

A STUDY ON HUNGARIAN CHINESE LEARNERS' PRONUNCIATION FOR CHINESE CONSONANT INITIALS

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ABSTRACT

This paper mainly focuses on Hungarian Chinese learners' pronunciation for Chinese consonant initials. There is relatively very little literature on Hungarian Chinese learners' Chinese learning experience, thus this study is to fill a gap in literature on Chinese language learning and teaching in Hungary which might shed light on future Chinese teachers in Hungary as well as Hungarian Chinese learners. In the study, Hungarian Chinese learners' perception on their ability to pronounce Chinese consonant initials, their teachers' perception on their pronunciation for Chinese consonant initials, and the Chinese consonant initials Hungarian Chinese learners usually mispronounce are investigated. The study shows that Hungarian Chinese learners' perception and that of their teachers are to some extent different, and Hungarian Chinese learners usually mispronounce [tɛ^h], [tɛ] and [tɕ] sounds.

KEYWORDS

Chinese language learning, Chinese consonants, consonant initials, Hungarian Chinese learners, pronunciation

INTRODUCTION

Mandarin Chinese (Chinese will be used hereafter) is the official language of mainland China and Taiwan. It is taught in schools, and also used in broadcasts (Lin 2007) [4]. Nowadays, Chinese language learning becomes trendy all over the world, so does it in Hungary. And there has been a steady growth in the number of Hungarians who study Chinese. The number of Chinese learners has experienced a process of change from single digit to hundreds and then to thousands. Chinese teaching has been introduced to Hungary since the 1950s (Józsa 1988) [9], but very few people in Hungary studied Chinese at that time. By the early 1980s, the total number of people studying Chinese in Hungary was only a dozen. Entering the 21st century, because of the high-level interaction between China and Hungary, Hungary pays more attention to China and Chinese language education. The number of Chinese language learners started to increase steadily. By 1990, there were more than 500 Chinese learners in Hungary (Mei 1990) [12], but in 2020, according to the director of ELTE Confucius Institute, the total number of Chinese language learners in Hungary has reached to 6259 (Li et al. 2021) [10].

To fulfil the demand for Chinese language learning, Chinese educational institutions in Hungary have also spread from one point to the whole area. In 1926, Magyar Királyi Pázmány Péter Tudományegyeteme (currently Eötvös Loránd University) established the de-

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gree program specialized in Chinese (the official website of Eötvös Loránd University). Then, for a long time there was no obvious development for Chinese education in Hungary. However, since the Prime Minister of the Republic of Hungary visited China in 2003, Hungary has successively established a Chinese-Hungarian bilingual primary school (currently called Magyar-Kínai Két Tanítási Nyelvű Általános Iskola és Gimnázium), five Confucius Institutes namely ELTE Confucius Institute, Confucius Institute at University of Szeged, University of Miskolc Confucius Institute, University of Debrecen Confucius Institute, and 匈牙利佩奇大学中医孔子学院 (*Confucius Institute of Traditional Chinese Medicine, University of Pecs, Hungary* in literal translation), and three Confucius Classrooms. The first Chinese classroom was collaboratively opened by Kecskemét Bolyai János Gimnázium and ELTE Confucius Institute at Kecskemét Bolyai János Gimnázium in 2009 for secondary students from this school who want to learn Chinese, the second Chinese classroom is collaboratively opened by Hungarian-Chinese Bilingual Primary School and Capital Normal University in 2017 for primary students and secondary students from this school who want to learn Chinese, and the third Chinese classroom is collaboratively opened by Szeged és Térsége Eötvös József Gimnázium, Általános Iskola and Confucius Institute at University of Szeged in 2019 for primary and secondary students from this school who want to learn Chinese. In addition, more and more Hungarian local educational institutions have begun to offer degree programs specialized in Chinese language, and other Chinese language courses.

Now, three universities, namely Eötvös Loránd University (ELTE), Pázmány Péter Catholic University (PPKE) and Károli Gáspár University of Reformed Church (KRE), have degree programs specialized in Chinese language, and more universities such as Budapest Business School (BGE), University of Public Service (NKE), Corvinus University of Budapest (BCE), University of Győr (SZE), Budapest Metropolitan University (METU), University of Debrecen (DE), University of Miskolc (ME), etc. started to offer Chinese language courses (Simay and Fan 2020 [5]).

