ACOUSTIC AND ARTICULATORY BASES FOR THE PRONUNCIATION ENHANCEMENT OF SOME CONSONANTS BY GERMAN LEARNERS OF PORTUGUESE: ACTIVITIES PROPOSAL

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Abstract: The intersection between the phonemic charts of different languages allows the learner of a second language (L2) to overlap characteristics of the phonemes of his/her mother language (L1) onto the L2. Thus, based on the pronunciation of German learners of Portuguese, this work aims to analyze the strategies employed by them when pronouncing some Brazilian Portuguese (BP) phonemes and, based on acoustic and articulatory phonetics, to suggest a few exercises to improve the pronunciation of some consonants that were mispronounced. The expectation is that German learners, based on those exercises, will articulate those phonemes similarly to native BP speakers. Also, with the implementation of those exercises, German learners may experience a fast, effective, and positive response in their L2 pronunciation.
Keywords: Portuguese as a second language. German speakers. Acoustic and articulatory phonetics. Articulatory exercises.

BASES ACÚSTICO-ARTICULATÓRIAS PARA O APRIMORAMENTO DA PRONÚNCIA DE ALGUMAS CONSOANTES POR APRENDIZES ALEMÃES DO PORTUGUÊS: PROPOSTA DE ATIVIDADES

Resumo: A intersecção entre os quadros fonêmicos existentes entre línguas distintas permite que o aprendiz de uma segunda língua (L2) projete as características próprias dos segmentos fônicos da língua materna (L1) sobre a L2. Assim, com base na pronúncia de alemães aprendizes do português, este trabalho propõe-se analisar as estratégias empregadas por eles durante a pronúncia de alguns fones do português brasileiro (PB) e, com base na fonética acústico-articulatória, sugerir alguns exercícios que aprimorem a pronúncia de algumas consoantes que apresentaram desvios fonéticos, a fim de que eles as realizem de forma

semelhante à de falantes nativos do PB. O que se espera, após a aplicação desses exercícios, é que os aprendizes obtenham uma evolução positiva, efetiva e rápida em suas pronúncias.
Palavras-chave: Português como língua estrangeira. Falantes alemães. Fonética acústico-articulatória. Exercícios articulatórios.

BASES ACÚSTICAS Y ARTICULATORIAS PARA MEJORAR LA PRONUNCIACIÓN DE ALGUNAS CONSONANTES POR LOS ESTUDIANTES ALEMANES DE PORTUGUÉS: PROPUESTA DE ACTIVIDADES

Resumen: La intersección entre los cuadros fonémicos existentes entre las lenguas distintas permite al aprendiz de una segunda lengua (L2) projetar las características propias de los segmentos fónicos de la lengua materna (L1) sobre la L2. Por lo tanto, con base en la pronunciación de los estudiantes alemanes de portugués, este trabajo tiene como objetivo analizar las estrategias empleadas por ellos durante la pronunciación de algunos fones del portugués brasileño (PB) y, basándose en la fonética acústico-articulatoria, sugerir algunos ejercicios que mejoren la pronunciación de algunas consonantes que evidenciaron desviaciones fonológicas o fonéticas, para que las realizen de manera similar a los nativos del PB. Lo que se espera después de la aplicación de estos ejercicios es que los alumnos obtengan una evolución positiva, eficaz y rápida en sus pronunciaciones.
Palabras clave: Portugués como lengua extranjera. Hablantes de alemán. Fonética acústico-articulatoria. Ejercicios de articulación.

INTRODUCTION

Portuguese as a Second Language (PSL) teaching has been experiencing growth in the world. Therefore, teaching material has been introduced and evolving methodologically, but they lack regarding the teaching of pronunciation. In Brazil, research regarding PSL has been flourishing, but most of the teaching material does not include the necessary requirements for the phonetic and phonological acquisition of the language. Because of the lack of methodologies aimed at this point of learning, second language learners can be hindered when they try to communicate with native speakers.

It is predictable that a learner of any foreign language (L2) will tend to project the characteristics of the phonic segments of his/her native language (L1) onto the L2 when a phone seems strange. Eckman (2004) says that, because he/she needs to pronounce an

appropriate sound, the L2 learner spontaneously adopts a reference in his/her own L1. A great example of this natural trend is provided by the consonants [p t k], which are always aspirated when not preceded by a fricative in the same word or when not followed by a nasal syllable in German (KHOLER, 1999, p. 87). This rule is not applied to Brazilian Portuguese (BP), because aspiration does not occur in this phonological environment; therefore, when the word ['tatʊ] is pronounced by a German learner of PSL, we would hear ['tʰatʰo] – the phonetic symbol [ʰ] evidences that aspiration occurs in the word.

