THE RELEVANCE OF PHONETICS TEACHING FOR ENGLISH SOUNDS PERCEPTION¹

Eliane da Rosa²

Abstract: As many researches have shown the contributions of phonetics instruction in L2/FL learners' speech perception and production, this study seeks to investigate the role of phonetics teaching to the perception of the English front high vowels /i/ and /t/ by Brazilian learners from an international language school. Identification pre/posttests were designed through the TP software (RAUBER; RATO; KLUGE; SANTOS, 2012) in order to measure the participants' perception on the vowels mentioned above. Comparing the results obtained from tests, it is possible to assume that the learners, who received phonetics instruction on the English front high vowels /i/ and /t/, demonstrated a better performance in distinguishing and interpreting those sounds accurately than the learners, who did not receive any instruction. It means that phonetics teaching improves English learners' sounds perception. **Keywords:** Phonetics Teaching. Auditory Perception. English Front High Vowels.

Resumo: Como muitas pesquisas têm demonstrado as contribuições da instrução fonética na produção e percepção da fala de aprendizes de L2/LE, este estudo busca investigar o papel do ensino de fonética no que diz respeito à percepção das vogais altas frontais inglesas /i/ e /1/ por aprendizes brasileiros de uma escola internacional de idiomas. Pré e pós-testes de identificação foram elaborados através do software TP (RAUBER; RATO; KLUGE; SANTOS, 2012) com o propósito de medir a percepção dos participantes quanto às vogais mencionadas acima. Comparando os resultados obtidos nos testes, é possível afirmar que os aprendizes, que receberam instrução fonética sobre as vogais altas frontais inglesas /i/ e /1/, demonstraram um melhor desempenho na distinção e interpretação de tais sons acuradamente do que os aprendizes, que não receberam nenhuma instrução. Isto significa que o ensino de fonética aprimora a percepção de sons por parte dos aprendizes de inglês.

Palavras-chave: Ensino de Fonética. Percepção Auditiva. Vogais Altas Frontais Inglesas.

Many studies (ARAÚJO et al, 2010; AZEREDO SILVA, 2004; BARREIRA, 2008; COATS, 2014; GHORBANI, 2011; GORDON et al, 2013; GOSWAMI; CHEN, 2010; KENNEDY et al, 2013; KISSLING, 2012; LINTUNEN, 2013; LIPINSKA, 2013; STURM, 2013) have investigated the role of phonetics teaching in relation to the perception and production of second language (L2) and foreign language (FL) sounds. Those studies have demonstrated that phonetics instruction improves L2 or FL learners'

¹ Adaptation of the paper presented to the subject *Topics on Psycholinguistics: L2 Phonetic-phonological Acquisition* (UFRGS, 2015/2).

² Special Student in the Post-graduation Program in Letters of the Federal University of Rio Grande do Sul (field: Language Studies). Master in Morphology and Phonology (UFRGS), specialist in English Teaching and Learning (Uniritter) and graduated in English (ULBRA). Phonetics and English teacher at FISK Teaching Center. E-mail: elianedr19@gmail.com.

speech perception and production. It means that when students learn how to distinguish native and non-native sounds and receive phonetics instruction, they can perceive, identify and produce the sounds accurately. Consequently, communication might become more efficient in a L2/FL context. According to Derwing and Munro (2005, p. 385), "it is essential to have an accurate understanding of the target language's phonological system", because this knowledge plays a crucial role in second/foreign language learning and acquisition.

In addition, phonetics teaching gives learners the opportunity to develop their understanding of language variation. In other words, they begin to observe that native and non-native speakers can say the same thing in different ways, because language is not from a homogenous nature, but rather from a heterogeneous nature. Therefore, language may suffer processes of variation and change from several kinds of linguistic and social factors (LABOV, 1994; 2008 [1972]).

Taking into consideration the premise that language is a complex and dynamic system which is in constant evolution to supply their speakers' communicative needs (LARSEN-FREEMAN; CAMERON, 2008), it is important to mention that learners must know that language is formed by different types of dialects and not only by the one they learn in their textbooks, for example. Thus, it is necessary that learners receive linguistic input not just from the textbooks they use in class, but from other sources such as communicative interactions with native and non-native speakers, songs, movies, sitcoms, videos, and so on.

