 的

中国 你 朋友 的 是 吗？ 北京 人

6. Write three sentences using 吗, 的, 呢.

SECTION (G)
1. What are they saying? Imagine a dialogue in Chinese which can fit this picture (you can use characters or pinyin)

Appendix C

Description of Respondents

Institution	Number of students	Age	Type of course	Mother-tongue Lecturer	Course hours	Course Length
1. University Of Urbino	13	20–27	University course Chinese as major	yes	280/year 250/mother tongue lecturer + 30/grammar	3 years
2. Liceo Linguistico Benincasa Secondary school	49 Two classes	15	Compulsory curricular third language	yes	90/year 2 grammar classes + 1 mother tongue class/week	5 years
3. Liceo Scientifico Marconi Secondary school	11 Mixed class 2nd–4th school year	15–17	Elective curricular course	no	50/year	1 year
4. Mattei Technical secondary school	14 3rd–4th school year	16–17	Elective non- curricular course credited	no	18/year	1 year

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Expressing Necessity in Chinese: A Pilot Study

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Abstract The purpose of the study is to examine how learners of Chinese as a foreign language use modals to express necessity, in hopes of providing current Chinese language educators with empirical results on necessity modals. There were two groups of participants in the study, 17 learners of Chinese as a foreign language (CFL) from a State University in the United States and 28 native Chinese speakers (NC) from a private university in Taiwan. Participants from both groups were required to complete a questionnaire of two sections that were designed to obtain participants' demographic information and knowledge of necessity modals. While the main examination lays on the responses of CFL learners, the NC group's response works as a reference list that provides valuable insight of necessity modal usage. The results showed that the CFL group generated more epistemic necessity than the NC group, specifically 應該 *yīnggāi* 'should or ought to', while the NC group produced more deontic necessity; travel experience to Chinese-speaking countries does not necessarily have influence on the acquisition of necessity modals; and the amount of time the CFL participants spent on learning Chinese does not show much influence on the usage of deontic necessities, but it does affect usage of 必須 *bìxū* 'have to' and 得 *děi* 'must.'

1 Introduction

Necessity modals are the narrow domain of modality. Modality is a semantic category that is an important component of human languages. There are a number of semantic criteria proposed for the definition of modality and the widely accepted definition is given by Lyons (1977), who refers to modality as speaker's "opinion or attitude towards the proposition that the sentence expresses or the situation that the proposition describes" (p. 452). He talks about the two domains of modality. Epistemic modality is concerned with the possibility or necessity of the truth of a proposition, thus related to the speaker's knowledge and belief, whereas deontic

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modality has to do with the possibility or necessity of acts performed by morally responsible agents, which is involved with obligation or permission.

Palmer (1986), on the other hand, draws attention to the subjective nature of modality and defines modality as "the grammaticalization of speakers' (subjective) attitudes and opinions" (p. 16). In addition to epistemic and deontic modalities, he believes that evaluative modality belong to deontic modality because it expresses the speaker's attitude rather than his/her commitment to the truth of a proposition.

In Mandarin Chinese, researchers have distributed modality into various groups (Hsieh 2003, 2005, 2006a, b; Li 2004; Li and Thompson 1983; Lin 2012; Tiee 1985; Wang 1982; Zhu 2005a) but there is no one unified category in the modality system, let alone necessity modals. Before diving into the realm of Chinese necessity modals, the categorization of Chinese modality has to be clarified. Hsieh (2005) divides Chinese modalities into four types: epistemic, deontic, dynamic and evaluative. When using epistemic expressions, it is the speaker who gives the opinion or attitude that is related the speaker's judgmental system. The following examples show that the modals, 可能 *kěnéng* 'may' and 肯定 *kěndìng* 'to be certain; to be sure', do not only convey the type of opinion or attitude the speaker puts across, but also imply that such opinion or attitude is held by the speaker of the utterance (Hsieh 2005).

(1) 他可能離開了。 (Hsieh 2006a: 7)
Tā kěnéng líkāi le.
'He may have left.'