Although humans are able to produce any sound of any language, the lack of intersection between the phonemic charts of natural languages makes L2 learning more complex, especially for adults. Lamprecht (1990, *apud* OLIVEIRA, 2006, p. 32-33), in discussing the stages of acquisition of BP phonemes, indicates that liquid consonants are the latest consonants to be acquired by a native speaker, whereas non-lateral liquids are more complex, due to the articulatory gestures that are required for its phonetic realization. If the natural process of acquisition for a native speaker is complex, it is assumed that, for an L2 learner who is completely adapted to his/her phonological system, the complexity is even greater.

These and other factors make the teaching of pronunciation one of the basic prerequisites for learning a new language. Thus, this article aims to present some exercises at the phonetic articulatory level, in order to reduce some pronunciation problems detected in German-speaking BP learners.

1. THE TEACHING OF PRONUNCIATION ALLIED WITH ACOUSTIC AND ARTICULATORY PHONETICS

Recently, the teaching of pronunciation was discarded from foreign language teaching classes for various reasons; some simply did not consider it important (or it was unnecessary in an explicit form, because the learning would occur spontaneously or intuitively), and some even considered it to be very complex (MORLEY, 1994, *apud* SILVEIRA, ROSSI, 2006). However, currently, the introduction of the teaching of pronunciation is regarded as necessary, because even learners who are at the highest level of proficiency are remaining in an *interlanguage*

stage (SELINKER, 1972). The interlanguage stage is characterized as an intermediary system between two languages [the target (L2) and the L1], evidencing characteristics that are influenced not only by the L1, but also by those of the interlanguage. Spanish speakers, for example, generally do not achieve a proper pronunciation of the Brazilian variety of Portuguese without suffering from the constant interference of their L1 and the linguistic system that is under construction, which is characterized as *portunhol* (COLIN RODEA, 1990, *apud* FERREIRA, 2001). One of the main reasons for this is the phonemic proximity between the two languages.

Eckman (2004) points that, when an L2 learner is introduced to a different sound, he/she searches for ways to fill the articulatory requirements of that moment. In German, for example, there are many phonemes that are strange to Portuguese, and vice versa: one of them is the voiceless palatal fricative [ç] in German, and another is the voiced palatal nasal [ɲ] in Portuguese, respectively. Thus, in words like “manhã”, 'morning', the German speaker would combine the voiced alveolar nasal consonant with the high front vowel, producing [ma^{n}ni'a^{n}] or even, through an orthographic influence, would use the [n] with a voiceless glottal fricative consonant [h], producing [man'ha^{n}] (STEIN, 2011).

We should examine the didactic material aimed at PSL teaching. Silveira and Rossi (2006) analyzed the methodology used in the sections that are responsible for the teaching of pronunciation in diverse teaching material. They found it to be superficial, inconsistent and limited, because it did not address and did not explain certain recurrent difficulties that PSL students typically experience. The analyses evidenced that only two of the teaching compendiums, in the phonetic and phonological context, presented really interesting topics that addressed, to some extent, the problems that are recurrent in PSL learners: for example, certain consonant contrasts between [h] and [ɾ], [s] and [z], and between [b] and [v], and also the treatment of consonants like [ɲ] and [ʎ] and some vowel segments. However, these compendiums do not address the specific problems of each language because they are written using a general approach, and they do not focus on the difficulties present in other languages. Furthermore, they only contain the theories that the learner needs to know, but they do not apply exercises that contemplate the specific articulatory needs. It is necessary, in the articulatory phonetics context, that the L1 speaker learns how to pronounce a specific sound

that does not integrate his/her phonological system or that does not have the same quality as in his/her language. This need will only be satisfied when there are applied exercises that address the articulatory level. Pronunciation exercises exploring the articulatory phonetics principles are essential for the speaker to learn and make the specific gestures of the language he/she is learning automatic.