Based on this evidence, the present article seeks to investigate the role of phonetics teaching for Brazilian learners' sounds perception. The current study proposes to examine the Brazilian learners' perception of the English front high vowels /i/ and /I/ through identification test designed in the **TP** software (RAUBER; RATO; KLUGE; SANTOS, 2012). Those vowels were chosen because Brazilian learners often present difficulties in distinguishing and producing them accurately (SILVA, 2012; STEINBERG, 2006) and, as a consequence, it may interfere in the success of the communication in a L2/FL setting. The relevance of this paper consists of studying an issue, which has not been researched up to now. Moreover, it is essential to cite that the focus of this paper is on English as a foreign language (FL), because English is not the language of the majority in Brazil. The participants of the experiment are adults, who

study in an international language institute in Porto Alegre, Rio Grande do Sul (Brazil). In this school, the students learn English with coursebooks written by American professors. So, the sounds input they receive comes from American native speakers.

English and Brazilian Front High Vowels

The vowels of English differ considerably from the vowels of Brazilian Portuguese. For instance, in English there are two front high vowels, long and tense /i/ and short and lax /I/, while in Brazilian Portuguese (henceforth BP) there is only one front high vowel /i/, which exhibits different spectral frequencies and duration values than the English ones.

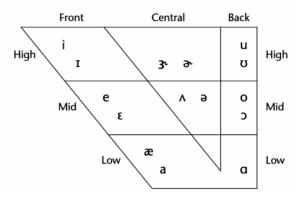


Figure 1. American English vowel system (BAUMAN-WANGLER, 2012).

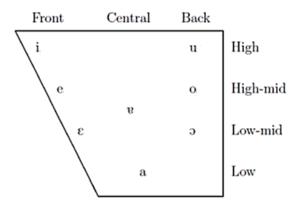


Figure 2. Brazilian Portuguese vowel system (adaptation from FARIA, 2003).

Comparing Fig 1 to Fig 2, it is possible to note that in BP the vowel inventory has only the front high vowel /i/ occupying a certain phonemic space, while in the English vowels system there are two front high ones /i, I/ to the same space (BAPTISTA, 2000). It means that BP presents a bigger dimension to /i/, and, consequently, it leads Brazilian learners' to perceive both English vowels /i/ and /I/ as BP vowel /i/. Thus, perceiving and producing these sounds may be difficult for Brazilian learners of English (SILVA, 2012; STEINBERG, 2006). For Trubetzkoy (1971 [1958]), this kind of transferring occurs because bilinguals are inclined to interpreting the L2 sounds through the "grid" of their L1 phonological system, i.e., learners tend to perceive the new phonological system through that of their first language.

According to the postulates of *Speech Learning Model* (FLEGE, 1995; 2002), throughout the development of the L2 sound system, the phonetic categories of the L2 are stored in the memory system, which already contains the L1 phonetic categories formed. The degree of similarity, in acoustic terms, between a new L2 category and the stored L1 categories determines whether or not a separate category for the L2 sound can be formed. In the case of the new sound is similar to a stored L1 sound, the phonetic category that holds this L1 sound can attract the new L2 sound. In the course of this process, the attracting L1 category may change somewhat in the phonemic space in the direction of a position that reflects the acoustic characteristics of the L2 sound. This phenomenon is called *phonetic category assimilation*. For Brazilian learners, this process occurs when they perceive and produce the English vowels /i/ and /ɪ/ as the Brazilian Portuguese vowel /i/, as can be seen in Fig 3 below:

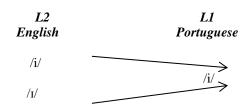


Figure 3. Phonetic category assimilation (FLEGE, 1995; 2002).

Besides the phonetic category assimilation, there are other important issues to be considered, which are the number of years of prior L1 use and the amount of current L1 use, which may affect the strength of the L1 phoneme categories and, as a result, their attraction potential (GROOT, 2011). In Brazil, English is considered a foreign language, because Brazilians do not need to use it in their everyday life to communicate, but only in specific situations such as when they travel abroad or for academic purposes, for example. Hence, the amount of use of L1 (in this case BP) may affect learners' perception and production of the English front high vowels /i/ and /I/. Based on this hypothesis, this study suggests that English phonetics teaching may be a tool in order to help learners to distinguish both vowels and improve their perception and production of them. Thus, misinterpretation and problems in pronunciation might be avoided in L2/FL speech. As the interest of this paper is in analyzing speech perception, the current study will not focus on speech production.

Method

Participants

A total of 30 students (18 women and 12 men) between the ages of 17 to 40 (women from 17 to 40 (M: 28,5), men from 26 to 40 (M: 33)) took part in the pretestposttest experiment. Both the control and the experimental groups had 15 students each one. The experimental group went through a 16-week semester phonetic teaching period divided into two one-hour-and-a-half meetings per week. The phonetic instruction was designed as a minicourse with the aim of promoting communicative tasks and activities (CELCE-MURCIA et al., 2010) about English vowels, but with emphasis on the front high vowels. The purpose of adopting this kind of methodology consists of giving the students the opportunity to perform the language as they were using it in "social contexts". The volunteering learners had not had any previous phonetic instruction or experience abroad. At the end of the experiment, they were given certificates by the language institution for their participation in the course. In order to measure learners' level of proficiency in English, it was applied the *The Oxford Placement Test* 2^3

³ The Oxford Placement Test 2 consists of listening and grammar exercises. The listening part consists of 100 items. It takes about 10 minutes for the students to complete the listening test. Test-takers are asked to choose the correct word that they hear in short sentences from two choices. In relation to the grammar part, it also consists of 100 items. Test-takers have fifty minutes to complete the task. They are asked to read sentences and choose, among three possible answers, the correct option to complete the sentence.