(2) 我肯定舞獅組是我最佳的選擇。 (Hsieh 2006b: 55)
Wǒ kěndìng wǔ shī zǔ shì wǒ zuì jiā de xuǎnzé.
'I am sure that the lion group is the best choice.'

Deontic modality, on the other hand, is the speaker's source of opinion or attitude or the opinion or attitude related to permission, such as 應該 *yīnggāi* 'should', 務必 *wùbì* 'must' and 允許 *yǔnxǔ* 'allow'.

(3) 他應該離開。 (Hsieh 2006a: 7)
Tā yīnggāi líkāi.
'He should leave.'

(4) 他務必離開。 (Hsieh 2006a: 7)
Tā wùbì líkāi.
'He must leave.'

Dynamic modality (e.g. 會 *huì* 'can; know how to', 想 *xiǎng* 'would like', 希望 *xīwàng* 'hope') is used to describe a kind of state (ability) or opinion or attitude (volition).

(5) 他會跑步。
Tā huì pǎobù.
'He can run.' (ability)

(6) 他想跑步。
Tā xiǎng pǎobù.
'He would like to run.' (volition)

Last, evaluative modal expression concerns the speaker's evaluation towards a known fact, for example, 難怪 *nánguài* 'no wonder', 果然 *guǒrán* 'just as expected, and 幸虧 *xìngkuī* 'fortunately'.

(7) 難怪他離開了。
Nánguài tā líkāi le.
'No wonder he left.'

(8) 他果然離開了。
Tā guǒrán líkāi le.
'He left just as expected.'

Necessity modals, or necessary modality as Eifring (1993) refers, are under the main types of modality and are usually treated as accessories without much attention and investigation. Directed by Palmer's categorization of modality, Zhu (2005a) identifies 一定 *yídìng* 'must' as epistemic necessity and 必須 *bìxū* 'have to' as both deontic and dynamic necessity due to its sentence orientation. Wang (1982) categorizes modal auxiliaries into three types: possibility, necessity, and willingness, whereas necessity includes expressions that convey responsibility and speculation such as 應該 *yīnggāi,* 該 *gāi* 'should, ought to', 應 *yīng* 'should, ought to', 應當 *yīngdāng* 'should, ought to', 得 *děi* 'must, have got to', and 要 *yào* 'must'.

On the other hand, Tiee (1985) explicitly labels necessity modals. Epistemic necessity, including 該 *gāi*, 應該 *yīnggāi*, and 應當 *yīngdāng* 'should or ought to', can be paraphrased as "it ought to be the case that…"; for example,

(9) 他應該給你錢。 (Tiee 1985: 91)
Tā yīnggāi gěi nǐ qián.
'He ought to give you money.'

Deontic necessity modals refer to 要 *yào* 'must', 必須 *bìxū* 'have to', 必得 *bìděi* 'have to', 需要 *xūyào* 'must, need, have to or need to' and 得 *děi* 'must, have got to'; while dynamic necessity modals include 必得 *bìděi* and 得 *děi* 'must.' According to Tiee (1985), both deontic and dynamic necessity modals can be translated into "It is necessary that…."

(10) 父母要管教他們的孩子。 (Tiee 1985: 93)
Fùmǔ yào guǎnjiao tāmende háizi.
'Parents must discipline their children.'

(11) 你必須現在就回家。 (Tiee 1985: 93)
Nǐ bìxū xiànzài jiù huí jiā.
'You have to go home right now.'

He further clarifies that the differences between 必得 *bìděi* and 得 *děi* 'must' in deontic necessity and dynamic necessity are that the former is usually discourse oriented and the latter is subject oriented.