Increasingly, teachers are trapped by methodologies that are not very effective regarding the teaching of pronunciation, and they often do not know how to incorporate new approaches. The data presented by Silveira and Rossi (2006) demonstrate that it is necessary for PSL teachers to know the phonetics and phonology of the second language, and they showed that this knowledge is a necessary investment in the training of PSL teachers. However, detecting the articulatory phonetics deviations that are produced by foreign language learners requires a knowledge that goes beyond basic phonetics and phonology, based on an acoustic and articulatory approach. In fact, the advancement, popularization and accessibility of instruments used for acoustic analysis allow professionals to use them as important tools in foreign language teaching. By means of spectrographic analysis, it is possible to diagnose some deviations that are not perceptible to the learner in his/her own speech and make them concrete to the naked eyes. This visual materialization of sonorous signals can considerably facilitate the learner's perception of how he/she pronounces some foreign language segments and how he/she should actually pronounce them.

2. METHODOLOGY

In order to identify the problems of pronunciation in some PSL learners, we analyzed the speech of four German speakers affiliated to the *Programa Linguístico Cultural para Estudantes Internacionais* (*PLEI*) [Cultural and Linguistic Program for Foreign Students], from the *Universidade Federal da Paraíba* [Federal University of Paraíba, Brazil], who were at basic, pre-intermediate, intermediate and advanced levels. All of the informants were born in Germany, three of them males.

The protocols for the data collection were based on the reading of texts and sentences phonetically balanced to obtain evidence, in various phonological environments, of the

difficulties of these students. The corpus was analyzed using the acoustic analysis computing program Praat (BOERSMA & WEERNICK, 2006), which allows some subtitles to be detected more precisely. For this work, we focused on only a few consonants that evidenced the highest number of mispronunciation occurrences and, based on them, we produced some exercises to readjust certain articulatory gestures in the speech of German learners of Portuguese.

3. ARTICULATORY PHONETICS DEVIATIONS DETECTED IN GERMAN LEARNERS OF PSL

The L2 acquisition process does not merely imply that the speaker will acquire reading, conversation and writing practice in the L2, but also, that the learner will have a command of the sounds of that language. Mastering the mechanisms of the sound production of speech, as well as becoming aware of how to articulate the phonetic gestures are essential for the L2 learner to have a good command of the language he/she is learning. According to Morley (1994, *apud* LIMA JR., 2012, p. 750), "an intelligible pronunciation is an essential factor for communicative competence" (our translation).

As mentioned, in order to address their communicative needs, learners use articulatory strategies when a phoneme seems strange to them. Accordingly, we confirmed many of the strategies used by German speakers who are learning BP through an analysis of the data produced by the *Grupo de Estudos em Fonética* (*GEFone*) [Group of Studies in Phonetics]. Our study focuses only consonants for which there were a higher number of articulatory inadequacies. They included: the aspiration of the voiceless plosive consonants [p t k]; the devoicing of the voiced alveolar plosive [d]; the deletion of the glottal fricative [h] and the alveolar tap [ɾ]; and the velarization of the lateral approximant palatal [ʎ].

3.1 ASPIRATION OF VOICELESS PLOSIVE CONSONANTS [p t k]

Although the phonemic charts of BP and German present similarities regarding voiceless plosive consonants, there is a factor that distinguishes them: their sonorous quality. In BP, there is no aspiration in any phonological environment that employs [p t k]. In German, according to Kholer (1999, p. 87), [p t k] will be naturally aspirated when they are in a syllable-

initial position, when they are not preceded by a fricative in the same word and when they are not followed by a nasal syllable; moreover, this aspiration will occur with more intensity if before a stressed vowel, and will be weaker in stressed function words.

In Figure 1, the diacritic [ʰ] represents an aspiration produced by a German speaker who is learning PSL, pronouncing the word “batata”, 'potato'. The aspiration can be seen in the spectrogram between the release burst of [t] and the vowel [a], with a duration that is longer than that which normally is noticed when a native speaker pronounces the same word (STEIN, 2011).

