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CHINESE VOICES IN PORTUGUESE: CALL NEEDS FOR THE ORAL SKILLS LEARNING
VOZES CHINESAS EM PORTUGUÊS: NECESSIDADES EM CALL PARA A APRENDIZAGEM DAS COMPETÊNCIAS ORAIS

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ABSTRACT

This study aims at identifying which CALL (Computer-assisted Language Learning) materials should be made available to the Chinese learners of Portuguese as a Foreign Language (PFL) for them to improve their oral skills in a more autonomous way. Adopting an approach of needs analysis and clients' views inquiry, it is based on an online questionnaire completed by 418 Chinese volunteer participants who are learners of PFL. The participants' perceptions about (a) their own difficulties in pronunciation and oral understanding and (b) the CALL materials needed to address these oral skills were analysed in three ways: as a whole; according to the participants' proficiency level in PFL; according to their geographical region. The results allowed for a reflection on the relevance of using these inquiries and for the proposal of a prioritisation list for the creation of new CALL materials. This list gives special importance to the tasks perceived as the most difficult by the participants (distinction of voicing, liquids and vowel height, understanding of text and word) and to the CALL types of materials considered the most needed (word recognition system, recorded rhymes, poems, tongue twisters, songs or texts with written transcription).

KEYWORDS: Portuguese as Foreign Language, Chinese learners, pronunciation, oral skills, CALL materials.

RESUMO

Este estudo visa identificar que materiais de CALL (Aprendizagem de Língua Assistida por Computador) devem ser disponibilizados aos aprendentes chineses de Português como Língua Estrangeira (PLE) para que eles melhorem as suas competências orais de forma mais autónoma. Adotando uma abordagem de análise de necessidades e consulta de opiniões dos clientes, baseia-se num questionário on-line preenchido por 418 participantes voluntários chineses que são aprendentes de PLE. As perceções dos participantes sobre (a) as suas próprias dificuldades na pronúncia e na compreensão oral e (b) os materiais de CALL necessários para abordar essas competências orais foram analisadas de três maneiras: como um todo; de acordo com o nível de proficiência dos participantes em PLE; de acordo com a sua região geográfica. Os resultados permitiram refletir sobre a relevância do uso desses inquéritos e propor uma lista de prioridades para a criação de novos materiais de CALL. Esta lista dá especial importância às tarefas percecionadas como mais difíceis pelos participantes (distinção de vozeamento, de consoantes líquidas, de altura da vogal, compreensão de textos e de palavras) e aos tipos de materiais de CALL considerados mais necessários (sistema de reconhecimento de palavras, gravações de rimas, poemas, trava-línguas, canções ou textos com transcrição escrita).

PALAVRAS-CHAVE: português como língua estrangeira, aprendentes chineses, pronúncia, competências orais, materiais de CALL.

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Introduction

Portuguese as a Foreign Language (PFL) and, consequently, foreign voices speaking in Portuguese are present in many places worldwide and not just in the Lusophone countries. For instance, the presence of the Portuguese language in mainland China and the two Special Administrative Regions of the People's Republic of China (Hong Kong and Macao) has seen an enormous increase since the beginning of the 2000s: the amount of tertiary institutions offering the study of the language increased from five in 2000 to more than sixty in 2020 (CASTELO; SUN, to appear – see also JATOBÁ, 2015, 2020; LI, 2015; ANDRÉ, 2016; G. LIU, 2017; YAN; ALBUQUERQUE, 2019). This rapid growth has given rise to several challenges, such as the lack of experienced teachers and the need for didactic materials adjusted to this specific group of learners (e.g. ANDRÉ, 2016; YAN; ALBUQUERQUE, 2019). Although lately many didactic materials addressed to this public have been produced, these present several limitations (e.g. M. LIU, 2017; JATOBÁ, 2019) and there is still a need for more materials (e.g. YAN; ALBUQUERQUE, 2019), especially to promote oral skills (listening, pronunciation, speaking) in an autonomous way through the use of CALL (Computer-assisted Language Learning). For example, new reflections, proposals, and materials on how to specifically teach pronunciation of PFL to Chinese speakers have lately appeared (e.g. XU, 2012; ÁGUA-MEL, 2016; JATOBÁ, 2017; CASTELO, 2018; ZHANG, 2019), but there is still a great need for CALL materials for improving pronunciation of PFL among Chinese-speaking learners.

The importance of developing listening and speaking is evident in a world full of multilingual and multicultural interpersonal contacts. As far as pronunciation is concerned, several reasons justify its importance: a high level of intelligibility and comprehensibility facilitates communication while speaking (e.g. DERWING & MUNRO, 2005; SAITO, 2007; ALVES, 2015) and may even make the listening easier, as there seems to be a strong association between production and listening discrimination and comprehension (e.g. BEST; TYLER, 2007; GRANT, 2014; HUENSCH, 2016); a high level of accentedness tends to have negative consequences in the listeners' judgement of the foreign language speaker (e.g. MOYER, 2014). However, speakers with an intermediate or even advanced proficiency level in Portuguese exhibit problems in terms of pronunciation (e.g. OLIVEIRA, 2006; JATOBÁ, 2017; SHANG, 2017; ZHOU, 2017) and listening discrimination (e.g. YANG; RATO; FLORES, 2015; SHANG, 2017).

