CROSS-LINGUISTIC INFLUENCES ON THE PRODUCTION OF ENGLISH INTONATION BY CHINESE EFL LEARNERS

By

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Intonation plays an essential role in English speech communication. Incorrect intonation patterns may affect a speaker's intended meaning, leading to misunderstandings. However, previous studies have shown that producing appropriate intonation patterns is incredibly hard for second language (L2) learners. Recent research has indicated that deviations observed in L2 learners' production of intonation might be attributed to the interference from the intonations of their languages. However, few studies have investigated the production of English intonation from cross-linguistic analysis of intonation. Therefore, based on the second language intonation learning theory, the present study aims to examine the production of English intonation by Chinese EFL learners. Two language groups of participants took part in this survey: twelve native English speakers and thirty-six Chinese EFL learners. The learners were classified into three groups based on their scores in the Chivox National Spoken English Test, ranked from high to low: the advanced, intermediate, and elementary groups. The reading task comprised ninety dialogue pairs. The participants were instructed to read Part B of each dialogue pair aloud after

listening to Part A extracted from a native English speaker's recording. Two raters transcribed the recordings using Praat 6.2.14, and the researcher analyzed the data using SPSS 20.0. The results showed that, first, the learners exhibited poor scores in producing different types of English pitch accents, edge tones, and intonation patterns, with varying degrees of differences compared to the native English speakers. Second, the native English speaker group only demonstrated significant differences from each of the three L2 learner groups in four of the ten types across the three aspects of English intonation, and no significant differences were found between the three learner groups. Third, there were significant differences among the types of each of the three aspects of English intonation for the learners and the native English speakers. Nevertheless, this impact was greater on the learners regarding the number of significant differences. Finally, focus position influenced the learners' production of eight of the ten intonation types. In contrast, its influence was relatively less significant on the native English speakers, involving four of the ten intonation types. The analysis of the results showed that the native English speakers deviated from some of the findings reported in the literature, primarily due to regional variations in American English (L*+H and L-H%) and difficulties in distinguishing H* and L+H*. Also, several factors impacted their results, including the cases where targeted words were not accented (Na), the cases where there were other accented words following targeted words (P), and the cases of edge tone caused by Na, with or without accented words following it (NP). As for the learners, they did not receive sufficient input about English intonation knowledge. In addition, the factors influencing their results included Chinese intonation, Na, Chinese prosody (P), and NP. The main findings of this study enrich the L2 intonation learning theory in multiple ways and provide important references for future English intonation teaching and reform.

Keywords: Autosegmental Metrical Theory, Chinese EFL Learners, Cross-Linguistic Influences, L2 Intonation Learning Theory, Production of English Intonation

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PENGARUH SILANG LINGUISTIK TERHADAP PENGHASILAN INTONASI BAHASA INGGERIS OLEH PELAJAR EFL CINA

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Intonasi memainkan peranan penting dalam komunikasi lisan bahasa Inggeris. Corak intonasi yang tidak tepat boleh menjejaskan maksud yang ingin disampaikan oleh penutur, seterusnya menimbulkan salah faham. Walau bagaimanapun, kajian terdahulu telah menunjukkan bahawa penghasilan corak intonasi yang sesuai amat mencabar bagi pelajar bahasa kedua (L2). Kajian terkini menunjukkan bahawa penyimpangan yang diperhatikan dalam penghasilan intonasi pelajar L2 mungkin berpunca daripada gangguan intonasi bahasa ibunda mereka. Namun, kajian mengenai penghasilan intonasi bahasa Inggeris dari perspektif analisis intonasi silang linguistik masih terhad. Justeru, berdasarkan teori pembelajaran intonasi bahasa kedua, kajian ini bertujuan untuk mengkaji penghasilan intonasi bahasa Inggeris oleh pelajar EFL Cina. Kajian ini melibatkan dua kumpulan peserta bahasa: dua belas penutur jati bahasa Inggeris dan tiga puluh enam pelajar EFL Cina. Pelajar EFL Cina dibahagikan kepada tiga kumpulan berdasarkan skor mereka dalam Ujian Bahasa Inggeris Lisan Kebangsaan Chivox, yang disusun dari tinggi ke rendah, iaitu kumpulan maju, pertengahan, dan asas. Tugasan kajian merangkumi pembacaan sembilan puluh pasangan dialog.