Among the educational institutions mentioned above, Hungarian-Chinese Bilingual Primary School, ELTE, PPKE, KRE, and BGE have both native Chinese teachers as well as Hungarian Chinese teachers whereas BCE, DE, ME and NKE have no native Chinese teachers. And in five Confucius institutes mentioned above, the teachers are mainly native Chinese teachers. That is why, some Hungarian Chinese learners are taught by only native Chinese teachers, some are taught by only Hungarian Chinese teachers whereas others are taught by both native Chinese teachers as well as Hungarian Chinese teachers.

CHINESE PHONOLOGY

Chinese is a tonal language and in Chinese, syllable as the basic phonological unit is always uncontroversial in traditional Chinese phonological analysis. Syllable boundaries are clear in Chinese and the possible inventory of syllable types is small (Duanmu 2007 [2]). (See Table 1.)

Table 1: The syllable inventory of Chinese (disregarding tone) (Examples in the table are from Duanmu 2007 [2].)

V	[ʃ] 'goose'	GV	[wa] 'frog'	CGV	[kwa] 'melon'	CGVG	[k ^h waj] 'fast'
C	[m] 'yes?'	VG	[aj] 'love'	GVG	[waj] 'outside'	CGVC	[xwaŋ] 'yellow'

		VC	[an] 'peace'	CVG	[fej] 'fly'		
		CV	[ta] 'big'	CVC	[t ^h an] 'sugar'		

V refers to vowel, G refers to glide, and C refers to consonant.

In Table 1, one type GVC is not mentioned, for example, [wan] 'to finish'. Therefore there are 13 types of syllable in Chinese. In this paper, we will only focus on syllable initial consonants which do not contain syllabic consonant or the syllable type C in Table 1.

To look at the Chinese consonant sounds, in the Chinese language textbooks for non-native Chinese language learners, it is mentioned that there are altogether 21 consonant sounds at the initial position. However, some scholars such as Chao (1948) [1], Li (1966) [3] and recently Zhu (2010) [15] argue that there are 22 consonant sounds in Chinese at the initial position, adding Ø zero onset as one of the consonant initials. In our study, participants were Chinese learners who were non-native Chinese. That is why, we will use the concept that there are only 21 consonant sounds at the initial position in Chinese.

Among those 21 consonant sounds at the initial position, some sounds under the same place of articulation are pronounced similar, but they are different in terms of aspiration. In Table 2, those voiceless unaspirated (e.g. [p]) are on the left and those voiceless aspirated (e.g. [p^h]) are on the right side. In Chinese, there are three pairs of aspirated and unaspirated stops [p^h, p], [t^h, t], and [k^h, k], and three pairs of aspirated and unaspirated affricatives [ts^h, ts], [tɕ^h, tɕ], and [tʂ^h, tʂ]. Fricatives have no aspirated/unaspirated pairs. [tɕ], [tɕ^h], and [ɕ] are in complementary distribution with the dental affricates/fricatives [ts], [ts^h], and [s], post-alveolar affricates/fricatives [tʂ], [tʂ^h], and [ʂ^h], and velars [k], [k^h], and [x] (Duanmu 2007 [2]; Lin 2007 [4]; Zhu 2010 [15]). (See Table 2 which was an adapted version of Lin 2007 [4].) Although [tɕ], [tɕ^h], and [ɕ] occur only before high front vowels [i] and [y] or glides [j] and [ɥ], but others which are [ts], [ts^h], [s], [tʂ], [tʂ^h], [ʂ^h], [k], [k^h], and [x] never occur before high vowels or high glides. In Chinese, all the nasals and approximants are voiced. [ɹ] is transcribed as liquid [ɹ] by Zhu (2010) [15] but as voiced fricative [z] by Duanmu 2007 [2].