In developing a foreign language in general and the oral skills in particular, some means and attitudes should be especially valued: to invest much time in intensive practice (ELLIS, 2005); to adopt an autonomous attitude in learning (KRUK; PAWLAK, 2014; ROKOSZEWSKA, 2014); to make use of the available CALL tools (THOMSON, 2011); to have access to much input, output and feedback (ELLIS, 2005), namely for learning pronunciation (CASTELO, 2017). Specifically for teaching pronunciation, the literature also recommends to teach both

segmental (segments and phonological processes) and suprasegmental features (i.e. related to units larger than the segment such as syllable, stress, word, intonation) (e.g. WEI, 2006), to use reading aloud and tongue twisters (e.g. XU, 2012) or songs (e.g. NOBRE-OLIVEIRA, 2007; ASHTIAN; ZAFARGHANDI, 2015), and to have recourse to specific types of training for learning pronunciation such as the high-variability phonetic training (BARRIUSO; HAYES-HARB, 2018) and a combination of both intuitive-imitative and analytic-linguistic approaches (e.g. HASHEMIAN; FADAEI, 2011). Besides, the development of listening comprehension should promote not only bottom-up processes (from word recognition to text comprehension), but also top-down ones (from text to word) (RICHARDS, 2009; GRAHAM, 2017), and the word recognition processes depend much on mandatory perceptual processes shaped by previous linguistic experience (KOLINSKY, 1998). In fact, the availability of CALL tools for practicing oral skills autonomously would allow the learners to combine several efficient means and attitudes in their learning process. These tools could offer them a great amount of input and feedback on the output, the possibility of intensive practice and autonomy, the use of specially designed training programs, and the access to smaller or larger input units (from word to text level) to improve listening comprehension.

Taking into account the facts previously mentioned, this study aims at identifying which CALL materials should be made available to the Chinese learners of PFL for them to improve their oral skills in a more autonomous way. For that purpose, I will adopt a framework based on needs analysis (e.g. VILAÇA, 2012) and the proposal by Levis (2017) for pronunciation teaching and research, according to which practitioners and researchers should take into account the "client evaluations" (i.e. the learners' and teachers' opinions) on what works for them in order to create the best teaching conditions (LEVIS, 2017, p. 4). In fact, in order to develop didactic materials that are as adjusted and useful as possible to their target students, it is very important to start with an analysis of these learners' needs (e.g. TOMLINSON; MASUHARA, 2005). As systematised by Long (2005), this needs analysis can use different sources (e.g. literature, learners, teachers and applied linguists) and methods (e.g. questionnaires, (un) structured interviews, (non-)expert intuitions, (non-)participant observation, genre analysis). Choosing the learners as the source for language needs analysis is not always the best option, as they might not know what they need, for instance due to their lack of experience in a specific situation (e.g. LONG, 2005). However, more and more researchers realise the importance of using learners' views to assess their needs and the adjustment of different teaching strategies and materials (e.g. ALGHAZO, 2015; COUPER, 2012). Having this background, in the present study, I will use a questionnaire to ask for the learners' views about their difficulties and their needs for CALL materials in order to develop oral skills, and I will also assess the possible impact of the PFL approximate proficiency level and region of study in the difficulties and needs reported by the respondents.

There are already some studies on the difficulties of Chinese learners of PFL based on

their teachers' opinions (WANG, 1991; CASTELO *et al.*, 2018) or their oral perception and production (YANG; RATO; FLORES, 2015; ZHOU, 2017). These studies mainly indicate problems in vowel height (e.g. WANG, 1991; CASTELO; FREITAS, 2019), vowel resonance as oral or nasal (e.g. WANG, 1991), consonant voicing (e.g. NUNES, 2015; YANG; RATO; FLORES, 2015; SHANG, 2017), and specific consonants like [ɲ], [ʒ], [ʎ] and/or [ɾ] (e.g. WANG, 1991; XU, 2012; JATOBÁ, 2017; ZHOU, 2017). A study on teachers' views on the learners' difficulties identifies voicing, sentence understanding, vowel height, liquid (L/R) distinction, stress and intonation as the main problems at the initiation level (by decreasing level of severity) and voicing, vowel height, liquid (L/R) distinction, sentence understanding and word understanding as the main issues on advanced levels of linguistic proficiency (see CASTELO *et al.*, 2018). All this data is useful but it is important to enlarge the sample of respondents, in order to better comprehend the Chinese context of PFL. As far as the needs for CALL materials are concerned, to the best of my knowledge, there is no data on the topic for this context of PFL.

This paper will include the presentation of: (i) methods and participants; (ii) results related to difficulties in oral skills; (iii) results related to needs for CALL materials; (iv) discussion of the results, directed to define a priority list of needs for CALL materials; (v) concluding remarks.

Methods and participants

A questionnaire with seven questions was created (see Table 1).

Table 1 – Topics of the questionnaire

Question number	Question topic
1.	Level of study of PFL (e.g. Year 1 of Bachelor Degree, BA1; Year 2 of Bachelor Degree, BA2; …; Year 1 of Master Degree, M1; …; already graduated; other...)
2.	Town of study
3.	Autonomy level in L2 learning
4.	Autonomy level in L2 pronunciation and listening comprehension learning
5.	Difficulties in L2 pronunciation and listening comprehension
6.	Needed audio and multimedia materials to practice pronunciation and listening comprehension
7.	Important properties in audio and multimedia materials to practice pronunciation and listening comprehension

In this paper, only the results of questions 1, 2, 5 and 6 are considered. Question 5 listed

twelve difficulties and participants had to classify each possible difficulty using a scale from 0 (not difficult) to 3 (very difficult). For question 6, there were ten possible audio or multimedia materials (i.e. a simpler way of mentioning the CALL materials to the respondents) and participants had to classify the need of each possible material using a scale from 1 (not needed) to 5 (very much needed). For both questions 5 and 6, the participant could also choose "Other" and explain which one, but these answers are not considered in the present paper. The choice of the items proposed in each question (twelve difficulties in question 5, ten types of material in question 6) took into account the literature review about difficulties associated with these learners and the strategies proposed for practicing oral skills (see Introduction).