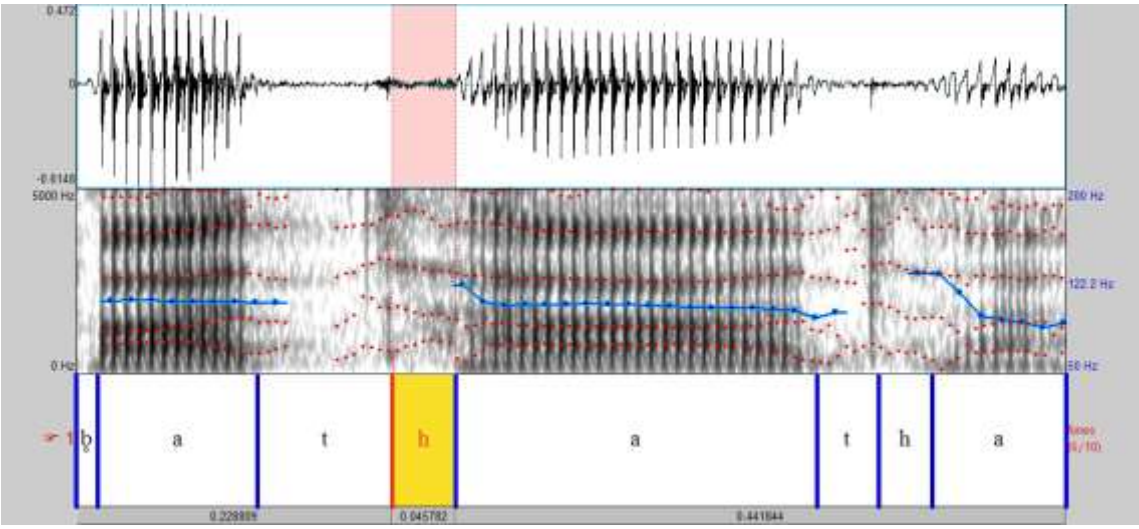

Figure 1 - Oscillogram and spectrogram of the word “batata”, 'potato', pronounced by a German learner of PSL, at the basic level. The aspiration is represented by a diacritic [ʰ], which is similar to the same friction in the glottal fricative. Devoicing of the voiced bilabial plosive in the beginning of the word has also been observed (STEIN, 2011).

3.2 DEVOICING OF THE VOICED ALVEOLAR PLOSIVE [d]

The particularities of the phonemes of each language are what distinguish them. In BP, the voiced plosive consonants, *a priori*, are not devoiced. The data collected from German speakers evidence that their voiced alveolar plosive consonants are devoiced when pronouncing BP, even at higher levels of proficiency.

Spectrographically, the F0 (represented by a blue line) should be continuous for voiced sounds, but it was not observed for the segment in question, as produced by German speakers. The devoicing of [d] is spectrographically similar to the devoicing of [b] in Figure 1.

3.3 DEVOICING OF THE VOICED ALVEOLAR FRICATIVE [z]

Perhaps the most obvious explanation for phonologically voiced consonants that become voiceless is that they require a greater effort in speech production than other segments (OHALA, 1983, *apud* SMITH, 1997). Voiced fricative consonants, as do all voiced consonants, require a subglottic pressure that is higher than the oral pressure to maintain the vocal folds vibration, which characterizes its sonority. According to the author, although oral pressure must be maintained at a low level to retain devoicing, if the oral constriction is extended, the drop in pressure should be so slow that it generates a turbulent air flow, which generates the fricatives. All of these articulatory processes require too much of the speaker, in such a way that in their own language they often resort to simplification and allow the oral and subglottic air passage to fall by not extending the oral passage.

In our data collection, we observed the devoicing of voiced alveolar fricative consonants without exception. The spectrographic realization of the devoicing of [z], as shown in Figure 2, is almost the same as in a voiceless alveolar fricative. Spectrographically, there is a very long friction, characteristic of voiceless fricatives, and the absence of a voicing bar.

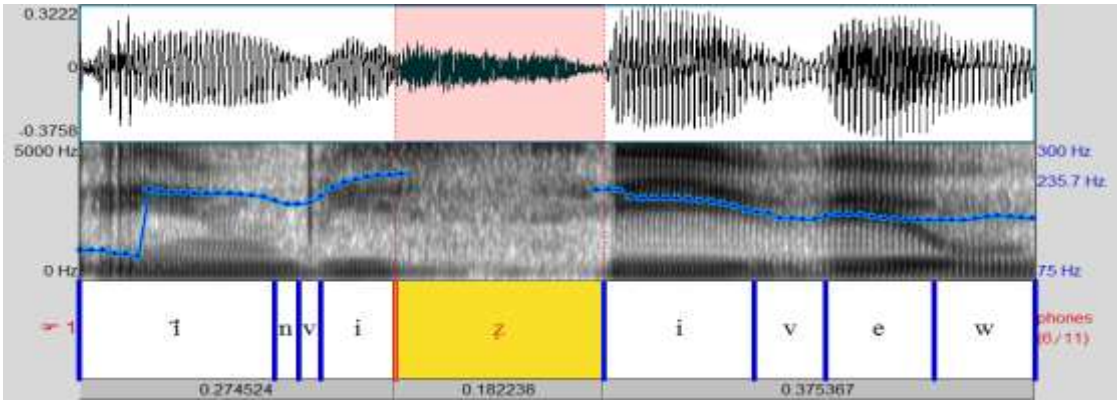

Figure 2 - Oscillogram and spectrogram of the word "invisível", 'invisible', pronounced by an advanced German learner of BP.

3.4 DELETION OF VOICELESS GLOTTAL FRICATIVE [ɦ]

Though it is incorporated in the phonological charts of Spanish and English, the voiceless glottal fricative, in its sonorous quality in BP, is potentially complex for Spanish and English speakers as well (DUTRA, 2008, *apud* STEIN, 2011). For German speakers, this difficulty is also evidenced, but through a spelling influence. When pronouncing the word “rato”, 'mouse', in BP, Germans use the voiced uvular fricative – [’ʁatu] – which is present in their phonological system. This happens because syllable onsets represented by an orthographic "r" in German, in a stressed syllable ("Reise", 'trip'; "Garage", 'garage'), are pronounced with [ʁ]. The voiceless glottal fricative in German only occurs in words that are orthographically initiated with “h”, as in "Hütten", 'huts'.

The collected data evidenced a large incidence of deviations that were related to the sonorous production of the voiced glottal fricative. From basic to advanced levels, a constant occurrence of the deletion and replacement of the frictions was verified. The glottal fricative has a typical spectrographic realization that is characterized by an absence of the periodicity of sound, similar to the image of a noise.

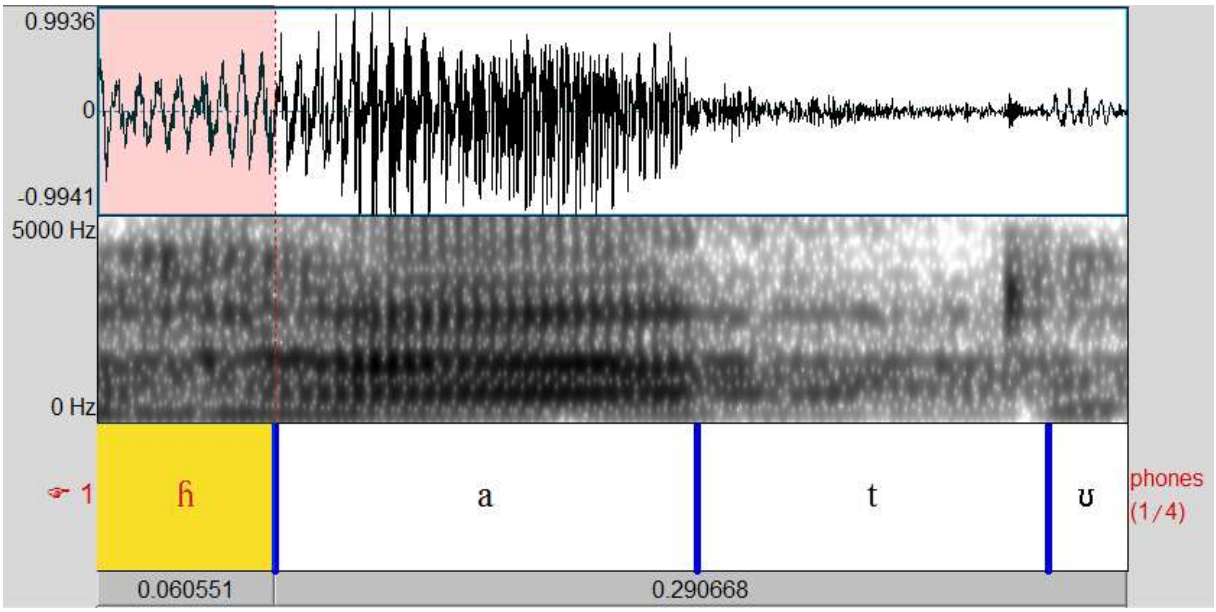

Figure 3 - Oscillogram and spectrogram of the word “rato”, 'mouse' pronounced by a native speaker of BP.

3.5 DELETION OF ALVEOLAR TAP [ɾ]

The difficulty of mastering the articulatory gestures that are necessary for the pronunciation of the alveolar tap, even for a BP native speaker, elicits the considerable effort necessary for the acquisition of this phoneme. According to Lamprecht (1990, *apud* OLIVEIRA, 2006), it is one of the last segments to be acquired by the speaker.