2 Literature Review

There has been research on the Chinese linguistics (Hsieh 2005, 2006a, b; Li 2004; Li and Thompson 1983; Lin 2012; Tiee 1985; Wang 1982; Zhu 2005a) but very few particularly focus on the modality acquisition of learners of Chinese as a foreign language (CFL) not to mention the acquisition and application of necessity modals. Wang (1982) was the first to analyze the characteristics of Chinese modal auxiliaries on the basis of the errors of CFL learners. She found that the polysemous nature of Chinese modal auxiliaries, usage frequency, syntactic structure, and different word order in English and Chinese modality are the primary problems for learners. Xu (2008) later confirmed Wang's (1982) findings and identified the most common mistakes in Chinese modal adverbs that CFL learners make: The multi-meaning and multi-usage of adverbs, learner avoidance, L1 influence, and the gap between teaching and research. He further proposed several solutions to improve Chinese language teaching and research such as the analyses of usage frequency, extensive research on adverb acquisition, contrasts between learners' L1 and Chinese, and situational teaching. The issues introduced by the studies invaluably provide the current study with the background knowledge when exploring CFL learners' modal acquisition.

Empirical studies conducted by He (2011) and Xiong (2013) conclude that that language competence lies in the understanding of the interactional contingencies of language use; and that acquisition of modal auxiliaries takes time for language learners to gain the control of interlanguage. The studies suggest that the emphasis of modal acquisition be on CFL learners' comprehension of the polysemous nature of Chinese modal auxiliaries, as well as their ability to use the modals in real-life situations.

Yang and Dong (2013) conducted a longitudinal case study investigating early acquisition of Chinese dynamic modality (能 *néng* 'can', 要 *yào* 'want', 會 *huì* 'can; know how to', 可以 *kěyǐ* 'able to; may', 肯 *kěn* 'willing', and 敢 *gǎn* 'dare') of a one-year-old child. They found that dynamic modals are acquired based on the

amount of input received: the first acquired modal was 會 *huì*, followed by 敢 *gǎn*, 能 *néng*, 要 *yào*, 可以 *kěyǐ*, and 肯 *kěn*.

These empirical findings are great contributions to the field of Chinese modal acquisition in various ways. They do not only illuminate the importance of Chinese modality but also point out the variables in Chinese modal acquisition that could affect the result of the current study. Though valuable, the studies are not enough for the field. Since modality is one of the major components in Chinese language learning and necessity modals play a very important role in the grammar of Chinese (Eifring 1993), more thorough and detailed research on modality acquisition are critically needed.

This study attempts to shed light on how CFL learners express necessity with Chinese modals. In a field with very limited research materials available, this study is looking to reveal usage of necessity modals from CFL learners and Native Chinese speakers (NC) in hopes of providing current Chinese language teachers with empirical results. The research questions are: How does the use of necessity from native Chinese speakers relate to the use of necessity from CFL learners? Where do CFL learners need improvement? How can the results of the study be applied to CFL learning?

3 Methodology

3.1 Participants

Two groups of participants were included in the study: learners of Chinese as foreign language (CFL) and native speakers of Chinese (NC). 17 CFL participants, from the advanced Chinese class with an average age of 21.7, were drawn from a State University with a population of approximately 17,000 students, 74% undergraduates and 26% graduates, in northeastern United States. Among the participants, ten reported their first language as English, two Cantonese, one Korean, one Vietnamese, and three heritage Chinese learners. The average time of learning the Chinese language is 3.4 years, and 2.7 years excluding heritage Chinese and Cantonese learners. The majority of participants had traveled to China from 1 to 11 months, while five of them have never been to China before. The Chinese class met twice a week, an hour each time. The instructor was a CFL user with a native-like language fluency who used the targeted language most of the time in class.

It goes without saying that this is a diverse group of participants. Although I am aware of the fact that the heterogeneous nature could affect the research results to some degree, I decided to retain the data for the reason that the class structure is very similar to the majority of CFL classrooms in the U.S. nowadays. I understand that the ideal study is to have learners with the same background in order for a valid and reliable result but it is almost impossible in this multicultural society. The reality is that there are always some non-native English learners and Chinese heritage

learners in the CFL classroom. Including learners with various backgrounds in the current study can truly reflect this real-world phenomenon as well as highlight the differences among CFL learners.

Finally, the NC group, with a mean age of 20, consisted of 28 native Chinese speakers who were recruited from a private university with a total of 11,000 students in the northwest Taiwan. Four were from China, one was from Malaysia, and the rest was from Taiwan.