Table 2: Chinese 21 consonant initials in IPA (Adapted version of Lin 2007: 41 [4])

	Bilabial		Labio-dental	Dental		Post-alveolar		Alveolo-palatal		Velar	
Stop	[p]	[p ^h]		[t]	[t ^h]					[k]	[k ^h]
Fricative			[f]	[s]		[ʂ]		[ɕ]		[x]	
Affricate				[ts]	[ts ^h]	[tʂ]	[tʂ ^h]	[tɕ]	[tɕ ^h]		
Nasal	[m]			[n]							
Central approximant						[ɹ]					
Lateral approximant				[l]							

In previous literature about Chinese language learning by non-native Chinese learners, the most difficult consonant initials to be pronounced correctly were [ts], [ts^h], and [s] for Korean Chinese learners (Yang 2017) [13] whereas Kazakhstan Chinese learners thought that [t], [tɕ], [tɕ^h], [ɕ], [tʂ], [tʂ^h], [ʂ], [ts^h], [s], and [ɹ] were the most difficult to pronounce well for them

(Li 2012) [11]. For American Chinese learners, Bi (2001) [6] found that [tʂ], [tʂʰ], [ʂ], [tɕ], [tɕʰ], [ɕ] were the most difficult because these consonant initials do not exist in English.

Like other non-native Chinese language learners, Hungarian Chinese language learners also have difficulty in pronouncing those sounds. Zhang (2015) [14] conducted a study on the pronunciation of Hungarian Chinese learners in which 18 (5 male + 13 female) Chinese learners from KRE University participated. First, they learned Chinese for 96 hours. After that, learners' pronunciation was tested by asking learners to read aloud a text which contained 57 monosyllabic words and 67 disyllabic words. During that test, teachers found that there were a lot of sounds learners pronounced incorrectly. There was some variation in the data Zhang provided and the findings she wrote in her study. Although her data showed that Hungarian Chinese learners made most mistakes for [tɕʰ], [p], and [tʂ] sounds in the reading aloud test, and learners mentioned in the questionnaire that the most difficult Chinese consonant initial sounds for them to pronounce correctly were [tɕʰ], [ɹ], and [tɕ] sounds, in her findings, she wrote that [tɕ], [tɕʰ], [ɕ] were the most difficult sounds for Hungarian Chinese learners, and [p], [t], and [k] were also relatively difficult for them. Zhang also stated that the reason why it was difficult for the Hungarian Chinese learners to pronounce those sounds was because of their mother tongue influence on their Chinese language learning. Zhang also found that the reason why the Hungarian Chinese learners made mistakes in pronouncing those sounds was that learners as well as their teachers did not pay that much attention to the correct pronunciation. Also, comparing to consonant initial sounds, Chinese tones are undoubtedly more difficult.

Another research about the pronunciation of Hungarian Chinese learners was Jia's (2017) [10] study. Participants were 42 Chinese learners from ELTE Confucius Institute. In this study, learners learned Chinese for 32 hours. Then, a syllable table was used to test learners' pronunciation, and it was found that the most difficult sounds to pronounce correctly were [tɕʰ], [tʂ] and [p].

Gao (2018) [7] also did research about the pronunciation of Hungarian Chinese learners. In the study, participants were 14 learners from Janos Middle School students. After learning Chinese for 144 hours, learners were asked to read aloud the basic sounds from the Chinese sounds chart and some words. Gao named this kind of testing as testing with "non-natural context" (p. III), and also tested Hungarian Chinese learners' pronunciation with a speaking task in which a learner needed to answer his/her teacher's questions. Gao called it testing learners' pronunciation in "natural context" (p. III). In these two types of testing, Gao found that Hungarian Chinese learners made more mistakes for initial sounds under natural context than under non-natural context. According to Gao's data, the consonant sounds learners made mistake most at the initial positions were [tɕʰ], [tɕ] and [p] under non-natural context whereas under the natural context were [tɕʰ], [ɕ] and [ɹ].

In the previous literature on Hungarian Chinese learners' pronunciation, it was found that [tɕʰ], [p], [tʂ], [tɕ], [ɕ], and [ɹ] were the consonant initials which learners made most mistakes in their pronunciation, and from learners' point of view, [tɕʰ], [ɹ], and [tɕ] were the most difficult consonant initials to be pronounced for them. In the previous literature, researchers used oral tests and questionnaires. None of the researchers considered teachers' point of view on Hungarian Chinese learners' pronunciation. That is why, in our study, we would like to fill that gap, and we compared the Chinese consonant initials which Hungarian Chinese learners thought most difficult to pronounce and the Chinese consonant initials which teachers thought the most difficult for Hungarian Chinese learners to pronounce correctly. Thus, our research questions are as follows:

1. To what extent the perception of Hungarian Chinese learners on their ability to pronounce Chinese consonant initials is different from the perception of teachers on learners' ability to pronounce Chinese consonant initials?
 - 1.1. What are the consonant initials Hungarian Chinese learners think most difficult to pronounce?
 - 1.2. What are the consonant initials teachers think that Hungarian Chinese learners have difficulty to pronounce?
2. What are the Chinese consonant initials Hungarian Chinese learners usually mispronounce?