Peserta diminta membaca Bahagian B setiap pasangan dialog dengan kuat selepas mendengar Bahagian A yang dirakam oleh penutur jati bahasa Inggeris. Dua penilai mentranskripsikan rakaman menggunakan perisian Praat 6.2.14, dan penyelidik menganalisis data menggunakan SPSS 20.0. Dapatan kajian menunjukkan bahawa pelajar EFL Cina menunjukkan prestasi yang lemah dalam menghasilkan pelbagai jenis aksen nada Inggeris, ton sempadan, dan corak intonasi, dengan tahap perbezaan yang ketara berbanding penutur jati bahasa Inggeris. Kedua, kumpulan penutur jati bahasa Inggeris hanya menunjukkan perbezaan yang ketara dari setiap tiga kumpulan pelajar L2 dalam empat daripada sepuluh jenis intonasi yang dikaji merentas tiga aspek intonasi bahasa Inggeris, dan tiada perbezaan yang ketara ditemui antara tiga kumpulan pelajar. Ketiga, terdapat perbezaan yang ketara antara jenis-jenis bagi setiap tiga aspek intonasi bahasa Inggeris untuk pelajar dan penutur jati bahasa Inggeris. Walau bagaimanapun, kesan ini lebih ketara pada pelajar dari segi bilangan perbezaan yang ketara. Akhirnya, kedudukan fokus didapati mempengaruhi penghasilan pelajar dalam lapan daripada sepuluh jenis, manakala kesannya kurang ketara pada penutur jati bahasa Inggeris yang hanya melibatkan empat daripada sepuluh jenis. Analisis terperinci dapatan kajian menunjukkan bahawa penutur jati bahasa Inggeris menyimpang dari beberapa penemuan yang dilaporkan dalam kajian kepustakaan. Ini terutamanya disebabkan oleh variasi serantau dalam bahasa Inggeris Amerika (L*+H dan L-H%) dan kesukaran membezakan H* dan L+H*. Selain itu, faktor-faktor lain yang mempengaruhi keputusan mereka termasuk kes di mana perkataan sasaran tidak diberi tekanan (Na), kehadiran perkataan bertekanan lain selepas perkataan sasaran (P), dan kes ton sempadan yang disebabkan oleh Na, dengan atau tanpa perkataan bertekanan yang mengikutinya (NP). Bagi pelajar EFL Cina pula, kekurangan input mengenai intonasi bahasa Inggeris merupakan faktor utama yang mempengaruhi

prestasi mereka. Selain itu, intonasi bahasa Cina, Na, prosodi Cina (P), dan NP turut mempengaruhi penghasilan intonasi mereka dalam bahasa Inggeris. Kesimpulannya, penemuan utama kajian ini menyumbang kepada pengayaan teori pembelajaran intonasi L2 dalam pelbagai aspek dan menyediakan panduan penting untuk penambahbaikan pengajaran dan pembelajaran intonasi bahasa Inggeris pada masa hadapan.

Kata Kunci: Teori Metrik Autosegmental, Pelajar Bahasa Inggeris sebagai Bahasa Asing (EFL) Cina, Pengaruh Silang Linguistik, Teori Pembelajaran Intonasi Bahasa Kedua (L2), Penghasilan Intonasi Bahasa Inggeris

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LIST OF ABBREVIATIONS

EFL	English as a Foreign Language
L2	Second Language
L1	First Language
LILt	L2 Intonation Learning theory
AM	Auto-segmental Metrical
ToBI	Tones and Break Indices
MAE-ToBI	Mainstream American English-ToBI
Pr.	proposition
CAH	Contrastive Analysis Hypothesis
SLM	Speech Learning Model
PAM	Perceptual Assimilation Model
IViE	Intonational Variation in English
CNSET	Chivox National Spoken English Test
P&H	Pierrrehumbert & Hirschberg

CHAPTER 1

INTRODUCTION

The chapter introduces the background of the study, problem statement, research objectives, and research questions and hypotheses. It also presents the theoretical framework, the conceptual framework, the scope of the study, the significance of the study, and the definition of key terms. Lastly, it outlines the structure of the thesis.

1.1 Background of the Study

English pronunciation, which is concerned with the reception and transmission of information, plays a critical role in English learning. It is generally composed of segmental features and suprasegmental features. The former usually refers to vowels and consonants, while the latter refers to suprasegmental phenomena, which indlude stress, intonation, and rhythm (Nunan, 2001). Relatively, second language (henceforth "L2") learners may acquire segmental features with relative ease, while they may encounter various difficulties and yield a sense of frustration in acquiring suprasegmental features. For example, Chen and Bi (2008) reported that supra-segmental patterns produced by Chinese learning English as a foreign language (henceforth "EFL") showed a non-linear trend with no significant improvement over a period of 4 years.

In English, intonation, as a component of prosody, is essential for language communication. It can help a hearer understand which part of the linguistic information in an utterance is more important. In addition, several studies have reported that it can suggest a speaker's mood or attitude (Chen, 2008; Wells, 2006). In

other words, when interacting with native English speakers, intonation patterns used help convey what a speaker intends to signify, and he may be perceived as "purposely, or deliberately being unkind, insistent, and, probably disagreeable" if wrong intonation patterns are used (Benrabah, 1990, p.14). Lastly, it is an essential indicator of "speaker identity, reflecting the speaker's physical state, age, gender, psychological state, and sociolinguistic membership" (Mennen, 2007, p. 53).

However, plenty of studies, including Bi and Chen (2013), Bu (2016), Chen (2008), and Li, Qu, and Zhi (2020), among others, have demonstrated that acquiring native-like use of English intonation is incredibly hard for Chinese EFL learners. For example, the results from Bu (2016) showed that the tone-related errors made by Chinese EFL learners were manifested in several ways, including the misplacement of the nucleus, the replacement of rise and fall-rise with a fall, the accenting of function words, and a high frequency of tone group. Chen (2006) found that Chinese EFL learners performed well in the primary tones, namely falling, rising, and level tones. However, they struggled with using the secondary tones, which refer to the degree of rise or fall, to express attitude and mood. Their intonation errors also included the excessive use of the level tone and the falling tone. Given Chinese EFL learners' challenges in acquiring English intonation, a thorough investigation into the underlying causes is essential.