(ALLAN, 2004). The results of the test demonstrated that the students were in the intermediate level. As soon as they finished the proficiency test, the participants were invited to fill in a sociolinguistic questionnaire (see **Appendix A**) to obtain information about their linguistic experience with English.

In respect of the control group, the participants did not receive any English phonetics instruction before, during and after the period of the minicourse. They were also asked to take *The Oxford Placement Test 2*. The results of the test showed that they were in the intermediate level as the experimental group. After this procedure, they were invited to answer a sociolinguistic questionnaire (see **Appendix A**) with the aim of getting information on their linguistic experience with English. Those participants were also required to take the pre and posttest through the TP software exactly like the experimental group did.

Data

Two American native speakers provided the speech data: one woman from Columbia (South Carolina) and one man from Illinois (Chicago). The aim of doing so was based on the premise that language is a complex dynamic system, which presents variations and changes in its structure (LABOV, 1994; 2008 [1972]; LARSEN-FREEMAN; CAMERON, 2008). The woman's age was 35 and the man's age was 39. It is relevant to say that they were professors visiting a university and that they have never lived in Brazil.

The tokens were collected through a reading task. Each one of the speakers were required to read aloud 05 words with a CVC phonetic environment which contained the English front high vowels /i/ and /I/ as can be shown in **Table 1**:

Stimulus with /1/ sound	Stimulus with /i/ sound	
sh i p	bees	
fi 11	cheek	
pick	t ea m	
l i p	f ee t	
h i ll	bead	

Table 1. Stimuli with English front high vowels.

To record the stimuli of the perception tests, the following instruments were used: a professional headset (model 1740: Leadership Stereo), a notebook computer, the *Audacity Program* (version 2.1.0), and a silent room at the language lab of a university.

In order to avoid difficulties in recognizing the pronunciation of the stimuli, two criteria concerning their selection were followed. First, the words had to be part of the participants' lexicon, namely the ones they have already learnt from their English textbooks. Second, the words had to be very familiar to their level of proficiency. The choice of collecting familiar stimuli out of sentence context is because semantic and pragmatic contexts may help learners to recognize the words without paying attention to the sounds precisely and this was not the purpose of the current study.

Besides that, a group of American students came to visit the language institution, in which the experiment was being applied. In this case, they were invited to participate in the phonetics minicourse in order to give the participants the opportunity of receiving natural linguistic input during the communicative interaction among them. The age of those American visitors were between 15 and 19. The duration of this interaction was about 3 weeks.

English Phonetics Minicourse

The experimental group participated in two a 16-week semester phonetic instruction period, which was divided into two one-hour-and-a-half sessions per week, specifically dealing with the articulatory and distributional properties of the English vowel inventory along with the Brazilian Portuguese one. The aim of doing so was to raise their phonological awareness with regard to the distinction between English and Brazilian front high vowels, which are the focus of this paper.

Intensive practice, based on various perception and production tasks and activities, was preceded by an introductory theoretical part consisting of articulatoryvisual description, exposure to native English speakers' speech, and contrastive analysis. The learners received immediate feedback during and after the activities of each session to let them feel confident in executing the proposed activities and tasks. The phonetic teaching sessions were administered from March (2016) to July (2016), and consisted of one-and-a-half-hour meeting on English vowels, with its emphasis on the front high vowels /i/ and /I/ through several kinds of audiovisual activities and tasks, as can be illustrated in **Table 2**:

Perception Tasks	Production Tasks	
 Phonetic transcription Dictation Activities with songs and conversations among native speakers Exposure to native speech sounds through videos and chatting Games (giving directions, phonetic boggle) Online listening quiz Interviews 	 Articulatory (visual) description of sounds with animation Imitation Role-play Storytelling Tongue-twisters Singing songs Games (guessing famous people, dar or double dare⁴ Interviews 	

Table 2. Variety of tasks and activities applied in the training sessions.