3.2 Procedure

CFL and NC participants were required to complete a questionnaire that contained two sections: demographic information and knowledge of using modal expressions. The first section is for the participants to provide contextual information that is conducive to inform interpretations, whereas the linguistic section includes two segments: six topic sentences and a short essay. In the first part, the participants read the topic sentences and provided a relevant reaction. For example, in the statement 小明找不到他的皮夾 '*Xiaoming* couldn't find his wallet', participants were expected to give responses such as a solution, 他應該到處找找 'He should look around' or a speculation, 皮夾一定被偷了 'His wallet must be stolen.' In the second section, the participants were asked to write a short essay with approximately six to ten sentences describing their typical day. Questions such as "what do you need to do before you go to school" and "what do you do on the weekends" were given for response solicitation.

Before CFL participants completed the questionnaire, I had regularly joined the CFL class for approximately two months. During my visits, I focused on observing the class and building a rapport with the participants. I constantly interacted with participants by helping with their questions about Chinese and introducing Chinese songs to the class. In the end, CFL participants were more used to my presence in the classroom and were more comfortable to ask questions. Both CFL and NC participants received no specific instructions of using necessity modals in their responses and were particularly informed not to follow the sample answers.

4 Results

I examined questionnaire responses from both groups line by line based on Tiee's (1985) categorization of necessity modals (see Table 1).

After the first examination, I added four additional necessity modals to the list due to the fact that the meanings of modality are determined by the speaker through context (Fan 2006). 應 *yīng* 'should; ought to' joins the epistemic necessity because of its similar meaning and usage to 應該 *yīnggāi* 'should; ought to' (Lü 1999). 一定會 *yídìng huì* 'must will be', 一定要 *yídìng yào* 'must', and 最好 *zuìhǎo* 'had better' are included in the deontic necessity. As one of the multiple readings of 一定 *yídìng*

Table 1 Tiee (1985) necessity modals

Epistemic necessity	Deontic necessity	Dynamic necessity
應該 *yīnggāi*	要 *yào*	得 *děi*
應當 *yīngdāng*	必須 *bìxū*	必得 *bìděi*
該 *gāi*	需要 *xūyào*	
[a]應 *yīng*	得 *děi*	
	[a]一定會 *yídìng huì*	
	[a]一定要 *yídìng yào*	
	[a]最好 *zuìhǎo*	

Note:[a]indicates add-on modals

'must' is obligation, 一定 *yídìng* shows determination of the speaker himself or the receiver (Li 2005). For example, the following sentence (12) produced by a CFL participant demonstrated that the speaker lays an obligation upon the subject.

(12) 在週末一定會做些什麼。
Zài zhōumò yī dìng huì zuò xiē shénme.
'Must will do something on the weekends.'

On the other hand, 最好 *zuìhǎo* 'had better' can be used as either laying an obligation or making a promise or threat as the sample sentence (13) shows.

(13) 他最好別給他們打電話。
Tā zuìhǎ o bié gěi tāmen dǎ diànhuà.
'He had better not to call them.'

Finally, in order to secure the interrater reliability, the responses were carefully reviewed by another native Chinese speaker, who was a former middle school Chinese teacher for 5 years in Taiwan before pursuing her master's degree in the U.S.

The final categorization of necessity modals used by each group was then calculated by a one-way analysis of variance with modality types as the dependent variable and language groups (CFL and NC) as the independent variable. Table 2 indicates that there was a significant difference between the CFL and NC groups using epistemic modality [$F(1, 43) = 10.32$, $p < .05$] and 應該 *yīnggāi* 'should; ought to' was used more by the CFL group [$F(1, 43) = 8.07$, $p < .05$]. The NC group produced more deontic necessity modals [$F(1,43) = 3.76$, $p < .10$] and used more 一定會 *yídìng huì* 'must will be' [$F(1,43) = 2.88$, $p < .10$].