Recent investigations have demonstrated that the deviations observed in L2 learners' acquisition of intonation might be attributed to the interference from their native language's intonation (Albin, 2015; Mennen, 2007, 2015). For example, a significant analysis and discussion on the subject was presented by Albin (2015). The researcher

investigated three kinds of intonation transfer among Japanese learners of English: L1-transferred phrasal H- (a high tone located at the left edge of a phrase, which is similar to English %H), use of low fundamental frequency (henceforth "F0") targets at prosodic boundaries, and simple boundary rise from the final syllable. The results showed that the frequencies of Japanese learners of English using these three kinds of intonation transfer were higher than those of the native English speakers, which indicated the effect of L1 intonation. Therefore, there is a need to conduct a cross-linguistic analysis of intonation, focusing on English and Chinese intonation systems.

According to the typological definition, the fundamental approach for classifying the world's languages is to distinguish the most significant attributes (Hagège, 1992). From the perspective of prosodic systems, an important attribute distinction is between intonation languages and tone languages. English is a typical representative of the intonation languages, while Chinese is a typical representative of the tone languages (Du & Yang, 2000; Duanmu, 2004; Zhang, 2000).

English is an intonation language whose meaning is related to the use of intonation rather than the lexical meaning it conveys. Each word, phrase, or sentence in English can be pronounced with different intonation patterns to convey distinct meanings. For example, if the word "dog" is pronounced with a falling intonation, it usually expresses a simple declarative meaning. However, if pronounced with a rising intonation, it may indicate that a speaker is asking a question, expressing doubt, or indicating uncertainty.

In contrast, Chinese is a tone language whose meaning is related to the use of its lexical tones. In Chinese, there are four lexical tones: high level, high rise, low, and high fall. The tones attached to words or syllables are used to distinguish meanings. For example, the syllable “ma” can have four different lexical tones, each conveying a distinct meaning, such as “mother”, “hemp”, “horse”, and “scold”. Therefore, the misuse of lexical tones will lead to misunderstanding. However, although Chinese is a tone language, it also has an intonation system. For instance, Chinese intonation primarily conveys a declarative or interrogative mood through the boundary tone at the end of an utterance (Li, 2018).

The L2 intonation learning theory (henceforth “LILt”) provides a theoretical basis for comparing intonation systems between two languages. This theory was proposed by Mennen (2015). It attempts to identify deviations that learners may produce in their L2 intonation learning. Also, the Auto-segmental Metrical theory (henceforth “AM”) has facilitated the cross-language comparisons of intonation. In other words, if both languages can be analyzed using the AM theory, a systematic comparison of their intonation systems can be conducted.

Pierrehumbert (1980) first proposed the AM theory of English intonation. The main points of this theory can be elaborated from the following four aspects (Ladd, 2008)：

i) Sequential tonal structure. Pitch contours are phonologically analyzed as sequences of discrete intonational events. ii) Distinction between pitch accent and stress. The phonological element of a pitch contour that correlates with certain stressed syllables is called pitch accent. This element plays a part in perceptual cues to stress or prominence. iii) Analysis of pitch accents in terms of level tones. Pitch accents are the

most critical phonological events, which are further analyzed as sequences of pitch targets or level tones, High (H) and Low (L). iv) Local sources for global trends. A sequence of localized phonological events generates global trends in pitch contours.

According to this theory, an intonational phrase can be broken down into three structural elements: pitch accents, phrase accents, and (initial and final) boundary tones. These structural elements have various types: five pitch accent types (H*, L+H*, L*, L*+H, and H+!H*), two phrase accent types (H- and L-), and three boundary tone types (%H, H%, and L%). The combinations of pitch accents and (final) boundary tones constitute edge tones, while the combinations of the three structural elements form intonation patterns **(**Hirschberg & Beckman, 1994). For the definitions of these terms, one can refer to section 1.9. Moreover, the three structural elements and their types can convey different meanings in different contexts, and as a result, the combinations of these elements also produce different meanings (Pierrehumbert & Hirschberg, 1990).

Pierrehumbert's theory lays the foundation for the development of intonational phonology into an independent branch of modern phonology research. Since then, the AM theory has been widely used in many English variants and analyses of different languages' intonation. In the early 1990s, the Tones and Break Indices (ToBI) prosodic labeling system **(**Hirschberg & Beckman, 1994; Silverman et al., 1992) was developed, which is the first system for labeling English intonation using the AM theory.

Since the late 1990s, the ToBI has had a profound impact on the study of intonation in other languages. For example, it has been applied to the study of Chinese intonation

and has yielded fruitful achievements (Li, 2004, 2002, 2021; Lin & Li, 2011; Peng et al., 2005), such as the Chinese Tones and Breaks Indices (C-ToBI), the Mandarin Tones and Breaks Indices (M-ToBI), and the featured-based model of Chinese intonation.