A few notes are important here. The Chinese learners of PFL, thus the target audience of this questionnaire, constitute an heterogeneous group in terms of linguistic background (spoken dialects/languages), studied variety (Brazilian or European), immersion experience in a Lusophone country, proficiency level, or university study programmes, and it would be interesting to know the impact of these variables on the difficulties in oral skills and needs for CALL materials reported by the learners. However, the questionnaire of this specific study did not include questions on these topics for two reasons: (i) it should have a limited number of questions (as a strategy to encourage as many learners as possible to complete it); (ii) its goal was only to identify the general and strongest tendencies in this heterogeneous large group (and not in more specific and small groups), so that the most needed CALL materials can be identified. For these reasons, the only questions on students' personal identification are "Level of study of PFL" (to get an idea on their approximate level of proficiency) and "Town of study".

This questionnaire was translated into Chinese by two Mandarin Chinese native speakers[2] (in order to make sure all the intended participants could understand the questions completely) and transformed into a questionnaire in *SurveyMonkey*. The link to this questionnaire was then sent to several contacts (teachers of PFL in China, former students, *WeChat* groups with teachers and students of PFL), asking them to promote the response to the questionnaire among their students and/or colleagues. Therefore, I used a convenience sample based on a volunteer task. Firstly, the goal was to enlarge the sample as much as possible to identify the more general tendencies and this was more feasible by asking the help of people I already knew and were more willing to collaborate. Secondly, the people who eventually decided to complete the questionnaire would probably be also more interested in using CALL materials and reflecting on their language skills development, and this made the data provided by participants more relevant. Being collected at one point in time with participants from different language proficiency levels, this cross-sectional study may provide insights into the difficulties and CALL materials needs experienced by the distinct groups of learners.

418 volunteer participants completed the online questionnaire in July 2019[3]. They were

2 I would like to thank my colleagues Sun Ye and Wang Chengxu for their generous help.
3 I would also like to thank all the participants for their generous contribution.

mainly living in China (except for some respondents living by then in Portugal, Angola, Brazil or the Philippines). The results for questions 5 and 6 are analysed in terms of means: a difficulty in question 5 will have a mean between 0 and 3; a CALL material in question 6 will have a mean between 1 and 5. Due to issues in the first version of the online questionnaire, a very limited number of options have missing answers (e.g. there is no response to the degree of difficulty of the option "understand words" in the question 5 of respondent number 1).

Results related to difficulties in oral skills

Table 2 shows the results of all participants in terms of mean difficulty levels for different oral tasks (of pronunciation and understanding). The mean difficulty levels appear in descending order.

Table 2 – Mean difficulty levels for different tasks of pronunciation and oral understanding (all participants)

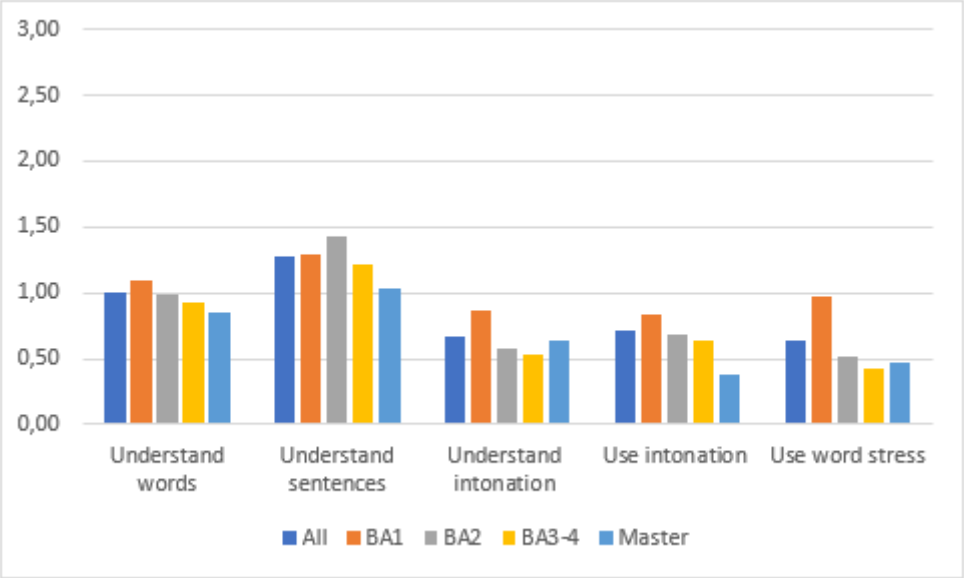
Oral tasks (pronunciation and understanding)	**Mean difficulty levels (0 minimum – 3 maximum)**
Distinguish (in understanding and pronunciation) B ≠ P, D ≠ T, G ≠ C ---- i.e. [b]≠[p], [d]≠[t], [g]≠[k]	1,81
Distinguish (in understanding and pronunciation) L ≠ R (e.g. *cala ≠ cara*) ---- i.e. [l]≠[ɾ]	1,61
Distinguish (in understanding and pronunciation) mid and low vowels (e.g. E, Ê ≠ E, É; O, Ô ≠ O, Ó) ---- i.e. [e]≠[ɛ], [o]≠[ɔ]	1,28
Understand sentences	1,28
Understand words	1,00
Pronounce LH (e.g. *velho*), NH (e.g. *manhã*), R / RR (e.g. *mouse, carro*) ---- i.e. [ʎ], [ɲ], [ʁ]	0,81
Pronounce nasal vowels (e.g. Ã / AN / AM, EN / EM…; *campo, gente*…) ---- i.e. [ɐ̃], [ẽ]…	0,79
Use intonation correctly (e.g. distinguish interrogative phrases from declarative phrases)	0,71
Understand intonation (e.g. understand if you hear an interrogative or declarative phrase)	0,67
Pronounce nasal diphthongs (e.g. ÃO, ÃE, ÕE; *mão, mãe, põe* ...) ---- i.e. [ɐ̃w̃], [ɐ̃j̃], [õj̃]	0,67
Use word stress correctly (say words with the stress on the correct syllable)	0,64
Pronounce Z (e.g. cozinha), J (e.g. jardim) ---- i.e. [z]≠[ʒ]	0,47