Phonologically, in BP the alveolar tap occurs both in intervocalic position or in consonant clusters, except in some specific places in southern Brazil, where it occurs in syllable coda position (CALLOU and LEITE, 2000). As this segment is not part of the German phonological system, when German learners of BP need to pronounce it, they use several strategies: its replacement by the voiceless glottal fricative, deletion, lateralization or replacement by a trill.

Spectrographically, the alveolar tap is characterized by a decrease in gray tonality, with a short duration between vowels, as illustrated in Figure 4.

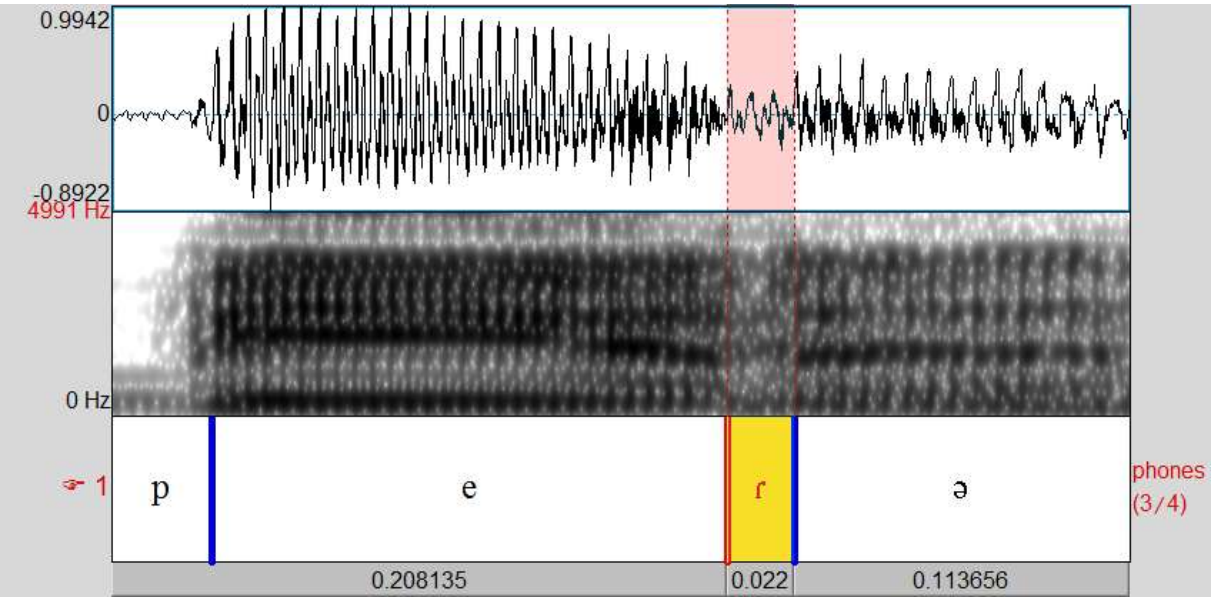

Figure 4 - Oscillogram and spectrogram of the word “pera”, 'pear', pronounced by a native speaker of BP.

3.6 VELARIZATION OF PALATAL LATERAL APPROXIMANT [ʎ]

The lateral consonants are characterized by an occlusion at some point along the mid-sagittal line of the vocal tract, wherein the air passage is released on one side or on both sides of this occlusion. For the articulation of a palatal lateral approximant, a contact between the back of the tongue and the hard palate occurs (STEIN, 2011).

In the German phonological system, the palatal lateral approximant does not occur and, therefore, some learners use certain articulatory mechanisms to produce it. To pronounce a word such as "alho" [ˈaʎʊ], 'garlic', German speakers will use strategies that are articulatorily possible for them, such as using an alveolar lateral [ˈalʊ], or its velarization [ˈaɫʊ]. Often [ʎ] is not realized in a canonical form, because even native speakers of Portuguese use other strategies so that the articulation of this segment turns easier. In BP, [ʎ] interchanges with [lʲ] and [ʏ].

4. ARTICULATORY PHONETICS EXERCISES APPLIED TO GERMAN LEARNERS OF PSL

Based on the detected deviations, we suggest some articulatory phonetics exercises that aim at eliminating some of the deviations with a higher frequency of occurrence in German learners' pronunciation of BP.

4.1 EXERCISES FOR NON-ASPIRATION OF [p t k]

The exercises for non-aspiration of [p t k] must be alternated with exercises involving other specificities that we describe hereafter, on different days.

4.1.1 Exercises for non-aspiration of [p]

a) The first activity consists of an articulatory exercise in which students must compress the lips and blow hard, to pronounce the letter[1] "p" many times.

[1] Using "letter" instead of "phoneme" is closer to the students' daily reality.

Then, uninterruptly, students must pronounce the letter "p" combined with BP vowels (e.g., *pa – pe – pi – po – pu*).

b) Immediately after the articulatory exercise, other three steps are stipulated: in the first step, a frequency of words is established in which “p” is in initial-word position or in intervocalic position (e.g., "pato", 'duck'; "capote", 'cloak'), coupled with different vowels; in the second and third steps, a sequence of up to five phrases is stipulated, varying gradually in the number of segments in question (e.g., “O pato comeu o pote de cupuaçu”, 'The duck ate the pot of cupuaçu[2]').

4.1.2 Exercises for non-aspiration of [t]

a) For [t], a procedure similar to that used for [p] is followed, but this time, the student is directed to relax the tongue, position it behind the upper teeth, and then open and close the mouth, so that the tongue is positioned behind the upper teeth, without emitting any sound.

b) After the exercise above, a combination is made with the words “Station”, in German, and “estação”, 'station', in Portuguese. Once in both languages, in this phonological environment, there is no aspiration, the segment is pronounced by students with the same quality as in their L1. In BP, this pronunciation is noticed when [t] occurs in initial-word position, in intervocalic position, or even in consonant clusters (according to Kholer (1999), the aspiration does not occur in German when the voiced plosive is preceded by a fricative or is followed by a nasal consonant).

c) A practical exercise, designed for words in which [t] occurs in different phonological environments, is applied with two degrees of difficulty, reaching up to four words in the same sentence (e.g., "O tatu comeu batata e patê", 'The armadillo ate potato and paté').

[2] A typical fruit of the Amazon region, *Theobroma grandiflorum*.

4.1.3 Exercises for non-aspiration of [k]

a) An articulatory exercise for the recognition of how to pronounce [k] is applied. The student should position the dorsum of the tongue in contact with the hard palate (roof of the mouth) and then open and close the mouth, so that the back of the tongue is always against the hard palate. To practice this movement, the learner is requested to pronounce the sequence: “ca – que – qui – co – cu” [ka ke ki ko ku].

b) Next, the same procedures for the practical exercises described above are applied to words (e.g., “casa” [ˈkaza], 'house'; "buquê” [buˈke], 'bouquet'; “caqui” [kaˈki], 'persimmon') and then phonetically balanced sentences with a difficulty that varies in number of phonemes (e.g., “O coco e o caqui são de Cuba”, 'The coconut and the persimmon are from Cuba').

4.2 EXERCISES FOR NON-DEVOICING OF [d]

a) A table of correlative pairs is presented so that the learner can recognize the difference between the pronunciation of a voiced □□□ and the corresponding voiceless □□□ (e.g., “tia” / “dia”, 'aunt' / 'day'; “tato” / “dado”, 'tact' / dice').

b) Next, some practical exercises are suggested, consisting only of sentences that vary in degree of difficulty according to the number of “d” occurences, in several phonological environments.

4.3 EXERCISES FOR NON-DEVOICING OF [z]

a) The learners should position the tongue near the region above the upper teeth (alveolar region) and slowly blow air from the lungs, which will produce the sound of “s” as a voiceless alveolar fricative consonant. Then, the students are required to join the vowel “a” to the consonant “s”, producing “sa – sa – sa – sa – sa”, repeatedly. This exercise aims at recognizing that a consonant that has no vocal fold vibration is being produced, involving just the blowing of air.

Thenceforth, the students should execute the same articulatory procedure to produce the sound of "s", but producing a sound that resembles the one produced by bees when they are flying. At this time, the students should be alerted that the sound produced is similar to the voiced alveolar fricative consonant.

b) Second, a comparison between a German and a Portuguese word in which the alveolar fricative consonant occurs (e.g., "reisen", 'to travel' vs. "rezar", 'to pray') is made. This comparison reinforces how to pronounce □□□ correctly.

c) Finally, practical exercises are applied. The teacher should explain when "s" sounds like "z", and when "z" sounds like the voiceless alveolar fricative consonant □□□□ The first step consists of presenting words in which "s" and "z" appear in intervocalic position or in the beginning of a sentence, respectively, where the sound of □□□ is evident. The second step consists of sentences that initially have two words containing the phoneme in question, gradually increasing to four.