RESEARCH DESIGN

In this study, there was an assumption that the perception of Hungarian Chinese learners on their ability to pronounce Chinese consonant initials is different from the perception of teachers on learners' ability to pronounce Chinese consonant initials. Thus, the perception of Hungarian Chinese learners as well as that of teachers were investigated in our study.

Materials

In order to know the perception of learners, a questionnaire was designed based on the 21 consonants which were mentioned in Table 2 in the previous section. (See the questionnaire in Appendix A.) Then, to investigate the teachers' points of view on Hungarian Chinese learners' ability to pronounce Chinese sounds, semi-structured interviews were conducted with teachers. The interview questions were based on teachers' experience on Chinese language teaching to Hungarian Chinese learners. (See sample interview questions in Appendix B.) In addition, to examine which Chinese consonant initials Hungarian Chinese learners usually mispronounce, audio recordings of some Hungarian Chinese learners' pronunciation of Chinese consonant initials were made. Learners' responses to the questionnaire, notes from interviews with teacher participants, and audio recording materials of learners' pronunciation were used as materials in our study. In order to avoid alternations between syllables, only word initial consonants of Appendix C is counted in Table 4.

Participants and procedure

After designing the questionnaire, it was distributed online to the Hungarian Chinese learners in six universities in Hungary which have Chinese courses. 51 respondents participated in the study. The respondents' Chinese language level ranges from HSK 1 to HSK 6. Then, a data set was constructed for the responses received from the Hungarian Chinese learners.

Then, there were semi-structured interviews with 5 teachers (3 native Chinese teachers and 2 Hungarian Chinese teachers). Among three native Chinese teachers, one could speak Hungarian fluently, and another one had basic knowledge of Hungarian. All the interviews were conducted in Chinese. Sample interview questions were translated into English which can be seen in Appendix B. For the later use, the interview answers were translated into English. All these teachers had at least 5 years Chinese language teaching to non-native Chinese learners. Thus, there were altogether 56 participants (51 learners and 5 teachers) in the study.

After the interviews with teacher participants in the study, the pronunciation for the Chinese consonant initials was tested with 15 Hungarian Chinese learners who volunteered to participate in the test. These learners' pronunciation was tested at the word level. (See the

Chinese words used to test the pronunciation of learners in Appendix C.) The audio recordings of the learners' pronunciation were made to investigate whether each Chinese consonant initial was pronounced correctly or not.

Analysis

After collecting learners' responses to the questionnaire, mean score was employed to analyze the data from the questionnaire. As a seven-point Likert scale was used in the questionnaire for the learners, mean score 3.5 was applied in examining which Chinese consonant initials were the most difficult for Hungarian Chinese learners to pronounce.

From the interview notes, the consonant initials which teachers thought Hungarian Chinese learners made mistake most were compiled. Then, the consonant initial(s) which learners thought most difficult to pronounce was(were) compared with those consonant initials which teachers thought learners had difficulty most were compared.

After that, to know which Chinese consonant initials Hungarian Chinese learners usually mispronounce, the audio recordings of the 15 Hungarian Chinese learners were listened by the researchers together with the teacher participants in the study to judge whether the learners' pronunciation of Chinese consonant initials was correct or not.

DISCUSSION

Perception of Hungarian Chinese learners on their ability to pronounce Chinese consonant initials

As mentioned earlier, there were 51 respondents who took part in filling in the questionnaire for our study. (See a sample question from the questionnaire in Appendix A.) In the questionnaire, a seven-point Likert scale, in which 1 = "no difficulty at all", 2 = "very easy", 3 = "somewhat easy", 4 = "neutral", 5 = "somewhat difficult", 6 = "very difficult", 7 = "extremely difficult", was used to investigate to what extent each consonant initial was difficult for learners to pronounce. The perception of Hungarian Chinese learners on their pronunciation learning of Chinese consonant initials can be seen in Table 3.