According to all respondents, the three most difficult oral tasks include distinguishing voicing ("Distinguish … B ≠ P, D ≠ T, G ≠ C"), liquid consonants ("Distinguish … L ≠ R") and vowel height ("Distinguish … mid and low vowels – e.g. E, Ê ≠ E, É; O, Ô ≠ O, Ó"), which are tasks related to segments. The fourth and fifth most difficult tasks are related to suprasegmental features: to understand sentences and words.

The least difficult task is the pronunciation of [z] and [ʒ] (with a mean difficulty level of only 0,47 out of 3). The use of the suprasegmental word stress and intonation are also among the least difficult. The segments of nasal vowels and diphthongs as well as [ʎ], [ɲ] and [ʀ] are also assigned a low difficulty level.

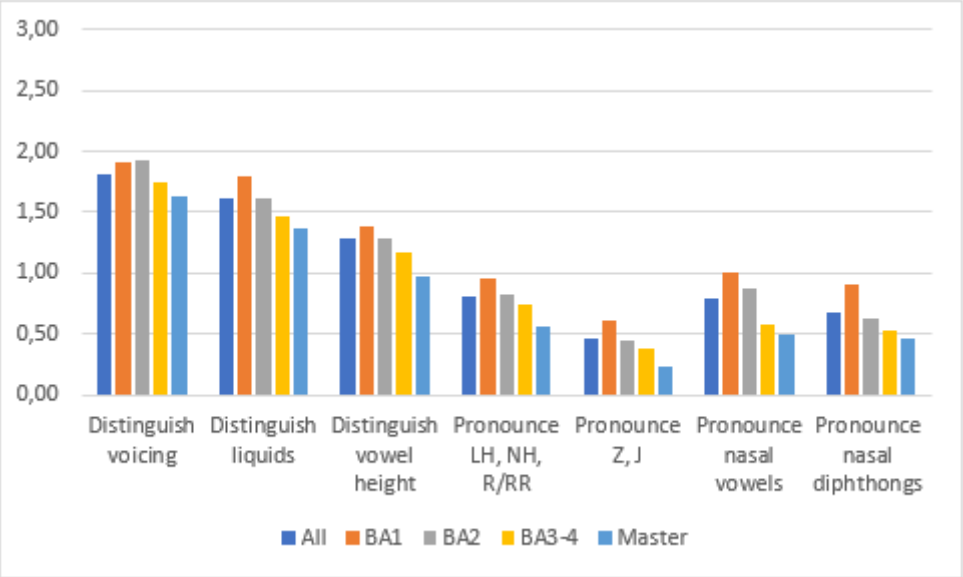
In order to observe if there is an impact of participants' approximate proficiency level on the perceived difficulty degree for different tasks, some participant groups were established: students of Year 1 of Bachelor Degree (BA1, N=119); students in Year 2 of Bachelor Degree (BA2, N=105); students of Years 3 and 4 of Bachelor Degree (BA3-4, N=127); students of Years 1 and 2 of Master's Degree (Master, N=19)[4]. So, the mean difficulty level for different tasks according to the approximate proficiency level of those participant groups is presented in Chart 1 (for suprasegmental tasks) and in Chart 2 (for segmental tasks).

Chart 1 – Mean difficulty levels for different suprasegmental tasks,
according to the proficiency level of some participant groups



4 Since the number of participants in some proficiency levels was not so big or corresponded to more specific situations, I decided to create only three groups with the Bachelor Degree students and one composed of the Master students. Students of Years 3 and 4 were placed together, as they may be associated to an Upper-Intermediate level, contrasting with Elementary level (end of Year 1), Intermediate (end of Year 2) and Advanced (Master). Certainly, the data collecting method does not allow us to check the real proficiency level of the students, but the University Year can serve as an objective measure to get an approximate proficiency level. As a consequence of establishing only four different groups with Bachelor and Master degrees, the answers of several participants were not included in this analysis.

Chart 2 – Mean difficulty level for different segmental tasks,
according to the proficiency level of some participant groups



The above charts show almost the same order in the top five of most difficult tasks in all proficiency levels with the BA1 students presenting a single difference: BA1 students consider (1) voicing distinction, (2) liquid distinction, (3) vowel height distinction, (4) sentence understanding, and (5) word understanding as the descending order of perceived difficulty degree; all remaining groups perceive sentence understanding as the 3rd most difficult task and vowel height distinction as the 4th one.

The five tasks perceived as the least difficult also show great similarities among the different participants groups. For most groups the easiest tasks are (1) [z], [ʒ] pronunciation, (2) word stress use, (3) intonation use / nasal diphthongs pronunciation, (4) nasal vowels pronunciation, and (5) [ʎ], [ɲ], [ʀ] pronunciation. However, word stress use is perceived as more difficult in BA1 and Master students than in the other groups (it is ranked as the 5th easiest task in BA1 group and 3rd in Master group, instead of 2nd).