The tasks and activities offered input from multiple male and female American native speakers (the students who came to visit the school) and from phonetics coursebooks. The natural tokens were presented within word and sentence contexts along with visual and auditory stimuli. It is important to mention that the tokens used as stimuli in the perception tests had part in the input received by the subjects during the instruction sessions. A multiplicity of tasks and activities were used (LOGAN; PRUITT, 1995) with the objective of:

1) developing the perceptual and productive abilities of the participants;

2) modifying their performance on certain pronunciation aspects (i.e., overuse of the length cue to distinguish the tense-lax vowel contrast, and production of English /i/ and /i/ as Brazilian Portuguese /i/);

3) permitting generalization or transfer to novel stimuli or tasks outside the training.

Some other features related to the stimuli used in the instruction were: use of multiple talkers and natural tokens in multiple acoustic and phonetic contexts (PISONI;

⁴ A game inspired on the Brazilian TV program called *Passa ou Repassa*.

LIVELY, 1995), use of natural tokens rather than synthetic stimuli, introduction to the IPA phonetic symbols, attention to individual differences through group work, and subjects' familiarization with technology such as headsets, microphones, speech analysis software, and others.

Procedure

The empirical examination of the study was accomplished in the following way. Initially, the participants were invited to take *The Oxford Placement Test 2*. After that, they were required to fill in a sociolinguistics questionnaire (see **Appendix A**). As soon as the participants finished the questionnaire, they received a short instruction on phonetic symbols to begin the pretest, which consisted of an identification test designed with the *TP software (Test/Training of Perception)*. If they did not receive this kind of instruction, they could not accomplish it.

The TP is a free of charge software developed to the accomplishment of experiments on speech perception (RAUBER; RATO; KLUGE; SANTOS, 2012). This tool allows researchers to create and configure perception experiments in a simple and fast way. The advantages of using this software are:

- a) to use audio, visual and audiovisual stimuli;
- *b)* to create two kinds of perception test: identification and discrimination;
- c) the inclusion the Likert scale;
- *d) immediate feedback to each answers in the perceptual training experiments;*
- e) presentation of the stimuli in a random order;
- *f) counting of the reaction time;*
- g) automatic creation of a file with the results obtained in all the test and training experiments in an Excel spreadsheet.

Therefore, based on the advantages of adopting TP in perception experiments, the identification test (pretest/posttest) was designed through that software.

In the pretest, the participants were asked to perceptually identify a member of a minimal pair contrasting the English front high vowels /i/ and /ɪ/. Individually, they had to use a headset and listen to the stimulus (word) through the TP software, and choose

the phonetic symbol which corresponded to the sound they heard. The pretest was composed by 10 stimuli (see **Table 1**), which were presented three times each in a randomized way. Thus, the total number of stimuli became 30. In **Figure 4**, it is possible to observe how the test was structured:

Leia a questão, e após ouv	ir o som, escolha a opção o	correta.		
	TI - STUDENT			
	1. Marque a vog	al que você ouviu:		
Q				1 / 30
/i/			/ I /	
			😢 Sai	ir

Figure 4. Illustration of TP identification test.

The choice of using an identification test was based on the fact that:

The most direct behavioral method for evaluating the perception of L2 vowels is to ask L2 learners to identify the L2 vowels. Percent correct identification scores might be obtained for all of the vowels in the L2 inventory. When misidentifications occur, the pattern of perceptual confusions may provide insight into how the L2 learners' perception differed from that of L2 native speakers (FLEGE, 2003, p. 22).

Hence, the identification test was the most appropriate one given the purpose of the current research. After the application of the pretest, phonetics lessons started in the language lab of the institution.

By the end of the 16-week semester phonetics teaching period, the participants of the experimental group were invited to take a posttest designed with the same structure of the pretest. As soon as they finished the course, the students received a certificate in order to motivate them to continue their studies in English phonetics.

In relation to the control group, before starting the minicourse on phonetics, they were asked to take *The Oxford Placement Test 2* as the experimental group. After the

test, they were required to fill in the same sociolinguistics questionnaire (see **Appendix A**) the other group answered. As soon as those participants finished the questionnaire, they received a short instruction on phonetics symbol with the purpose of being able to start the pretest, which consisted of an identification test designed with the TP software (Test/Training of Perception). If they did not receive this kind of instruction, they would not be able to accomplish it.

By the end of the minicourse, the control group were also invited to take the posttest. The pre and posttest had the same design as the one applied to the experimental group. In addition, it is important to say that they did not attend the phonetics course, because the aim of the research was to analyse the role of phonetics teaching for the perception of the English front high vowels by Brazilian learners. This type of procedure was adopted to show that phonetics instruction improves learners' sounds perception.

In the light of this, based on those procedures described earlier, we expected to demonstrate the relevance of English phonetics teaching for Brazilian learners' sounds perception.