Among the 21 Chinese consonant initials, the one the Hungarian Chinese learners found most difficult to pronounce was [tɕ^h]. This finding was in line with the finding of Zhang (2015) [14] as learners in the Zhang's study also mentioned that [tɕ^h] was the most difficult Chinese consonant initial for them to pronounce correctly. In the study, learners mentioned that the initials [tɕ], [ɹ], [tɕ^h] and [ɕ] were also difficult for them to pronounce. This finding was also in line with Zhang (2015) [14] as learners in the Zhang's study also mentioned that [tɕ], [ɹ] and [ɕ] were difficult Chinese consonant initials for them to pronounce.

However, it was found in the study that among those five Chinese consonant initials learners mentioned difficult to pronounce, only [tɕ^h] was significant as it had the mean score which was larger than 3.5. The mean scores for the other four consonant initials were less than 3.5. The mean scores for all the other consonant initials were even less than 3. (See Table 3.) Thus, it was found that there was only one Chinese consonant initial which Hungarian Chinese learners thought that they had difficulty to pronounce, and that consonant was [tɕ^h]. Hungarian Chinese learners thought that other consonant initials were not difficult for them to pronounce. Even for [tɕ^h], only 18 (35% of the learner participants in the study) out of 51 Hungarian Chinese learners thought [tɕ^h] was difficult for them to pronounce. Thus, it was even possible to say that generally, Hungarian Chinese learners do not think Chinese consonant initials are difficult to pronounce.

Table 3: Hungarian Chinese learners' perception on their difficulty to pronounce Chinese consonant initials

Chinese consonant initials	1 = no difficulty at all	2 = very easy	3 = somewhat easy	4 = neutral	5 = somewhat difficult	6 = very difficult	7 = extremely difficult	mean
[t ^h]	10	7	7	9	10	3	5	3.61
[t ^ɕ]	11	7	7	13	9	1	3	3.33
[ɹ]	11	10	8	11	3	5	3	3.24
[tʂ ^h]	10	12	8	8	7	4	2	3.2
[ɕ]	15	5	10	7	7	4	3	3.2
[tʂ]	13	13	6	9	4	4	2	2.96
[ts]	22	10	9	2	5	3	0	2.35
[ts ^h]	19	13	9	6	2	2	0	2.31
[p ^h]	24	8	10	3	4	2	0	2.24
[t ^h]	25	12	7	3	1	3	0	2.06
[ʂ]	21	10	9	4	4	1	2	2.43
[k ^h]	26	13	5	3	3	1	0	1.96
[x]	28	10	6	4	1	2	0	1.94
[s]	28	8	8	6	0	1	0	1.92
[t]	29	11	3	7	0	1	0	1.84
[k]	31	11	2	5	1	1	0	1.76
[p]	33	6	4	5	2	1	0	1.82
[l]	41	6	1	3	0	0	0	1.33
[f]	43	3	2	3	0	0	0	1.31
[n]	42	4	3	2	0	0	0	1.31
[m]	45	3	0	3	0	0	0	1.24

Perception of teachers on Hungarian Chinese learners' ability to pronounce Chinese consonant initials

In the study, it was found that the perception on the Hungarian Chinese learners' ability to pronounce Chinese consonant initials was different to some extent from the learners' perception on their difficulty to pronounce Chinese consonant initials.

In the study, it was found that for [t^h], the perceptions of both learners and teachers were the same. As discussed above, Hungarian Chinese learners in the study thought that [t^h] was a difficult Chinese consonant initial for them to pronounce. In the teachers' point of view as well, [t^h] was one of the Chinese consonant initials which was difficult to teach to Hungarian Chinese learners. Among five teacher participants in the study, one mentioned in the interview that his students did not know how to pronounce aspirated sounds. He said:

"It's hard for students to remember which ones are aspirated and which are unaspirated.

For example, most of the time, students can pronounce [t^h] very well when they are practicing it with me, but they don't remember the manner or place of articulation when they pronounce it later by themselves."

Another teacher participant also mentioned that the most difficult Chinese consonant initial for the Hungarian Chinese learners was [t^h]. One more teacher participant also said that the three most difficult Chinese consonant initials for her students were [t^ɕ], [t^h] and [ɕ]. Here students could not find the place of articulation for these consonant initials. The other two teacher participants also mentioned that [t^h] was difficult for their students. One teacher par-

ticipant said that some of her students could not find the place of articulation for [t^h]. She also added that her students were usually confused [t^h], [t^h] and [ɛ]. She said that her students could pronounce these three sounds differently if she pronounced these three consonant initials, and then the students repeated after her. However, her students were usually confused how to pronounce them differently by themselves. Thus, it was found in the study that the perception of Hungarian Chinese learners on their difficulty to pronounce Chinese consonant initials and the perception of their teachers on their ability to pronounce Chinese consonant initials were the same for [t^h]. However, there were some differences between learners' perception and teacher participants' perception for other Chinese consonant initials which were difficult to pronounce for Hungarian Chinese learners.

In the study, most of the Hungarian Chinese learners did not think that the Chinese aspirated and unaspirated pairs such as [p]/[p^h], [t]/[t^h], [k]/[k^h] and [ts^h]/[ts] were difficult for them to pronounce. Only 3 (5% of the learner participants in the study) out of 51 Hungarian Chinese learners thought that [p] was difficult to pronounce, only 6 (11% of the learner participants in the study) out of 51 learners in the study thought that [p^h] was difficult to pronounce, only 1 (2% of the learner participants in the study) out of 51 learners in the study thought that [t] was difficult to pronounce, only 4 (8% of the learner participants in the study) out of 51 learners in the study thought that [t^h], [k^h] and [ts^h] were difficult to pronounce, only 2 (4% of the learner participants in the study) out of 5 learners in the study thought that [k] was difficult to pronounce, and only 8 (16% of the learner participants in the study) out of 5 learners in the study thought that [ts] was difficult to pronounce. (See Table 3.) However, in the interviews with teacher participants in the study, four teacher participants said that the aspirated sounds were difficult to pronounce for Hungarian Chinese learners. One of those four teacher participants gave example consonant initials as [p] and [p^h], two teacher participants gave example consonant initials as [t] and [t^h]. Teacher participants who had knowledge of Hungarian (either native Chinese teachers or Hungarian Chinese teachers) thought that this problem could be because of the Chinese learners' mother language as Hungarian does not have aspirated sounds. One teacher participant said:

“They could not differentiate, sometimes you told them, they still pronounce [t^h] like [t].”

Some teacher participants thought that not only the learners' mother tongue i.e. Hungarian but also the Chinese Pinyin system (the official romanization system for Chinese) made Hungarian Chinese learners confused about pronunciation for Chinese consonant initials. Some Latin alphabets in Pinyin represent differently. For example, *x* in Pinyin represents [ɛ] sound. Some teacher participants in the study thought that this kind of sound representation in Pinyin made their students make mistakes in pronunciation. One of the teacher participants talked about her students as follows:

“Sometimes when they want to say [tuŋɕi] (which means *things*), they say [tuŋsi].”

It was because [tuŋɕi] is written as *tongxi* in Chinese Pinyin. The teacher participant also gave another example of Hungarian Chinese learners' common mistake. She mentioned that her students usually say [uŋ] for [tɕy] (which means *orange*) because this word is written as *ju* in Pinyin. Another teacher participant also mentioned that her students were usually confused [tɕ] with *j* in Hungarian language because *j* represents [tɕ] sound in Chinese Pinyin. That's why, teacher participants in the study thought that learners' mother tongue as well as the Chinese Pinyin system made Hungarian Chinese learners pronounce incorrectly in their Chinese language speaking. This finding was partly in line with Zhang's (2015) [16] reason for Hungarian Chinese learners' difficulty to pronounce Chinese consonant initials i.e. their mother tongue influence on their Chinese language learning.

Chinese consonant initials Hungarian Chinese learners usually mispronounce

In the study, when the audio recordings of the Hungarian Chinese learners' pronunciation for Chinese consonant initials were listened, it was found that the three Chinese consonant initials which Hungarian Chinese learners usually mispronounced most were [tɕ^h], [tɕ] and [tʂ]. (See Table 4.) In the table, 11 (73.3% of the participants in the test) out of 15 Hungarian Chinese learners in the study mispronounced [tɕ^h] sound whereas 10 (66.6% of the participants in the test) out of 15 learner participants mispronounced [tɕ] and 8 (53.3% of the participants in the test) out of 15 learner participants mispronounced [tʂ].