The degree of tradition in teaching PFL (measurable as the number of years the universities are offering courses in PFL) is dissimilar in the various towns where the students were studying at the moment of responding the questionnaire. In order to observe if there is an impact of this degree of tradition on the perceived difficulty level for different tasks, some participant groups were established according to the place where they were studying: students in Portugal (N=25), Macao (N=123), Beijing (N=70), Shanghai (N=35) and "recent" places (N=37). While Portugal and Macao have the strongest tradition in teaching the Portuguese language, in Beijing it is taught since 1960 and it is offered now in 11 universities and in Shanghai since 1977 (CASTELO; SUN, to appear). For the present analysis, a group of "recent" places was established including the provinces of Hainan, Hubei and Jiangxi, offering the study of Portuguese since 2012, 2016

and 2016, respectively (CASTELO; SUN, to appear)[5]. So, the mean difficulty levels for different tasks according to the geographical region of those participant groups is presented in Chart 3 (for suprasegmental tasks) and in Chart 4 (for segmental tasks).

Chart 3 – Mean difficulty levels for different suprasegmental tasks, according to the geographical region of some participant groups

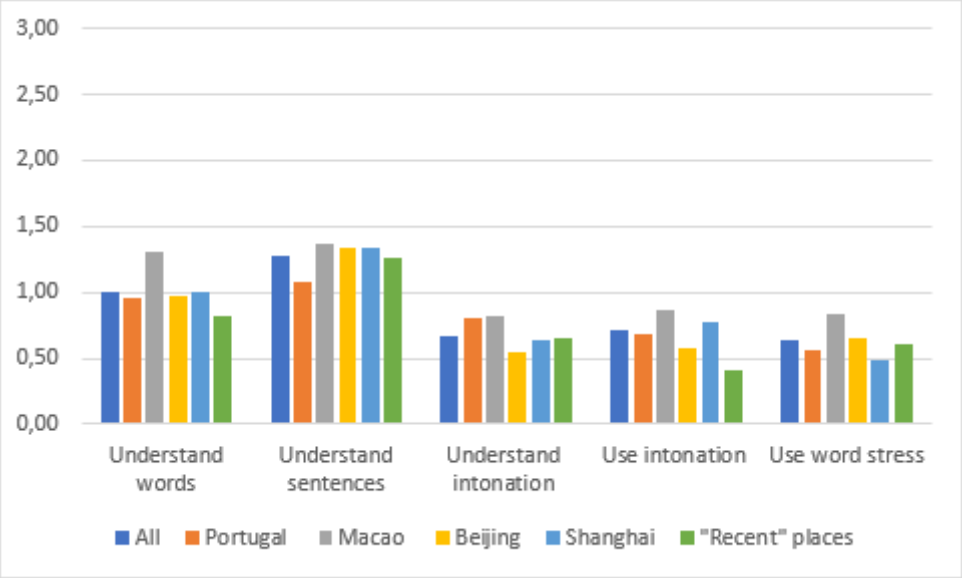
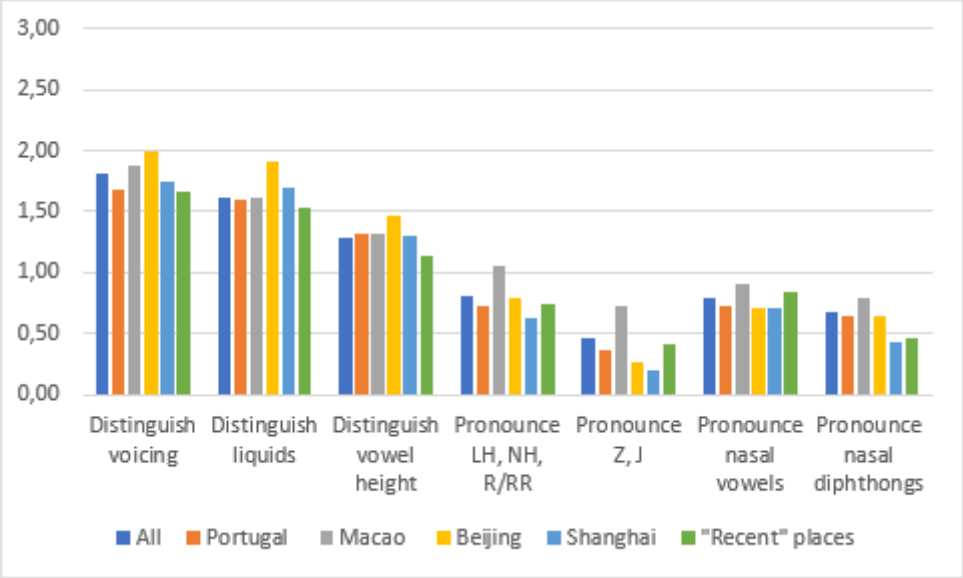


Chart 4 – Mean difficulty levels for different segmental tasks, according to the geographical region of some participant groups



5 Since the number of participants in some regions was exceedingly small, it was decided to create only some groups that could show different perceptions due to their different "region tradition" in PFL. Consequently, this analysis included only the answers of 290 participants (and not the total amount of 418 answers received in this questionnaire): Portugal (N=25); Macao (N=123); Beijing (N=70); Shanghai (N=35); "recent" places, i.e. provinces of Hainan, Hubei and Jiangxi (N=37).

Chart 3 indicates that Macao students tend to be more aware of suprasegmental difficulties than the remaining participants. As far as the segmental difficulties are concerned (see Chart 4), the students who tend to report a greater level of difficulty are the ones from Macao (who perceive greater problems than the remaining students with the pronunciation of [z], [ʒ], [ʎ], [ɲ], [ʀ], nasal vowels and diphthongs) and from Beijing (announcing more difficulties than the other students with voicing, liquids and vowel height). It is also important to note that the mean difficulty levels reported by students from the "recent" places group are frequently smaller than the means associated with groups of students in places with more tradition in teaching Portuguese.