4.4 EXERCISES FOR THE POSITION OF [h]

a) It is emphasized that the pronunciation of [h] is equivalent to "r" in BP in initial or in final-syllable position, and also to the consonant digraph "rr", which exemplifies how to use it. At this time, it is possible to compare Portuguese and German words such as "rato", 'mouse', and "hatten", 'had', in which the pronunciation of "r" (from "rato") and "h" (from "hatten") corresponds to the same phoneme.

b) There are some exercises to improve the pronunciation of the vowel preceding [h], which consist of: (1) putting the tongue behind the lower teeth and pressing it; (2) pronouncing the word "bar", 'bar', without withdrawing the tongue from behind the lower teeth; and (3) relaxing the tongue and again pronouncing the word "bar", but this time not being necessary that the tongue remains behind the lower teeth when the word is pronounced (it is interesting to use

different words like “porta”, 'door', or any other word in which “r” occurs in final-word or initial-word stressed position).

c) Sentences composed of two words containing the phoneme in question should then be used, gradually increasing to four words (e.g., "O arquétipo foi arrastado por Rute", 'The archetype was dragged by Ruth').

4.5 EXERCISES FOR THE CORRECT ARTICULATION OF [ɾ]

a) First, a distinction is made between “r” in Portuguese in orthographic similar words like “carro”, 'car' and “caro”, 'expensive'. Next, learners should become aware that the alveolar tap is produced when “r” is in intervocalic position (e.g., “parede”, 'wall') or in consonant clusters (e.g., “prato”, 'plate').

b) Thereafter, articulatory exercises consisting of four steps should be applied: (1) the learner should relax the mouth and then inhale and blow until a vibration occurs in the mouth (this movement is similar to those produced by babies); (2) students are asked to produce the sequence “la – la – la – la – la”, increasing speed gradually; (3) they are asked to put the tongue behind the upper teeth, or even in the hard palate, until they recognize a vibration of the tongue; (4) they are asked to produce the sequence “ra – ra – ra – ra – ra”, progressively (pronouncing [ɾ]).

c) A practical exercise is applied with three degrees of difficulty, which are determined by the number of words in which an alveolar tap occurs. The number of words should increase up to four in the same sentence (e.g., “A parede da garage é preta”, 'The garage wall is black').

4.6 EXERCISES FOR THE NON-VELARIZATION OF [ʎ]

a) An exercise aimed at the articulatory improvement of the pronunciation of “alio" is accomplished, with the tip of the tongue touching slightly above the upper teeth (alveolar region). Then, students are asked to put the dorsum of

the tongue on the hard palate and again pronounce the word “alio”. Finally, following the previous guidelines, students should repeat the word “alio” five times consecutively until they are able to pronounce “alho” [ˈaʎʊ], 'garlic'.

b) Two practical exercises are used, with five sentences in which the level of difficulty varies from one (e.g., “A folha verde caiu”, 'The green leaf fell down') to two (e.g., “O palhaço joga bilhar”, 'The clown plays billiards').

CONCLUSION

Acoustic and articulatory phonetics is a strong ally in PSL teaching because of the possibility of visually materializing the problems that learners are not able to recognize by themselves. The exercises described in the last section are an example of how articulatory phonetics can help PSL teachers to teach pronunciation, so that they will not be at the mercy of teaching material that does not contribute to the real needs of L2 learners. The articulatory exercises can help not only German learners of BP, but also Spanish, English and French ones, who have similar problems. This is quite viable for PSL teachers, as PSL classes are almost never homogeneous.

According to Lima Jr. (2010), positive results have been detected from the inclusion of at least 15 minutes of explicit teaching of pronunciation in class. Dutra (2008) also advocates the dedication of at least 10% of the total workload of L2 courses to the teaching of pronunciation, with specific activities for the students, who, after additional reflection regarding how to articulate the phonemes, can enjoy effective results in a short time. It is necessary to consider the disposition and discipline of the students to learn how the phones in the second language are really articulated. Additionally, students should be aware of the need to practice them in daily L2 dialogues as well as the articulatory principles that have been learned, in order to turn the articulation of these phonemes automatic.

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