Results and Discussion

Nowadays, several researches (ARAÚJO et al., 2010; AZEREDO SILVA, 2004; BARREIRA, 2008; COATS, 2014; GHORBANI, 2011; GORDON et al., 2013; GOSWAMI; CHEN, 2010; KENNEDY et al., 2013; KISSLING, 2012; LINTUNEN, 2013; LIPINSKA, 2013; STURM, 2013) have investigated the role of phonetics teaching on perception and production of second language (L2) and foreign language (FL) sounds. Those studies have demonstrated that phonetics teaching plays a crucial role in the development and improvement of L2/FL learners' performance in sounds perception and production.

Despite the agreement on the importance of teaching phonetics in L2/FL class, most of the teachers do not provide phonetics instruction because they consider phonological theory and phonetics of little applicability in language classroom (FRASER, 1999; 2006). And the lack of this type of instruction may interfere negatively in the development of the L2/FL learners' speech perception and production. That means phonetics teaching can help students to prevent problems in pronunciation and misunderstanding during the communicative interactions with native and non-native speakers. As the studies demonstrate the benefits of learning phonetics in language classroom, this paper investigated the role of phonetics teaching to the perception of the English front high vowels /i/ and /I/ by Brazilian learners.

Brazilian learners' perception on the English vowels /i/ and /i/ were analysed through a pre-posttest experiment designed in the TP software. The perception data was collected from two groups (the experimental and the control ones) of English learners, who study in an international language institution in Porto Alegre. In order to validate the results obtained in the tests, a chi-square test was applied with the purpose of confirming the efficacy of phonetics teaching for English sounds perception.

In **Table 3**, it is possible to observe that the results of the pretest experimental group have demonstrated that those participants⁵ are not able to distinguish accurately the phonetic-phonological differences between English tense and lax vowels, because the rates of correct identification for both vowels are low: 26% for /I/ and 38% for /i/.

	Correct Identification %			
Participant	Vogal / I /	Vogal /i/	Total %	
Antonio	33%	47%	40%	
Carina	20%	40%	30%	
Caroline	40%	33%	37%	
Daniela	40%	40%	40%	
Isabella	20%	27%	23%	
Joana	27%	33%	30%	
João	27%	40%	33%	
Jonas	13%	40%	27%	
Laura	27%	40%	33%	
Nicole	20%	27%	23%	
Priscila	27%	40%	33%	
Ricardo	27%	33%	30%	
Rita	27%	47%	37%	
Roberto	33%	47%	40%	
Tiago	13%	33%	23%	
Total	26%	38%	32%	
Mean				

PRETEST EXPERIMENTAL GROUP:

⁵ The participants' names are fictitious with the purpose of maintaining their absolute anonymity.

Table 3. Results of the pretest experimental group.

The results, presented in **Table 4**, for the pretest control group, have shown that the participants have difficulties in distinguishing the phonetic-phonological differences between English tense and lax vowels precisely, for the rates of correct identification for both vowels are low : 30% for /I/ and 37% for /i/.

Participant	Correct Identification %			
	Vogal / I /	Vogal /i/	Total %	
Afonso	27%	33%	30%	
Amanda	27%	33%	30%	
Andressa	40%	33%	37%	
Doraci	20%	33%	27%	
Guilherme	27%	47%	37%	
Ieda	33%	33%	33%	
Jandira	20%	20%	20%	
Luana	33%	40%	37%	
Lucas	40%	53%	47%	
Lucia	40%	40%	40%	
Marta	33%	33%	33%	
Mateus	20%	40%	30%	
Norberto	33%	47%	40%	
Pedro	33%	27%	30%	
Rosa	27%	40%	33%	
Total Mean	30%	37%	34%	

PRETEST CONTROL GROUP:

 Table 4. Results of the pretest control group.

Thus, taking into account the evidence shown in **Tables 3 and 4**, it is worth to mention that two groups (the experimental and the control ones) were not successful in identifying correctly each vowel when they heard the stimuli during the perception test.

In relation to the results of the posttest, a significant difference between the experimental and control groups behavior is observed. The participants of the experimental group have demonstrated that they became aware of the phonetic-phonological features of both English front high vowels, because the rate of correct identification for each vowel increased significantly: 92% for /I/ and 96% for /i/ as can be observed in **Table 5**.

	Correct Identification %			
Participant	Vogal / I /	Vogal /i/	Total %	
Antonio	87%	93%	90%	
Carina	73%	100%	87%	
Caroline	100%	87%	93%	
Daniela	100%	100%	100%	
Isabella	100%	100%	100%	
Joana	100%	100%	100%	
João	87%	100%	93%	
Jonas	93%	93%	93%	
Laura	80%	87%	83%	
Nicole	100%	93%	97%	
Priscila	87%	100%	93%	
Ricardo	100%	100%	100%	
Rita	80%	93%	87%	
Roberto	93%	100%	97%	
Tiago	93%	87%	90%	
Total Mean	92%	96%	94%	

POSTTEST EXPERIMENTAL GROUP:

Table 5. Results of the posttest experimental group.