Results related to needs for CALL materials

Table 3 reveals the results of all participants in terms of mean levels of reported need for different CALL materials. These mean levels appear in descending order.

Table 3 – Mean need levels for different CALL materials (all participants)

CALL materials	**Mean need levels (1 minimum – 5 maximum)**
System that identifies the words pronounced by the student to check if s/he pronounced them well	3,65
Recorded rhymes, poems and tongue twisters for listening and repeating	3,26
Songs about specific vocabulary and topics	3,06
Recorded sentences / texts / dialogues accompanied with transcription in written text	3,05
Sentences with different intonations to understand the differences and repeat	2,99
Words / sentences pronounced by different speakers to understand and repeat	2,95
Recorded sentences / texts / dialogues to answer comprehension questions or complete spaces	2,92
Almost equal word / sentence pairs to understand differences and repeat	2,86
Isolated sounds recorded for listening and repeating	2,65
List of recorded vocabulary for various topics of the lessons	2,43

According to all respondents, the four most needed CALL materials for learning pronunciation and oral understanding are (1) "system that identifies the words pronounced by the student to check if s/he pronounced them well", (2) "recorded rhymes, poems and tongue twisters for listening and repeating", (3) "songs about specific vocabulary and topics", and (4) "recorded sentences / texts / dialogues accompanied with transcription in written text". The least needed materials are "recorded sentences / texts / dialogues to answer comprehension questions or complete spaces" (ranked in 7th position), "almost equal word / sentence pairs to understand differences and repeat" (ranked in 8th position), "isolated sounds recorded for listening and repeating" (ranked in 9th position) and "list of recorded vocabulary for various

topics of the lessons" (ranked in the last position). So, in general terms, it seems that there is a greater gap in materials associated with bigger units (sentences and different types of text like rhymes, poems, tongue twisters, dialogues, songs) than with smaller ones (like words and sounds). The respondents also report a great need for a speech recognition system and do not seem to need more minimal pairs (of words or sentences) or more texts for practicing listening comprehension.

The mean levels of reported need for different CALL materials according to the proficiency level of some participant groups is presented in Chart 5 (for different "Listen & Repeat" CALL materials) and in Chart 6 (for other CALL materials).

Chart 5 – Mean need levels for different "Listen & Repeat" (L&R) CALL materials, according to the proficiency level of some participant groups

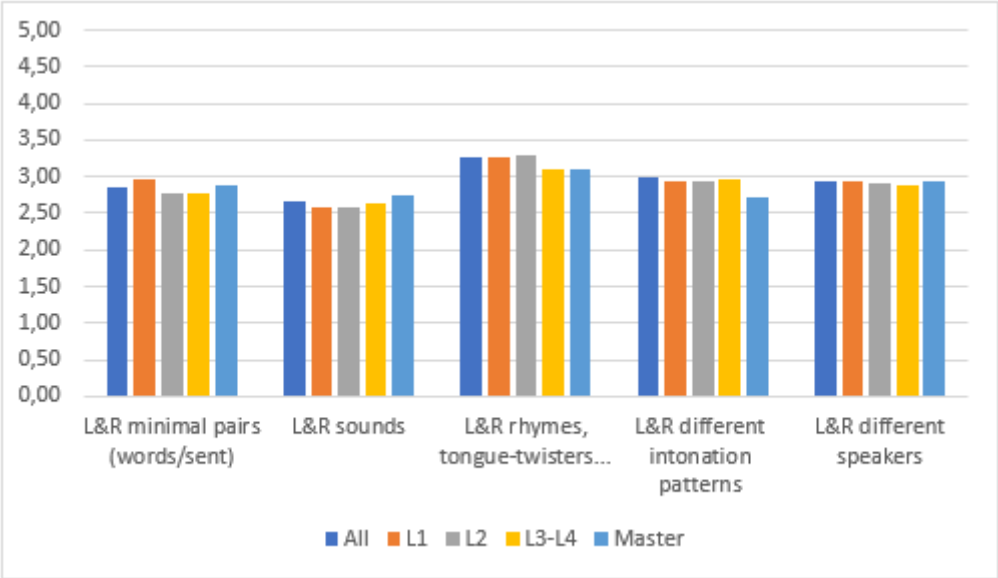
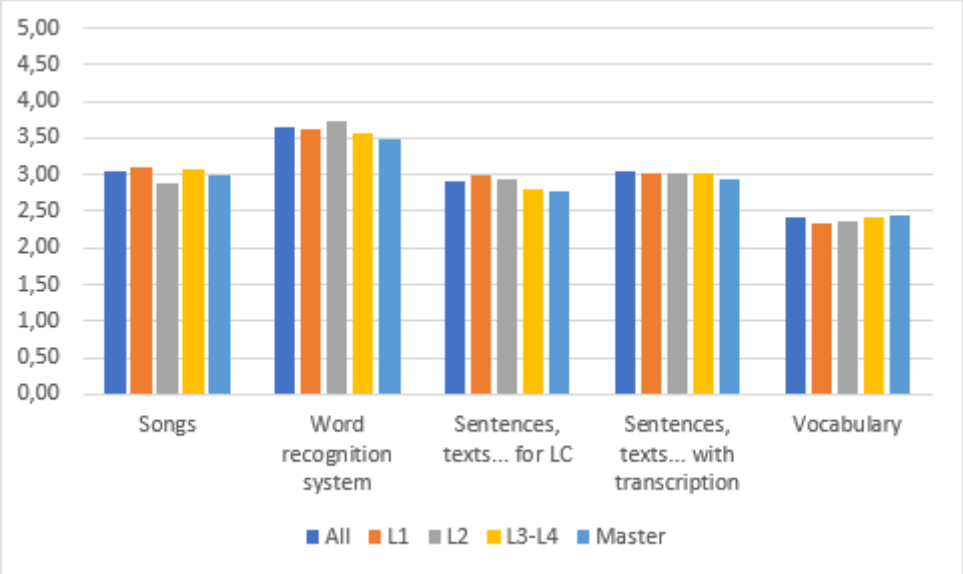