According to scholars such as Chen (2006), Jia (2009), and Lin et al. (2020), Chinese intonation is composed of accents and boundary tones. For example, Jia (2009) classified accents into four types based on the four lexical tones in Chinese and divided boundary tones into two types based on the changes in lexical tones at the end of intonation phrases. Moreover, both accents and boundary tones in Chinese intonation can convey meanings (Lin, 2004). The function of accents is to indicate which part of the linguistic content in the discourse is more important, while the function of boundary tones is to convey discourse mood, such as interrogative or declarative.

From the above discussion, it can be seen that both English and Chinese intonation systems can be analyzed under the AM framework, which makes it feasible to investigate the effect of Chinese intonation on the production of English intonation by Chinese EFL learners.

In addition to the effect of L1 intonation, the LILt points out that other factors may influence learners' production of L2 intonation, such as age of arrival and language experience. Based on previous studies, the present study will include other factors that may affect learners' production of English intonation to provide insights into this theory and future English intonation teaching.

1.2 Problem Statement

Extensive research has explored factors influencing the production of intonation by L2 learners. Some studies have found that first language (henceforth "L1") intonation serves as an essential factor affecting learners' production of L2 intonation (Albin, 2015; Busà & Stella, 2012; Graham & Post, 2018; Gut & Pillai, 2015; Nguyen & Dao, 2018). In addition, other factors, such as English proficiency and the age of arrival, may also impact their use of L2 intonation (Albin, 2015; Graham & Post, 2018; McGory, 1997; Mennen, 2015).

However, there are several deficiencies in previous studies regarding the factors influencing learners' production of English intonation. The issues in these studies will be elaborated on from five aspects (see section 2.3 for more details): First, cross-language studies of intonation remain underexplored and require further investigation. Publications (Mennen, 2007, 2015) that concentrate on the cross-language analysis of intonation more frequently have shown that the production of L2 intonation may be influenced by L1 intonation. That is to say, the differences and similarities in intonation systems between two languages influence learners' production of English intonation. To better understand this influence, Mennen recommended that this cross-linguistic research be conducted within the AM framework. So far, however, there have been few studies comparing the similarities and differences between L1 and L2 intonation systems under the AM framework (Mennen, 1999; Albin, 2015). Therefore, it is crucial to conduct a comprehensive comparison of the similarities and differences between English and Chinese intonation systems.

Second, the impact of L1 intonation on learners' production of L2 intonation lacks systematic research. In the AM theory of English intonation (Beckman & Elam, 1997; Hirschberg & Beckman, 1994; Pierrehumbert, 1980), intonation contours are decomposed into a finite set of structural elements, which include pitch accents, phrase accents, and boundary tones. These elements can be combined into edge tones and intonation patterns. However, although some studies have examined the impact of L1 intonation on the production of L2 intonation from the AM perspective, they only involve some types of the three structural elements of English intonation and their combinations (Albin, 2015; Graham & Post, 2018; Lu & Miran, 2016; McGory, 1997). For example, in Albin's (2015) study, the researcher focused on three types of intonational transfer. In Graham and Post's (2018) study, they centered on the pitch accent (L+)H* (H* and L+H*). Therefore, the study attempts to investigate the production of English intonation by Chinese EFL learners from the three aspects of English intonation: pitch accents, edge tones, and intonation patterns.

Third, when studying the effect of L1 on the production of English intonation by learners, it is necessary to exclude the influence of other languages and minimize the influences of native language dialects among learners. China is a multi-ethnic country. In addition to the Han, there are 55 ethnic minorities. The languages of these minority groups are greatly different from Mandarin Chinese. Moreover, even within a Chinese dialect region, various distinct dialects exist. From the source of Chinese speakers, much of the literature fails to exclude the impact of minority languages or Chinese dialects, with the exception of Li et al. (2020). This study limits Chinese EFL learners to Han Chinese from Yunnan province and specifies their levels of Mandarin Chinese.

Fourth, when examining the effect of English proficiency on learners' production of English intonation, it is crucial to consider the objectivity of measuring learners' English proficiency levels and the comprehensiveness of the research focus. Language proficiency is one of the primary factors influencing learners' production of L2 intonation and can serve as an indicator of the development of their language abilities. (e.g. Bi & Chen, 2013; Chen, 2006; Mennen, 2015; Nguyen & Dao, 2018; Zárate-Sández, 2015). However, these studies have demonstrated that the effect of English proficiency varies. Through further analysis, it can be seen that these studies use diverse methods to evaluate the English proficiency levels of learners, resulting in varying degrees of reliability in their classification. In addition, few studies have systematically investigated the effect of English proficiency on the production of English intonation under the AM framework. Therefore, the present study attempts to systematically investigate the effect of English proficiency on Chinese EFL learners' production of English intonation under the AM framework by using a more objective method.

Finally, the impact of focus position on learners' production of English intonation requires further investigation. Some scholars have made valuable attempts to investigate the influence of focus position on learners' production of English intonation from the phonological perspective (Graham & Post, 2018; Jun & Foreman, 1996; Li, Qu, & Zhi, 2020; Liu & Chen, 2016). For example, Jun and Foreman (1996) found that there were more pitch accents after the initial focus than the medial focus, which may affect the production of edge tones and intonation patterns. Graham and Post (2018) demonstrated that the position of focus influenced the percentages of plateau-type H* accent contour produced by five groups. However, until now,

relatively few studies have investigated the impact of focus position on the production of English intonation. Furthermore, existing research has been confined to some pitch accent types.