Pearson's correlation coefficient was computed to assess the relationships among the time spent on learning Chinese, travel experience to China and usage of modality (Table 3). Due to the small sample size, the majority results appeared to be non-statistically significant but they are still worth discussing. The time participants spent on learning Chinese is positively correlated with the usage of epistemic necessity ($r = .22$), specifically 應該 *yīnggāi* ($r = .27$), and a deontic necessity, 必須 *bìxū*

Table 2 Descriptive statistics

	CFL		NC	
	M	SD	M	SD
Epistemic necessities	0.88**	0.70	0.32	0.48
應該 *yīnggāi*	2.24**	2.28	0.71	1.33
應當 *yīngdāng*	–	–	–	–
該 *gāi*	–	–	–	–
應 *yīng*	0.06	0.24	–	–
Deontic necessities	1.00	1.87	2.61*	3.08
要 *yào*	0.47	0.72	0.43	0.57
必須 *bìxū*	0.06	0.24	–	–
需要 *xūyào*	–	–	0.07	0.26
得 *děi*	0.06	0.24	0.04	0.19
一定會 *yídìng huì*	0.06	0.24	0.39*	0.79
一定要 *yídìng yào*	–	–	0.14	0.45
最好 *zuìhǎo*	0.06	0.24	–	–

Note. *$p < .10$. **$p < .05$

Table 3 Correlations between years of learning, travel experience, and use of modals

	Years of learning	Travel experience
Epistemic necessities	.22	.05
應該 *yīnggāi*	.27	−.15
應 *yīng*	.08	−.07
Deontic necessities	−.05	−.10
要 *yào*	.09	.09
必須 *bìxū*	.49*	.09
得 *děi*	−.32	.07
一定會 *yídìng huì*	.08	−.22
最好 *zuìhǎo*	.08	−.22

Note. *$p < .05$

($r = .49$). The travel experience to China negatively correlated with the usage of 應該 *yīnggāi* ($r = -.15$), 一定會 *yídìng huì* ($r = -.22$), and 最好 *zuìhǎo* ($r = -.22$). It is important to note that there is a negative correlation between the usage of epistemic and deontic necessities ($r = -.29$), implying that those who use more epistemic necessities use less deontic necessities and vice versa.

In the first questionnaire section where situations were provided for the participants to create relevant responses, a total of 45 necessity modals were generated by CFL participants including 38 epistemic necessity (應該 *yīnggāi* 'should; ought to' and 應 *ying* 'should; ought to') and seven deontic necessity (要 *yào* 'must', 必須 bìxū 'have to', 得 *děi* 'must; have got to', and 最好 *zuìhǎo* 'had better'). In the essay section, five necessity modal expressions were produced: one epistemic necessity (應該 *yīnggāi* 'should; ought to') and four deontic necessity (要 *yào* 'must' and 一定會 *yídìng huì* 'must will be').

Overall, 應該 *yīnggāi* is the primarily used epistemic necessity with a 97 percent of usage. For example, in the statement, 老李很窮 *Lǎo lǐ hěn qióng.* 'Old Li is poor', a majority of CFL participants use 應該 *yīnggāi* to show opinions or attitude, such as.

(14) 他應該找工作。
Tā yīnggāi zhǎo gōngzuò.
'He should look for a job.'

(15) 我應該給他一個蘋果。
Wǒ yīnggāi gěi tā yígè píngguǒ.
'I should give him an apple.'

As far as deontic necessity is concerned, 要 *yào* 'must' is the most popular among CFL participants.

(16) 我要請他跟我吃午飯。
Wǒ yào qǐng tā gēn wǒ chī wǔfàn.
'I must buy her lunch.'

(17) 他要送給他太太。
Tā yào sòng gěi tā tàitài.
'He wants to give it to his wife. / He must give it to his wife.'

There are no dynamic necessity modal expressions being produced by the CFL learners. Table 4 presents the frequency of use of each necessity modals.