Chart 6 – Mean need levels for other CALL materials, according to the proficiency level of some participant groups



Generally, the participants of all proficiency levels show the same pattern of needs for CALL materials. The only exception is in Master students: compared to the remaining groups, on average this one reports a slightly higher need for materials related to details in pronunciation and discrimination (sounds and minimal pairs) and smaller necessity of tools on intonation patterns.

Charts 7 and 8 present the mean levels of reported need for different CALL materials according to the geographical region of some participant groups.

Chart 7 – Mean need levels for different "Listen & Repeat" (L&R) CALL materials, according to the geographical region of some participant groups

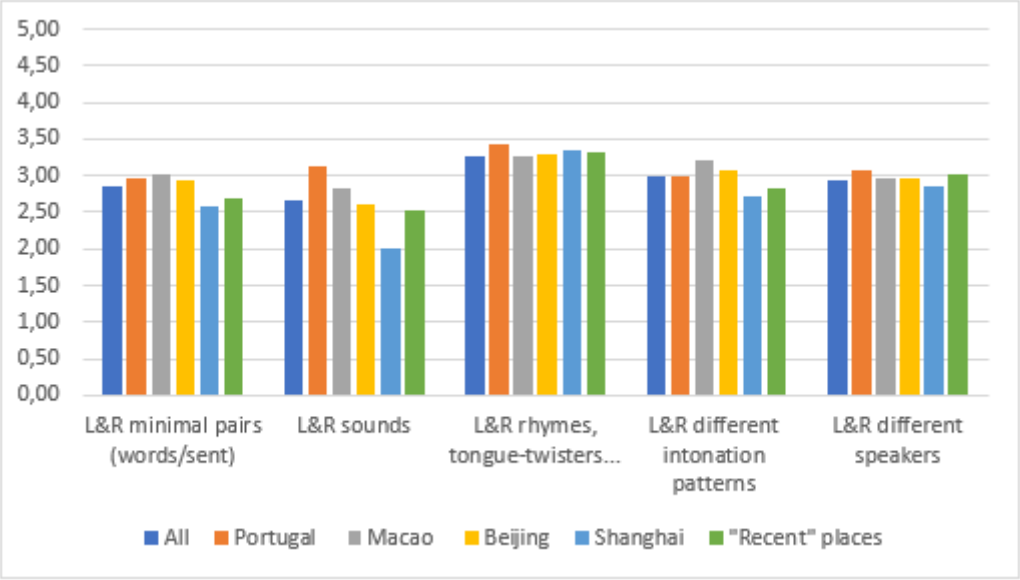
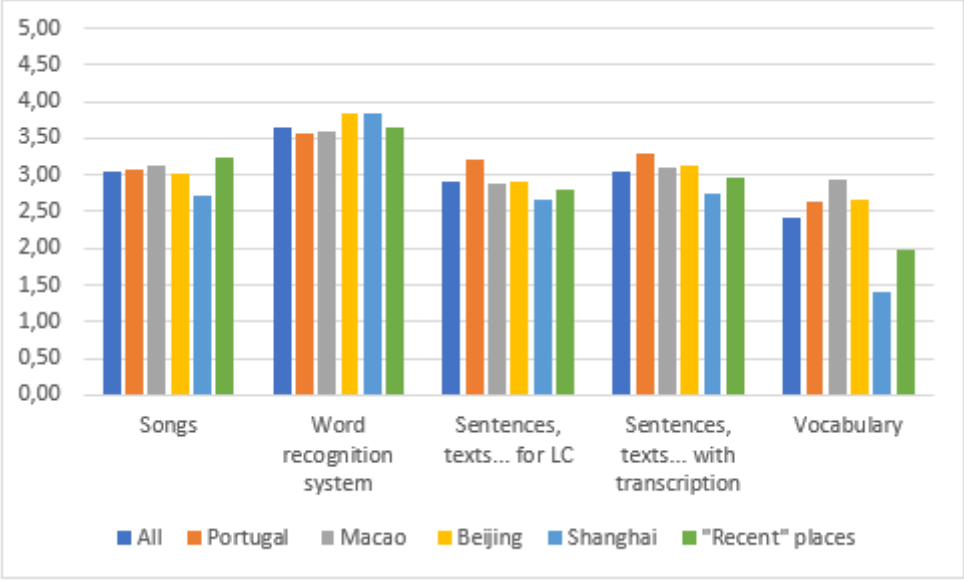


Chart 8 – Mean need levels for different CALL materials, according to the geographical region of some participant groups



By comparing the means in the need levels reported by the participant groups with distinct geographical regions, it is possible to identify slight differences. The participants in Portugal underline more the need for materials on sounds to repeat and larger units (rhymes, sentences and texts for listening comprehension tasks or with transcription). The Macao students present higher means (than other student groups) in the demand for materials for intonation and vocabulary. Both Beijing and Shanghai participants show a great interest in a speech recognition system that gives feedback to the students about words' pronunciation. In the opposite direction, the participants in Shanghai present a lower demand for materials related to almost everything else (such as vocabulary, minimal pairs, isolated sounds, songs). The participants studying at more "recent places" stand out for revealing a greater need for songs and a lower demand for materials consisting in recorded lists of vocabulary.