Conversely, the posttest control group has demonstrated results with low rates of correct identification of the English front high vowels: 33% for I/I and 52% for I/I as can be seen in **Table 6**, which means that the rates of the posttest remain almost similar to the ones of the pretest.

	Correct Identification %		
Participant	Vogal / I /	Vogal /i/	Total %
Afonso	27%	47%	37%
Amanda	27%	53%	40%
Andressa	20%	53%	37%
Doraci	47%	67%	57%
Guilherme	53%	67%	60%
Ieda	47%	53%	50%
Jandira	20%	53%	37%
Luana	33%	53%	43%
Lucas	33%	60%	47%
Lucia	40%	53%	47%
Marta	33%	60%	47%
Mateus	40%	67%	53%
Norberto	33%	53%	43%

POSTTEST CONTROL GROUP:

Pedro	27%	53%	40%
Rosa	20%	40%	30%
Total Mean	33%	52%	45%

Table 6. Results of the posttest control group.

In spite of the period of language instruction, the participants of the control group are still not able to differentiate the phonetic-phonological features of both English vowels. This is due to the lacking of phonetics instruction during their classes. If the classes were also focused on phonological theory and English phonetics, they would overcome the awareness of the phonetic-phonological aspects of the front high vowels /i/ and /I/, and, consequently, they could recognize and interpret both sounds in order to understand spoken language.

In regard to the comparison of the pre/posttest general results between the experimental and control groups (see Table 7), it was applied the chi-square test with the intention of verifying if the results obtained were significant. Chi-square is a statistical test commonly used to compare observed data with data we would expect to obtain according to a specific hypothesis, that is, for testing relationships on categorical variables.

Experimental and Control Groups			
		Correct Identificatio	n %
Group	Pretest	Posttest	Increasing %
Experimental	32%	94%	62%
Control	34%	45%	11%

Comparison of the Pre/Posttest Results between

Table 7. Comparison of the pre/posttest results between Experimental and Control Groups.

The chi-square statistic test provided the following values:

 $x^2 = 6.92$ degrees of freedom = 1probability = 0.009

Taking into account that the predetermined alpha level of significance is 0.05 and the degrees of freedom is df = 1, it is possible to note that the *p*-value < 0.05. Since a *p*-value of 0.009 is smaller than the conventionally accepted significance level of 0.05 (i.e. p < 0.05), it is referred as a significant difference. In other words, the results of the chi-square test have shown that the group (the experimental one), who had English phonetics lessons, developed and improved their sounds perception in accordance with the initial hypothesis. In this case, phonetics instruction made learners notice the differences in relation to the phonetic-phonological features between the English front high vowels and the Brazilian ones. With respect to the control group, it is possible to note that the lack of phonetics lessons contributed to their inability of discriminating the vowels mentioned above. Thus, the results of the current study pointed out that phonetics teaching benefits L2/FL learners' sounds perception in English language classroom.

Final Considerations

Many studies have demonstrated that phonetics instruction contributes to the development and improvement of L2/FL learners' speech perception and production, independently of the language being learnt. Based on this evidence, the present study investigated the role of phonetics instruction to the perception of the English front high vowels /i/ and /1/ by Brazilian learners.

In order to measure the Brazilian learners' perception, the experiment of the current paper was conducted through an identification test (pre/posttest) designed in the TP software (RAUBER; RATO; KLUGE; SANTOS, 2012). The results of the experiment has revealed that the control group, which did not receive any phonetics instruction, was not able to identify and interpret the phonetic-phonological features of the English vowels /i/ and /I/ perceptually, while the experimental group was successful in noticing and interpreting those vowels because of the phonetics lessons they received. It is essential to mention that further research is needed to examine the role of phonetics teaching in English sounds production by Brazilian learners. Investigating the learners' speech production will reinforce the hypothesis that instruction on phonetics and

phonology theory is important for learners to achieve an efficient L2/FL speech learning.

To sum up, phonetics instruction can be considered a helpful teaching tool in order to develop and improve learners to distinguish and interpret English sounds accurately, and, consequently, this better performance in sounds perception might lead those learners to have a more effective communicative interaction with native and nonnative speakers of English.

References

ALLAN, D. Oxford placement test 2. Oxford: Oxford University Press, 2004.

ARAÚJO, L. M. M.; FENIMAN, M. R.; CARVALHO, F. R. P. de; LOPES-HERRERA, S. A. Ensino da língua inglesa: contribuições da fonética, fonologia e do processamento auditivo. *Pró-Fono Revista de Atualização Científica*. 2010, p. 183-188.