In view of the issues above, based on Mennen's (2007, 2015) LILt, this study takes college students from Yunnan, China, as participants and examines the factors of L1 intonation, English proficiency, and focus position on the production of English intonation by Chinese EFL learners.

To understand the research objectives in section 1.3 and the research questions in section 1.4, the study provides a concise summary of the findings in sections 2.4-2.6 of the thesis. These sections have discussed the phonological similarities and differences between English and Chinese intonation systems by referring to a substantial amount of literature and using a wide range of examples. Table 1.1 summarizes the similarities and differences between English and Chinese intonation systems from the phonological aspect.

Table 1.1 : English and Chinese intonation systems: A contrast

Structural elements		English intonation	Chinese intonation
Pitch accents	Form	H*, L+H*, L*, L*+H, and H+!H*	H*, LH*, L*, L*+LH, and H *L
	Meaning	New information: H* and L+H* Given information: L*, L*+H, and H+!H* Emphasis: H* Contrast/ correction: L+H* Uncertainty/ incredulity: L*+H Reminding: H+!H*	Emphasis, correction/ contrast, given information, and reminding
Phrase accents	Form	H- and L-	
	Meaning	Final phrase accents: The questioning of a proposition and the degrees of assertion Nonfinal phrase accents: Relationship between two or more intermediate phrases	
Boundary tones	Form	H% and L%	H% and L%
	Meaning	The relationship between two or more intonational phrases: L%, complete; H%, incomplete Continuation dependence, H% Closed (L%) or open (H%) alternative list (alternative questions) Expectation (Yes-No Questions and wh-questions), H%	Assertion: L% Questioning: H% Uncertainty: H% Suspense: depending on different contexts

From this table, it can be seen that there are four pitch accent types in Chinese (H*, LH*, L*, and L*+LH) which are similar to English (H*, L+H*, L*, and L*+H). However, in English, different pitch accent types can convey different meanings, while in Chinese, these pitch accent types have the same meanings. Also, different from English, there are no phrase accents in Chinese intonation. Lastly, the boundary tone types in these two languages are similar in form but different in meaning.

Table 1.2 categorizes the types of the three structural elements of English intonation and their combinations, taking into account the similarities and differences between English and Chinese intonation systems. In this study, the three structural elements

and their combinations are summarized into three aspects: pitch accents, edge tones, and intonation patterns. Furthermore, each of these three aspects includes different types, and the study selects those that are more representative.

Table 1.2 : Classification of the three structural elements of English intonation and their combinations based on their similarities and differences to Chinese intonation

	Pitch accents	Edge tones	Intonation patterns
Similarities		L-L%	
	H*	H-H%	H*L-L%
Differences	L+H*	L-H%	L*H-H%
	L*		H*L-H%
	L*+H		

Table 1.2 shows that there are great differences between English and Chinese intonation systems in terms of the structural elements and their combinations. In the ten intonation types involving the three aspects of English intonation, only the L-L% in English intonation has its counterpart in Chinese intonation.

In addition to being used to examine the influence of L1 intonation on Chinese EFL learners' production of English intonation, the three aspects of English intonation are also used to examine other aspects of English intonation. The study utilizes them to investigate Chinese EFL learners' production of English intonation comprehensively. It also utilizes them to systematically evaluate the effects of English proficiency and focus position on the production of English intonation by Chinese EFL learners. It should be noted that this study compares the production of English intonation between Chinese EFL learners and native English speakers and in the four aspects mentioned above to understand the practical difficulties in learners' production of English intonation and provide references for the teaching and assessment of English

intonation.

1.3 Research Objectives

The previous section summarized the limitations of earlier studies on the production of English intonation by L2 learners from five perspectives. In this section, the present study will address these gaps by investigating the production of English intonation by Chinese English learners and the effects of English proficiency, L1 intonation, and focus position on their production of English intonation. The objectives of the study are as follows:

1. To compare the production of English intonation by Chinese EFL learners with native English speakers.[1]
2. To explore whether English proficiency affects the production of English intonation by Chinese EFL learners.
3. To examine whether L1 intonation influences the production of English intonation by Chinese EFL learners.[2]
4. To determine the impact of focus position on the production of English intonation by Chinese EFL learners.

1.4 Research Questions and Hypotheses

The following research questions and hypotheses are formulated to address the four objectives of the study.

1. How do Chinese EFL learners produce English intonation compared to native

[1] "The production of English intonation" refers to the production of different types of English pitch accents, edge tones, and intonation patterns. See Table 1.2 for more details.
[2] Based on the similarities and differences between English and Chinese intonation systems mentioned in section 1.2, the study will examine the effect of L1 intonation by comparing the differences between the types of each of the three aspects of English intonation.

English speakers?

Q1.1 How do native English speakers produce different types of English pitch accents, edge tones, and intonation patterns?

Q1.2 How do Chinese EFL learners produce different types of English pitch accents, edge tones, and intonation patterns?

Q1.3 How do Chinese EFL learners differ from native English speakers in the production of different types of English pitch accents, edge tones, and intonation patterns?

2. How does English proficiency affect the production of English intonation by Chinese EFL learners?

Q2.1 Are there significant differences in the production of different types of English pitch accents, edge tones, and intonation patterns between the native speaker group and each of the learner groups at different proficiency levels?

Null Hypothesis 2.1 (henceforth "H0"): There are no significant differences in the production of different types of English pitch accents, edge tones, and intonation patterns between the native speaker group and each of the three learner groups.

Q2.2 Are there significant differences in the production of different types of English pitch accents, edge tones, and intonation patterns between the three learner groups?

H02.2 There are no significant differences in the production of different types of English pitch accents, edge tones, and intonation patterns between the three learner groups.

3. How does L1 intonation influence the production of English intonation by Chinese EFL learners?

Q3.1 Are there significant differences between the scores of different English pitch accent types, edge tone types, and intonation pattern

types for native English speakers?

H03.1: There are no significant differences between the scores of different English pitch accent types, edge tone types, and intonation pattern types for native English speakers.

Q3.2 Are there significant differences between the scores of different English pitch accent types, edge tone types, and intonation pattern types for Chinese EFL learners?

H03.2 There are no significant differences between the scores of different English pitch accent types, edge tone types, and intonation pattern types for Chinese EFL learners.

Q3.3 Are there differences between the scores of different English pitch accent types, edge tone types, and intonation pattern types for Chinese EFL learners and native English speakers?

H03.3 There are no differences between the scores of different English pitch accent types, edge tone types, and intonation pattern types for Chinese EFL learners and native English speakers.

4. How does focus position impact the production of English intonation by Chinese EFL learners?

Q4.1 Does focus position significantly impact the production of different types of English pitch accents, edge tones, and intonation patterns by native English speakers?

H04.1 Focus position does not significantly impact the production of different types of English pitch accents, edge tones, and intonation patterns by native English speakers.

Q4.2 Does focus position significantly impact the production of different types of English pitch accents, edge tones, and intonation patterns by Chinese EFL learners?

H04.2 Focus position does not significantly impact the production of

different types of English pitch accents, edge tones, and intonation patterns by Chinese EFL learners.

Q4.3 Are there differences in the impact of focus position on the production of different types of English pitch accents, edge tones, and intonation patterns for Chinese EFL learners and native English speakers?

H04.3 There are no differences in the impact of focus position on the production of different types of English pitch accents, edge tones, and intonation patterns for Chinese EFL learners and native English speakers.

1.5 Theoretical Framework of the Study

Since this study concerns the production of English intonation, it adopts the L2 intonation learning theory (LILt) as its framework. According to this theory, the deviations in the production of L2 intonation may be attributed to the intonations of learners' native languages. In other words, learners' production of L2 intonation may be affected by the similarities and differences between L1 and L2 intonation systems.

In this theory, cross-language differences in intonation can be analyzed from four dimensions.

1. The inventory and distribution of categorical phonological elements ('systemic dimension')
2. The phonetic implementation of these categorical elements ('realizational dimension')
3. The functionality of the categorical elements or tunes ('semantic' dimension)
4. The frequency of use of the categorical elements ('frequency' dimension) (Mennen, 2015, p. 173).

In the first dimension, the "categorical phonological elements", also referred to as the structural elements, include elements such as pitch accents and boundary tones, and the "distribution", in short, refers to the position of the structural elements. The second dimension includes elements such as pitch register, pitch range, duration, tonal alignment, slope rate, and distribution of nuclear accent. The third dimension mainly relates to meaning, such as focus marking and interrogative. The last dimension primarily concerns differences in the frequency of the structural elements used across languages.

This study will focus on the systemic dimension and the semantic dimension and investigate Chinese EFL learners' production of English intonation. The reason for this selection is that research on intonation requires consideration of both form and meaning (Mennen, 1999, 2015). The theoretical framework for this study will be discussed in detail in the next chapter (Section 2.2.4).

1.6 Conceptual Framework

The focus of this study is to investigate the production of English intonation from the phonological aspect by Chinese EFL learners. The study first provides an overall picture of Chinese EFL learners' production of English intonation. It offers the frequencies of the production of different types of each of the three aspects of English intonation (pitch accents, edge tones, and intonation patterns) and presents the proportions of these scores to the total number of tokens. Also, this study examines the effect of English proficiency on learners' production of English intonation. English proficiency is the independent variable, comprising three learner groups at different English proficiency levels (advanced, intermediate, and elementary) and a native

English speaker group for comparison. The dependent variables are the scores for the types of each of the three aspects of English intonation. Furthermore, this study investigates the effect of L1 intonation on learners' production of English intonation. It explores the differences between scores for the types of each of the three aspects of English intonation. Lastly, this study determines the effect of focus position on learners' production of English intonation. Focus position is the independent variable, which includes three levels: initial, medial, and final. The dependent variables are the scores for the types of each of the three aspects of English intonation at different focus positions. Figure 1.1 demonstrates the conceptual framework of the study.

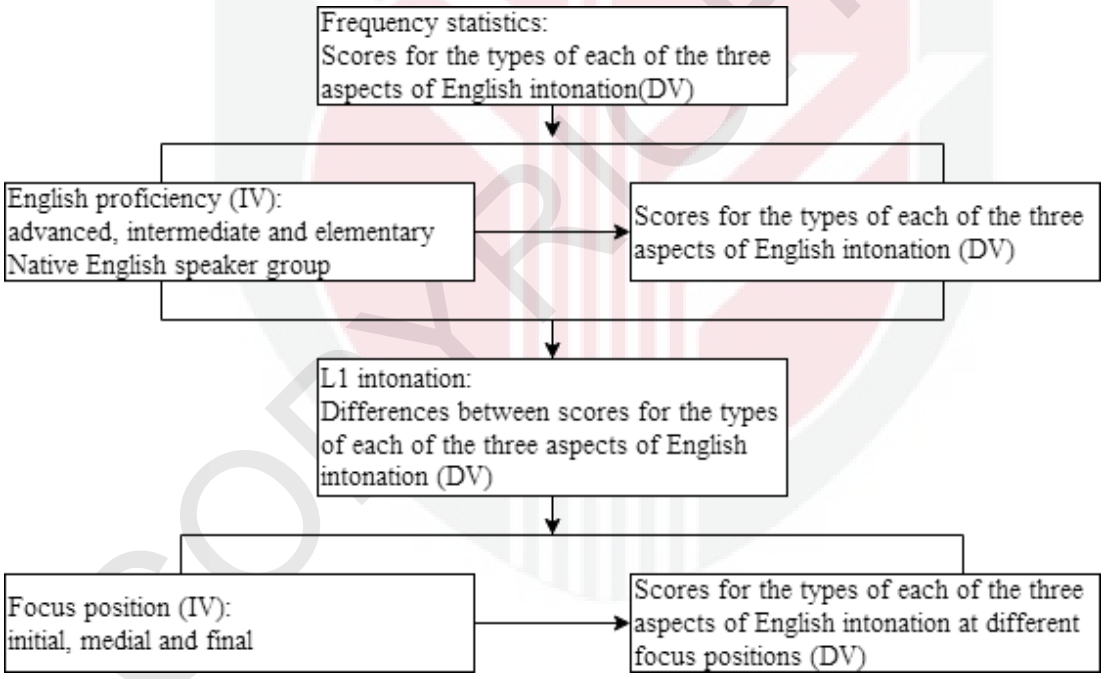

Figure 1.1 : Conceptual framework of the study

1.7 Scope of the Study

This study examines the production of English intonation by Chinese EFL learners. It investigates Chinese EFL learners' production of English intonation and the factors

(English proficiency, L1 intonation, and focus position) affecting their production. It focuses on the production of the three aspects of English intonation: pitch accents, edge tones, and intonation patterns. It employs a quantitative approach, including an English proficiency test, a reading task, and a semi-structured interview to gather comprehensive data.

However, due to the influence of various elements, the study imposes constraints on its scope. First, the study selects native English speakers who were born in Ohio, USA. According to Kretzschmar, Jr (2004), the state of Ohio is often regarded as a model for the "General American". Second, the participants selected for this study are undergraduate students. They represent a crucial group in English learning and are typically the focus of language learning studies. Third, the study selects Han Chinese from the Yunnan Chinese dialect regions. Yunnan is a multi-ethnic province. In addition to the Han ethnic group, there are 24 ethnic minorities. The study excludes non-Han Chinese to avoid the influence from these minority languages. Fourth, the study controls for learners' Mandarin Chinese proficiency levels to minimize the impact of regional dialects from different areas of Yunnan when examining the effect of L1 intonation. Fifth, the number of male speakers learning English is minimal, so a balance between males and females is hardly achieved. The study ignores the influence of gender, because the difference between male and female speakers reflects the actual situation of foreign language learners. Sixth, the learners chosen for the study are English majors. They have received English pronunciation training and gained a basic understanding of English intonation. Seventh, the study excludes participants with language disabilities to ensure that the results reflect the abilities of typical individuals. Eighth, the study is limited to the phonological aspect of English

intonation. The research on L2 intonation involves phonetic and phonological aspects, with the latter impacting speakers' meaning. Finally, the study limits its scope to the production of English intonation in narrow focus. Pitch accents in English can convey different meanings in narrow focus, and pitch accents in Chinese refer to accents in narrow focus.

1.8 Significance of the Study

This part introduces the significance of the study, highlighting its theoretical and practical values. The results of the present study have important theoretical values. This study provides new insights that enrich the L2 intonation learning theory by addressing the gaps in the literature regarding the similarities and differences in form and meaning between English and Chinese intonation systems. Also, this study contributes to revealing the relationship between the learners' proficiency in spoken English and their proficiency in English intonation, the potential means by which L1 intonation influences learners' production of English intonation, and the underlying causes affecting the effect of focus position.

The results of the present study also have significant practical values. Firstly, the findings of the study contribute to reforms in English intonation teaching, promoting the formation of a TOBI-based English intonation teaching approach, which is particularly important in the initial stage of English intonation teaching. It can help learners master the structural elements of English intonation and their combinations in form and meaning and lay a solid foundation for their English intonation learning. Secondly, the study gains new insights into English intonation teaching based on the similarities and differences between English and Chinese intonation systems. The

results can help English teachers predict the difficulties in learners' production of English intonation and provide information for their curriculum design of English intonation teaching. Finally, the findings from the effects of English proficiency, L1 intonation, and focus position can enable teachers to develop targeted measures that may comprehensively enhance learners' ability in English intonation. These findings can help teachers comprehensively understand how L1 intonation functions, grasp the development of learners' ability in English intonation, and become aware of the potential factors influencing the effect of focus position.