Discussion

Regarding the difficulties in performing tasks of pronunciation and oral understanding, generally the native speakers of Chinese who learn PFL and participated in this study consider the distinction of voicing and of liquid consonants as the most challenging tasks, which are followed in difficulty degree by vowel height and sentence understanding (with this order in BA1 students and the reverse order in the remaining proficiency level groups) and word understanding. Although sentence and word understanding are very important in terms of communication, apparently the participants are more aware of the problems related to segmental properties than those concerning suprasegmentals. This can indicate that the problems in voicing and liquids are really disturbing for the learners and their communication ability or that they simply are more used to pay attention to segmentals and consequently are more aware of problems at this level.

Interestingly, however, these results greatly coincide with those of a study in which ten teachers of PFL rated the difficulties of their Chinese students (CASTELO *et al*., 2018). In both studies voicing, liquids, vowel height and sentence understanding appear in the top four positions as the most difficult tasks, although the descending order of difficulty was partially different in the Castelo *et al.* (2018) study: (1) voicing, (2) sentence understanding, (3) vowel height, and (4) liquids during the 1st semester of learning; (1) voicing, (2) vowel height, (3) liquids, and (4) sentence understanding during the advanced levels of learning. Also, several other authors, based on their teaching experience or in experimental data, referred to voicing, vowel height and liquids as major challenges in the process of learning Portuguese pronunciation for Chinese learners (e.g. WANG, 1991; NUNES, 2015; ZHOU, 2017). The inclusion of [z], [ʒ] pronunciation among the least difficult is partially in line with the results of CASTELO (2018): in that study these fricatives presented a higher success rate than the voiced plosives (success rates: 77% in [z], 45% in [ʒ] vs. 14% in [d], 41% in [g]).

Nonetheless, there are also some "discrepancies" between the learners' perceptions in this study and the expectable results in terms of difficulties in pronunciation and oral understanding. For instance, the assignment of a low difficulty level to the nasal diphthongs contrasts with the description presented by Wang (1991). Also, the learners studying in places with less tradition in PFL strangely report lower means of difficulty levels, which could be attributed to a lower awareness level of their problems.

Concerning the needs for CALL materials, the responses of all participants indicate that the most needed resources comprise (1) a system to verify the correct pronunciation of words, (2) recorded rhymes, poems and tongue twisters to listen and repeat, (3) songs, and (4) audio sentences or texts with written transcription. Also, the results generally show very small differences between the distinct proficiency groups and allow for more distinctions in terms of geographical groups. For instance, in Beijing and Shanghai, with an important tradition in teaching PFL, the mean need level for a (more sophisticated) speech recognition system what would give the learners feedback on words production is higher than in other regions; in the "recent places", it is the mean need level for songs that is higher (than in other geographical regions).

It is also worth noting that the results related to the needs for CALL materials may exhibit some inconsistencies between the claimed difficulties and the desired CALL materials. For example, generally the learners refer to more difficulties in segmentals, but simultaneously they require especially for CALL materials based on larger units such as rhymes, poems, songs, and audio sentences or texts with written transcription. However, these inconsistencies do not occur in all cases (for instance, Macao and Beijing respondents present a high degree of coherence between their problems and the gap they find in the available CALL materials) and it is also possible that the difficulties persist in spite of the fact that some textbooks already include the convenient audio materials for dealing with segmental issues, namely isolated sounds and minimal pairs (of words or sentences).

Taking into consideration the above-presented data, the creation of new CALL materials to help the Chinese learners of PFL to improve their oral skills in a more autonomous way should present the following prioritisation:

- 1st: word recognition system, recorded rhymes, poems, tongue twisters, songs or texts with written transcription, dealing with voicing, liquids and vowel height – for learners of all proficiency levels;
- 2nd: recorded rhymes, poems, tongue twisters, songs or texts with written transcription, used to address text and word understanding – also for learners of all proficiency levels;
- 3rd: word recognition system, recorded rhymes, poems, tongue twisters, songs or texts with written transcription, as well as sentences with different intonations, used to

improve the use of intonation and word stress – especially for BA1 and Master learners;

- 4th: word recognition system and minimal pairs (integrated or not in oral texts), dealing with [ʎ], [ɲ], [ʀ] as well as nasal vowels and diphthongs – especially for BA1 learners.

Concluding remarks

The results of this study include the difficulties in pronunciation and oral understanding tasks as well as the needs for CALL materials to improve those skills that Chinese learners of different proficiency levels perceive in their learning process of PFL. Interestingly, the difficulties highlighted by the learners greatly coincide with those identified in previous studies. The combination of difficulties and needs for CALL materials allowed me to identify which CALL materials should be made available to the Chinese learners of PFL for them to improve their oral skills in a more autonomous way and also contributed to show which materials can be useful in different moments of the students' learning process.

Besides, the difficulties and desires revealed by the participants showed that even in higher proficiency levels CALL materials to address pronunciation and oral understanding issues are in need.

Finally, this approach of needs analysis and clients' views inquiry might have some limitations, but in general it proved to be very helpful in bringing out data that complement and/or confirm the previous empirical evidence of abilities and difficulties in pronunciation and oral understanding. Actually, in this particular context, this approach is a safer way to prioritise the several tasks the teachers, researchers and didactic materials designers have to deal with, in order to promote that more and more Chinese voices develop their oral skills in Portuguese.

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