Although the data in Zhang (2015) [14] and Jia (2017) [8] studies showed that [tɕ^h], [tʂ] and [p] were the consonants Hungarian Chinese learners made most mistakes, only [tɕ^h] and [tʂ] were found as the Chinese consonant initials which Hungarian Chinese learners made mistake most in the study. Also, although [p] was found as one of the Chinese consonant initials which Hungarian Chinese learners made mistake most in Gao (2018) [7], Jia (2017) [8] and Zhang's (2015) [16] studies, [p] was not found as the consonant initial Hungarian Chinese learners made mistake most in the study. Instead, [tɕ] was found as another Chinese consonant initials which Hungarian Chinese learners made most mistakes in the study. This was in line with Gao's (2018) [7] finding that [tɕ] was one of the Chinese consonant initials which the participants in his study made mistake most.

Table 4: Number of Hungarian Chinese learners who mispronounced each Chinese consonant initial

Chinese consonant initials	Number of learners who mispronounced each Chinese consonant initial
[tɕ]	10
[tɕ ^h]	11
[ɕ]	4
[tʂ]	8
[tʂ ^h]	6
[ʂ]	1
[ɹ]	4
[ts]	4
[ts ^h]	5
[s]	3
[k]	2
[k ^h]	0
[x]	2
[t]	4
[t ^h]	4
[n]	0
[l]	0
[p]	2
[p ^h]	2
[m]	0
[f]	0

Teacher participants in the study also found that Hungarian Chinese learners' mispronunciation for Chinese consonant initials was not as serious as their mistakes for Chinese tones in the test in the study. This is in line with Zhang (2015) [14] who mentioned that Chinese tones were undoubtedly more difficult.

To answer the research question 1., the perception of Hungarian Chinese learners on their ability to pronounce Chinese consonant initials found in the study was different to some extent from the perception of teachers on learners' ability to pronounce Chinese consonant initials. Although Hungarian Chinese learners thought that [tɕ^h] was the only Chinese consonant initial which was difficult for them to pronounce, Chinese teachers thought that not only [tɕ^h] but also other Chinese consonant initials such as [tɕ], [ɕ] and [s] were the ones Hungarian Chinese learners usually pronounced incorrectly. In addition, Chinese teachers thought that it was difficult for Hungarian Chinese learners to pronounce and differentiate aspirated and unaspirated sounds such as [p, p^h] and [t, t^h]. Teachers thought that the reason behind this difficulty was that Hungarian lacks of aspirated sounds in the Chinese learners' mother language. Another reason Chinese teachers thought why Hungarian Chinese learners' made mistakes in pronunciation was related to the Chinese learners' language background, but partly because of the Chinese Pinyin system in which some Latin alphabets in Pinyin represent different sounds from other languages Hungarian Chinese learners had knowledge of (e.g. *x* in Pinyin represents [ɕ] sound, *j* represents [tɕ] sound).

To answer the research question 2., it was found in the study that the Chinese consonant initials Hungarian Chinese learners usually mispronounce were [tɕ^h], [tɕ] and [tɕ].

CONCLUSION

To conclude, Chinese language learning has become trendy in Hungary, and there are many places where Hungarian can learn Chinese in Hungary. Although Hungarian Chinese learners think that they do not have any difficulty to pronounce Chinese consonant initial sounds, their perceptions are to some extent different from Chinese teachers' who think there are some Chinese consonant initials Hungarian Chinese learners cannot pronounce correctly. The Chinese consonant initials Hungarian Chinese learners usually mispronounce found in the study are [tɕ^h], [tɕ] and [tɕ]. However, since the Hungarian Chinese learners' pronunciation for Chinese consonant initials were test only in the word level in this study, the findings in further research in this area may be found differently. Also, there were only five Chinese teacher participants in the study. Thus, if the number of teacher participants would be much bigger than the number of teacher participants in the study, the findings might also change.

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Appendix A

Questionnaire to investigate the perception of Hungarian Chinese learners for their ability to pronounce Chinese consonant initial sounds

Amikor a kínai nyelvet tanulja, akkor az alábbi hangok megtanulása általában mennyire szokott nehéznek bizonyulni? Kérem, minden piros hanghoz ill. hangkapcsolathoz adja meg az Ön tapasztalata szerinti nehézségi fokot számértékkel egy 1-7 skálán, ahol 1 = “egyáltalán nem jelent nehézséget”, 2 = “nagyon könnyű”, 3 = “kicsit könnyű”, 4 = “semleges”, 5 = “kicsit nehéz”, 6 = “nagyon nehéz”, 7 = “rendkívül nehéz”

1.	b + i/a/u/o	1	2	3	4	5	6	7
2.	p + i/a/u/o	1	2	3	4	5	6	7

3.	m + i/a/u/o	1	2	3	4	5	6	7
4.	f + a/u/o	1	2	3	4	5	6	7
5.	d + i/a/u	1	2	3	4	5	6	7
6.	t + i/a/u	1	2	3	4	5	6	7
7.	n + i/a/u/ü	1	2	3	4	5	6	7
8.	l + i/a/u/ü	1	2	3	4	5	6	7
9.	g + a/u/e	1	2	3	4	5	6	7
10.	k + a/u/e	1	2	3	4	5	6	7
11.	h + a/u/e	1	2	3	4	5	6	7
12.	zh + a/u/ou/e	1	2	3	4	5	6	7
13.	ch + a/u/ou/e	1	2	3	4	5	6	7
14.	sh + a/u/ou/e	1	2	3	4	5	6	7
15.	r + u/ou/e	1	2	3	4	5	6	7
16.	z + a/u/ou/e	1	2	3	4	5	6	7
17.	c + a/u/ou/e	1	2	3	4	5	6	7
18.	s + a/u/ou/e	1	2	3	4	5	6	7
19.	j + i/ü	1	2	3	4	5	6	7
20.	q + i/ü	1	2	3	4	5	6	7
21.	x + i/ü	1	2	3	4	5	6	7

Köszönjük a válaszait!

Budapest, 20____(év), _____(hó), _____(nap)

Appendix B

Sample interview questions for the semi-structured interviews with teachers

1.

您是怎么教授语音的？音节到声韵母到字母，还是声韵母到音节，还是字母到声韵母到音节？还是其他？为什么？

How do you teach Pinyin? On a syllabic basis, or from initials and finals to syllables, or from letters to initials and finals to syllables? Or any other way? Why? For example, *ge* is a syllable, *g* and *e* are an initial and a final respectively.

2.

您觉得哪些声母或者字母对学生来说最难，换句话说，学生最容易出错？您能具体描述一下吗？(比如找不到发音位置，混淆，或者发得不好)

Which initials are the most difficult to teach, in other words, which are the ones learners always make mistakes? How would you describe the problems and difficulties? (For example, they miss the articulation place, or they mix them up, or they pronounce something inappropriately)

3. 您觉得送气音与不送气音对学生来说难听辨与发音吗？您能具体描述一下吗？

Do you think pairs of aspirated and unaspirated (e.g. [b, p], [d, t], [g, k], [zh, ch], [z, c], [j, q]) are difficult for learners to perceive and pronounce? To what extent and why?

4. 您对纠音怎么看？

Do you think the pronunciation errors by learners should be corrected? Why or why not?

5.

您觉得如果学生知道更多语言，比如英语，德语，法语等，会在哪些方面影响到他的汉语语音学习？为什么？

Some learners know more than one language. How much do learners' previously known languages influence them on their Chinese learning, particularly on their pronunciation?

6. 有必要与非初级学生进行语音听辨与发音吗？

Is it necessary to do Pinyin practice for non-zero level students?

7. 对于汉语语音教学与语音学习您是否还有其他建议？

Do you have any further suggestion on Chinese language teaching and learning for pronunciation?

Appendix C

Chinese words to test the pronunciation of 21 Chinese consonant initial sounds by Hungarian Chinese learners

Instruction: Read aloud these Chinese Pinyin.

1. bāngzhù
2. pángbiān
3. māmā
4. fàndiàn
5. dàxué
6. tā rén
7. nán jīng
8. lán sè
9. gē gē
10. kànshū
11. hàn zì
12. zhī fù
13. chángchéng
14. shàngqù
15. rán hòu
16. zì kù
17. cí píng
18. sān cì
19. jīng lǐ
20. qīngnián
21. xī tiān