AZEREDO SILVA, F. C. Contribuições da fonética e da fonologia ao ensino de língua estrangeira: o caso das vogais altas frontais e do glide /j/ no inglês e no português brasileiro. Master's Dissertation. Belo Horizonte: UFMG, 2004.

BAPTISTA, B. O. *The acquisition of English vowels by Brazilian-Portuguese speakers*. Florianópolis: UFSC, 2000.

BARREIRA, S. R. C. O desenvolvimento da compreensão oral por meio de instrução explícita sobre a fonologia do inglês em estágios iniciais da aprendizagem. Master's Dissertation. Fortaleza: UEC, 2008.

BAUMAN-WANGLER, J. A. Articulatory and phonological impairments: a clinical focus. 4th ed. Boston: Pearson/Allyn & Bacon, 2012.

CELCE-MURCIA, M.; BRINTON, D. M.; GOODWIN, J. M.; GRINER, B. *Teaching pronunciation*: a coursebook and reference guide. 2. ed. Cambridge: Cambridge University Press, 2010.

COATS, P. J. The effect of explicit instruction on the perception of Spanish stops by speakers of Korean. Master's Dissertation. Columbia: University of South Carolina, 2014.

GHORBANI, M. R. The Impact of phonetic instruction on Iranian students' listening ability enhancement. The Asian EFL Journal, vol. 52, 2011, p. 24-34.

GORDON, J.; DARCY, I.; EWERT, D. Pronunciation teaching and learning: effects of explicit phonetic instruction in the L2 classroom. In: LEVIS, J. ; LEVELLE, K. (eds.). *Proceedings of the 4th Pronunciation in Second Language Learning and Teaching Conference*. Iowa State University: 2013. p. 194-206.

GOSWAMI, J. S.; CHEN, H-Y. The impact of instruction in phonetic and phonemic distinctions in sounds on the pronunciation of Spanish-speaking ESL learners *MEXTESOL Journal*, vol. 34, n° 1, 2010, p. 29-39.

GROOT, A. M. B. de. Language and cognition in bilinguals and multilinguals: an introduction. New York: Psychology Press, 2011.

DERWING, T. M.; MUNRO, M. J. Second language accent and pronunciation teaching: a research-based approach. *TESOL Quarterly*, vol. 39, n° 3, 2005, p. 379-397.

FARIA, A. Applied phonetics: portuguese text-to-speech. Berkeley: University of
California, 2003. Retrieved from:
<http://www1.icsi.berkeley.edu/~arlo/publications/faria_ling110_proj.pdf>. Date of
access: June 1st, 2016.

FLEGE, J. E. Interactions between the native and second-language phonetics systems. In: BURMEISTER, Petra; PISKE, Thorsten; ROHDE, Andreas (eds.). *An integrated view of language development*: papers in honor of Henning Wode. Trier: Wissenschaftlicher Verlag, 2002, p. 217-244.

_____. A method for assessing the perception of vowels in a second language. In: FAVA, Elisabetta; MIONI, Alberto (eds.). *Issues in clinical linguistics*. Padova: UNIPRESS, 2003, p. 19-43.

_____. Second Language Speech Learning: Theory, findings, and problems. In: STRANGE, W. (ed.). *Speech perception and linguistic experience*: Issues in cross-language research. Timonium, MD: York Press, 1995, p. 233-277.

FRASER, H. *ESL pronunciation teaching:* could it be more effective?. Paper presented at the ALAA Conference, Perth, 1999. Retrieved from: https://www.cdu.edu.au/walking_talking_texts/documents/Pronunciation-paperbyHelenFraser.doc.. Date of access: Jun. 20th, 2016.

_____. H. Teachers help students with pronunciation: a cognitive approach. *Prospect*, vol. 21, n° 1, 2006.

KENNEDY, S.; BLANCHET, J.; TROFIMOVICH, P. L2 learners' speech after French phonetics teaching. In: PRZEDLACKA, Joanna; MAIDMENT, John; ASHBY, Michael (eds.). *Proceedings of the Phonetics Teaching and Learning Conference*. London: UCL, 2013, p. 43-46.

KISSLING, E. M. *The effect of phonetics instruction on adults' learners perception and production of L2 sounds*. Doctoral Dissertation. Washington DC: Georgetown University, 2012.

LABOV, W. *Padrões sociolinguísticos*. Translation: Marcos Bagno *et al*. São Paulo: Parábola Editorial, 2008 [1972].

_____. *Principles of linguistic change*: internal factors. vol. 1. Cambridge: Blackwell, 1994.

LADEFOGED, P.; JOHNSON, K. A course in phonetics. 6. ed. Boston: Cengage Learning, 2011.