The NC group generated a total of 33 necessity modal expressions in the sentence structures, including 20 epistemic necessity (應該 *yīnggāi* 'should; ought to')

Table 4 Overall usage of necessity modal expressions by CFL and NC participants

	CFL	NC
Epistemic		
應該 *yīnggāi*	97%	100%
應當 *yīngdāng*	0	0
該 *gāi*	0	0
應 *yīng*	3%	0
Total	100%	100%
Deontic		
要 *yào*	63%	41%
必須 *bìxū*	9%	0
需要 *xūyào*	0	7%
得 *děi*	9%	3%
一定會 *yídìng huì*	9%	34%
一定要 *yídìng yào*	0	14%
最好 *zuìhǎo*	9%	0
Total	100%	100%

and 14 deontic necessity (要 *yào* 'must', 需要 *xūyào* 'need; need to', and 一定會 *yídìng huì* 'must will be'). 16 deontic necessity modals (要 *yào* 'must', 得 *děi* 'must; have got to', 一定會 *yídìng huì* 'must will be', and 一定要 *yídìng yào* 'must') were generated in the essay. Similar to the CFL participants' responses, 應該 *yīnggāi* 'should; ought to' and 要 *yào* 'must' were used more often than other necessity modals. Note that the NC participants did not use any epistemic necessity in the second section of the questionnaire.

5 Discussion

It is not surprising to see the different usage of necessity modals from the CFL and NC groups; however, both groups show a great similarity in the use of 應該 *yīnggāi* 'should; ought to' in the first section of the questionnaire when providing responses. This finding corresponds with Wang (1982) that 應該 *yīnggāi* is one of the most frequently used Chinese modals. Two conclusions can be made based on the extensive use of 應該 *yīnggāi*. First, the CFL participants' strong preference for 應該 *yīnggāi* clearly indicates their familiarity of the expression. Second, the major production of 應該 *yīnggāi* from the NC group has proved its popularity among the native Chinese speakers. The CFL participants must have received a great amount of input of 應該 *yīnggāi* from teachers and textbooks, as well as any resources from outside of the classroom so that they are able to put 應該 *yīnggāi* into use. It is logical to conclude that the more CFL learners are exposed to the Chinese language, the higher possibility of receiving 應該 *yīnggāi,* the more familiar and comfortable they are with the usage; as a result, the more likely learners are able to apply the expression. However, another possible explanation is that the CFL participants merely copied 應該 *yīnggāi* from the sample sentence due to their limited language proficiency.

On the other hand, the NC participants produced more deontic necessity, especially 一定會 *yídìng huì*. In fact, the NC participants expectedly have demonstrated their capability of adjusting the use of necessity modals to different situations. In the first section of the questionnaire, they produced a similar number of epistemic and deontic necessities to either give the opinion or attitude that is related to their judgmental system (epistemic) or to permission, obligation, and threat (deontic). In the second section where participants received no sample sentences to describe their typical day, the NC participants tended to use deontic necessity, especially 要 *yào* 'must' and 一定會 *yídìng huì*, to show their determination or to lay an obligation upon the subject. In contrast with the NC participants, the CFL participants did not produce as many deontic necessity modals as their NC counterparts. The CFL participants' scant use of deontic necessity in the second section could be an indication of their unfamiliarity of the usage and their limited language ability as well as a sign of their need of necessity modal instruction. The different usage of necessity modals between the CFL and NC groups clearly suggest the NC participants' capability of manipulating the Chinese language instead of limiting to certain types of usage. That is to say, native Chinese speakers are able to express with different words in

various ways, while CFL learners' language abilities are confined to factors such as familiarity, proficiency, and experience with the language.

Despite the differences between the CFL and NC participants, there is an interesting connection between the NC participants and Chinese heritage learners. Similar to the NC participants, Chinese heritage learners only produced one type of epistemic necessity, 應該 *yīnggāi,* and used 一定會 *yídìng huì* in the essay section of the questionnaire when no other CFL learners used the expression. The identical usage must not be a pure coincidence. As a matter of fact, Chinese heritage learners' unique language and cultural backgrounds could have an important influence on the way they use the Chinese language, a way that is much closer to that of the NC speakers than CFL learners. However, no inferential conclusion can accurately be made due to the small sample size of Chinese heritage learners in this study. Future research is strongly needed to explore the field.

As far as the relationships among the time spent on learning Chinese, travel experience to China and usage of modality are concerned, the results indicate that participants' travel experience to Chinese-speaking countries does not necessarily have influence on the usage of epistemic ($r = .05$) and deontic necessity modals ($r = -.10$). Moreover, the amount of time the CFL participants spent on learning Chinese does not show much influence on the usage of deontic necessity ($r = -.05$), but it somehow affects the usage of 必須 *bìxū* 'have to' ($r = .49$) and 得 *děi* 'must; have got to' ($r = -.32$), positively and negatively. In other words, those who learn Chinese for a longer period of time use more 必須 *bìxū* than those who do not learn the language as long. According to Zhu (2005b), 必須 *bìxū* had been used for over a thousand years in the history of Chinese linguistics; therefore, its usage must have been reflected on the language textbooks which directly influence CFL learning/teaching. As a result, the longer CFL learners learn the language, the more familiar they are with the usage of 必須 *bìxū,* the more capable they are to put the expression into use.

The usage of 得 *děi* 'must; have got to', on the other hand, shows an opposite story. The more time learners spend on learning Chinese, the less of 得 *děi* ($r = -.32$) is being produced. Two interesting observations have arose. First, CFL participants' little usage of 得 *děi* corresponds with that of the NC participants: Only 3% of native Chinese speakers used this deontic necessity compared with CFL participants' 9%. Both groups have demonstrated that the more fluent in the Chinese language, the less likely to use 得 *děi.* Next, although the finding appears to respond to Wang (1982) that 得 *děi* is usually used in oral conversations, such connection contradicts foreign language learners' tendency to apply words they are familiar with. That is, if learners are comfortable with 得 *děi* in conversations, they are more likely to apply it in the written response. The fact that 得 *děi* is not widely used by the CFL learners indicates their unfamiliarity and rare encounter with the expression.

6 Conclusion

The present study provided a preliminary understanding of how learners of Chinese as a foreign language use Chinese modality to express necessity. Findings show that native Chinese speakers are no doubt more capable of maneuvering the language to express with different words in various ways. CFL learners, on the other hand, are limited to language-related factors such as proficiency, familiarity, and experience with the language; all of which have a great impact on the language output. The study indicates that language learners are more able to use the target language if they receive adequate amount of language exposure. In other words, language learners rarely use the expressions they are not familiar with or seldom encounter with. This conclusion has an implication for CFL educators: providing great amount of language input could expedite language learning outcome. CFL educators could create an all-Chinese classroom to enable the input-output transformation.

The current study also suggests that CFL learners are more comfortable using epistemic necessity than deontic necessity. The differences imply that CFL learners need instructions emphasizing on the deontic necessity. Specific and thorough explanations and practices could strengthen to learners' understanding and usage of deontic necessity. Finally, there is an equivocal connection between the NC participants and Chinese heritage learners: The heritage learners tend to use the language in a way that is similar to that of NC speakers. The similarity highlights the uniqueness of Chinese heritage learners in terms of their language and culture backgrounds. More relevant studies are strongly required for better understanding on this subject.

In spite of the valuable data this study provides, there are a number of limitations to this study. Future research on necessity modals is emphatically needed in the field of teaching and learning Chinese as a foreign language. Emphases should be put on CFL participants' acquisition, the instrument for modal production, and the uniqueness of Chinese heritage learners. Having more CFL learners and the right instrument could truly reveal how necessity modals are acquired and used, which further increase the research validity and generalizability. Also more attention should be drawn on Chinese heritage learners for their unique language and culture backgrounds. What is more, learners' language background needs to be taken into consideration if possible, despite the current trend in the U.S. CFL classroom and the difficulty of recruiting CFL learners with similar language backgrounds. After all, it is ideal to have studies that exclusively focus on a single group of learners with the same language background because second/ foreign language learners' L1 play a crucial role in second/ foreign language learning in terms of language performance, grammar acquisition and usage, and pronunciation.

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