1.9 Definition of Key Terms

Intonation

While a variety of definitions of the term "intonation" have been suggested, this study will use the description offered by Ladd (2008, pp. 4-6), who treats it as "the use of suprasegmental phonetic features to convey post-lexical or sentence-level pragmatic meanings in a linguistically structured way". In this definition, the "suprasegmental phonetic features" refer to features of the fundamental frequency, intensity, and duration; the "post-lexical or sentence-level pragmatic meanings" refer to meanings that are conveyed by the entire phrase or utterance, such as sentence type, speech act, and focus; the "linguistically structured way" refers to the distinct categorical entities (e.g., high tone, or boundary rise) and relation (relative prominence) by which intonation features are organized.

Pitch accent

The term "pitch accent" describes a local pitch contour feature that signifies the prominent syllable in an utterance (Ladd, 2008). In the AM theory, a pitch accent

comprises a H or L pitch target or a combination of a H and L target. A target in a pitch accent is assigned *, indicating that this target is connected to the stressed syllable. The ToBI prosodic labeling system includes five pitch accent types: L*, H*, L*+H, L+H*, and H+!H* (Hirschberg & Beckman, 1994). Pitch track representations of the five pitch accent types are shown in Figure 2.1.

Phrase accent

The term "phrase accent" means a free-standing unstarred tone between the last pitch accent and its following boundary tone (Ladd, 2008) and is represented by a single H- or L-. In addition, when an intonational phrase consists of two or more phrases, nonfinal and final phrase accents are distinguished.

Boundary tone

The term "boundary tone" refers to a rise or fall in pitch at the end of an utterance (Ladd, 2008). If a sentence consists of two or more intonation phrases, it is at the end of each intonation phrase. It comprises a H or L pitch target and the symbol %. It can also occur at the beginning of an utterance and is usually marked as %H. Note that if it is %L, it is generally not marked.

Edge tone

The term "Edge tone" will be used in this study to refer to the combination of a phrase accent and a boundary tone, indicating a declarative or a question (Hirschberg & Beckman, 1994). There are four edge tone types: L-L%, H-H%, L-H%, and H-L% (see Figure 2.1).

Focus

According to Wells (2006, p. 116), focus can be defined as "the concentration of attention on a particular part of the message". A fundamental distinction of focus is made between the broad and narrow focus (Cruttenden, 1997; Wells, 2006). In broad focus, everything in an intonational phrase is brought into focus. In example (1), the broad focus (underlined) is used to answer questions like "What happened?".

(1) A: What's going on here?
B: Selena's had a heart attack.

However, in narrow focus, only part of an intonational phrase is brought into focus. The narrow focus (underlined) can be used to convey meanings such as emphasis and contrast, as shown in example (2).

(2) A: What did Mary bring?
B: She brought the wine.

Focus position

Focus position refers to the location of a focused word in an utterance. Generally, there are three focus positions: initial, medial, and final. Example (3) provides a dialogue pair for each of these three positions.

(3) Who bought a book? Mary bought a book.
What did Mardy do to a book? Mary bought a book.
What did Mary buy? Mary bought a book.

Pitch accent (Mandarin Chinese)

The term "pitch accent" is a relatively controversial name for Mandarin Chinese, commonly referred to as a type of accent in narrow focus (section 2.5.2), which is manifested by raising or lowering the pitch of one or two syllables in relation to their

preceding and succeeding syllables (that is, relative prominence) and are used to convey which part of the linguistic content is more important in the discourse. Four pitch accents are distinguished in Chinese intonation: H*, LH*, L*, and H*L (see Figure 2.3).

Boundary tone (Mandarin Chinese)

Boundary tone in Chinese is usually located at the last syllable of a sentence, and its function is to convey the mood of an utterance, such as the declarative mood and the interrogative mood (see section 2.5.3). There are two boundary tone types, namely H% and L% (see Figure 2.4).

1.10 Organization of the Thesis

This study consists of five chapters. Chapter 1 introduces the research background of the study, summarizes the existing research problems, clarifies the research objectives, and puts forward the study's research questions and hypotheses. It also introduces the theoretical and conceptual frameworks, discusses the research scope and the significance of the study, defines the key terms, and presents the structure of the thesis. Chapter 2 explores four second language speech theories, sorts out previous studies about the production of English intonation by L2 learners, and discusses the AM Analysis of English and Chinese intonation systems. Chapter 3 introduces the research method, including the research design, participants, instruments, annotation of English intonation, data collection, and data analysis. It also reports the results from the pilot study. Chapter 4 presents the results of the study, including the overall production of English intonation and the effects of English proficiency, L1 intonation, and focus position on the production of English intonation. It also discusses the results of the

study. The last chapter presents the main findings of the present study and its implications. It also reports the limitations of the study and provides recommendations for future research.

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