LARSEN-FREEMAN, D; CAMERON, L. *Complex systems and applied linguistics*. Oxford: Oxford University Press, 2008.

LOGAN, J. S.; PRUITT, J. S. Methodological issues in training listeners to perceive non-native phonemes. In: STRANGE, W. (ed.). *Speech perception and linguistic*

experience: theoretical and methodological issues. Timonium, MD: York Press, 1995, p. 351-378.

LINTUNEN, P. The effect of phonetic knowledge on evaluated pronunciation problems. In: PRZEDLACKA, Joanna; MAIDMENT, John; ASHBY, Michael (eds.). *Proceedings of the Phonetics Teaching and Learning Conference*. London: UCL, 2013, p. 55-58.

LIPINSKA, D. Influence of formal instruction in english phonetics and phonology on Polish learners' production of english /æ/. In: PRZEDLACKA, Joanna; MAIDMENT, John; ASHBY, Michael (eds.). *Proceedings of the Phonetics Teaching and Learning Conference*. London: UCL, 2013, p. 59-62.

PISONI, D.; LIVELY, S. Variability and invariance in speech perception: a new look at some old problems in perceptual learning. In: STRANGE, W. (ed.). *Speech perception and linguistic experience*: theoretical and methodological issues. Timonium, MD: York Press, 1995, p. 443-459.

RAUBER, A. S., RATO, A., SANTOS, G. R, KLUGE, D. C., FIGUEIREDO, M. TP:

perception tests and perceptual training with imediate feedback. [software]. Retrieved from: http://www.worken.com.br/tp_regfree.php. Date of access: October 10th, 2015.

ROACH, P. *English phonetics and phonology:* a practical course. 2. ed. Cambridge: Cambridge University Press, 1998.

SILVA, T. C. *Pronúncia do inglês para falantes do português brasileiro*. São Paulo: Contexto, 2012.

STEINBERG, M. *Inglês norte-americano:* pronúncia e morfologia. São Paulo: Nova Alexandria, 2006.

STURM, J. L. Explicit phonetics instruction in L2 French: a global analysis of improvement. *System*, vol. 41, 2013, p. 654-662.

TRUBETZKOY, N. S. *Principles of phonology*. Translation of Christiane A. M. Baltaxe. Berkeley/Los Angeles: University of California Press, 1971 [1958].

ZIMMER, M.; SILVEIRA, R.; ALVES, U. K. *Pronunciation instruction for Brazilians*: bringing theory and practice together. New Castle upon Tyne: Cambridge Scholars Publishing, 2009.

APPENDIX A:

Questionário Sociolinguístico:

1. Nome:______.

- 2. Data:_____
- 3. Idade:___
- 4. Sexo: Feminino () Masculino ().
- 5. Local de Nascimento: _____

6. E-mail:_____

Responda às perguntas abaixo procurando ser o mais específico possível sobre sua experiência com a língua inglesa:

- 7. Você estudou inglês na escola? Sim () Não ().
- 8. Desde que série? _____
- 9. Qual era a sua idade na época?_____.
- 10. Em que série terminou/parou?
- 11. Você recebeu instrução fonético-fonológica na época? Sim () Não ().
- 12. Estuda inglês em alguma instituição atualmente? Sim () Não ().
- 13. Qual o nome dessa instituição?
- 14. Há quanto tempo você estuda inglês nesta instituição?_____.
- 15. Em que nível do curso está atualmente?

16. Quantas horas por semana, além do curso, você se dedica ao estudo de língua inglesa? ______.

- 17. Você recebeu instrução fonético-fonológica em seu curso? Sim () Não ().
- 18. Você tem vivência em país de língua inglesa? Sim () Não ().
- 19. Por quanto tempo? _____

20. Quantos anos você tinha na época?_____

21. Você conversa com frequência em inglês com outros brasileiros? Sim () Não ().

- 22. Você conversa frequentemente em inglês com falantes nativos? Sim () Não ().
- 23. Você assiste a filmes sem dublagem com frequência? Sim () Não ().
- 24. Você ouve música em inglês com frequência? Sim () Não ().
- 25. Você transcreve letras de músicas em inglês? Sim () Não ().
- 26. Você estuda/estudou e/ou tem contato com outra língua estrangeira? Sim() Não().

27. Qual língua? ____

28. Em que contexto? (Ex: escola de idiomas, trabalho, família, etc.)

29. Em relação à língua portuguesa, qual sotaque você considera ter? (Ex: sul do país ou do estado, etc.) ______.

30. Adicione qualquer informação que você considere relevante sobre o seu contato com a língua inglesa: