Ensino da Língua Inglesa: contribuições da fonética, fonologia e do processamento auditivo*****

English Language Teaching: phonetics, phonology and auditory processing contributions

Letícia Maria Martins Araújo*
Mariza Ribeiro Feniman**
Fernanda Ribeiro Pinto de Carvalho***
Simone Aparecida Lopes-Herrera****

*Fonoaudióloga. Discente do Curso de Especialização em Audiologia do Instituto de Comunicação e Audição (ICA) - Bauru - SP. Endereço para correspondência: R. José de Toledo, 17 - 1p. 64 - Campinas - SP CEP 13040-034 (le_mma@yahoo.com.br).

**Fonoaudióloga. Livre Docente em Audiologia pela Faculdade de Odontologia de Bauru da Universidade de São Paulo (FOB-USP). Professora Associada do Departamento de Fonoaudiologia da FOB-USP.

***Licenciada em Letras Português / Inglês. Mestranda em Ciências da Reabilitação pelo Hospital de Reabilitação de Anomalias Craniofaciais de Bauru da USP.

****Fonoaudióloga. Doutora em Educação e Ciências Humanas pela Universidade Federal de São Carlos. Professora Doutora do Departamento de Fonoaudiologia da FOB-USP.

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Abstract
Background: interrelation of phonetics, phonology and auditory processing in English Language Teaching. Aim: to determine whether prior contact with English phonetics favors general learning of this language (L2), i.e. second language, in Portuguese speakers; to verify performance of these individuals in an auditory processing test prior to and after being taught L2. Method: participants of the study were eight college students who had only studied English in high school. These participants were divided into two groups: control group – were only enrolled in English classes; experimental group – were enrolled in English phonetic classes prior to their enrollment in English classes. Participants were submitted to an auditory processing test and to an oral test in English (Oral Test) prior to and after the classes. Data were analyzed in the same way, i.e. prior to and after the classes. Results: these were expressed statistically by T-Student's test. Analyses indicated no difference in performance between groups. Scores indicated better performance of the control group for answering questions in English in the Oral Test. The experimental group had better performance in the auditory processing test after being enrolled to English phonetic classes and English course. Conclusion: prior basic knowledge of English did not enhance general learning (improvement in pronunciation) of the second language, however, it improved the ability of temporal processing in the used test.
Key Words: Language; Phonetics; Auditory perception.

Resumo
Tema: inter-relação da fonética, fonologia e processamento auditivo no ensino da Língua Inglesa. Objetivos: verificar se o contato prévio com o sistema fonético da Língua Inglesa favorece o aprendizado geral desta língua em falantes do Português como segunda língua (L2), e verificar o desempenho dos participantes em um teste do processamento auditivo anterior e posterior ao ensino da L2. Método: participaram oito estudantes universitários que estudaram a Língua Inglesa somente no ensino médio, divididos em dois grupos: grupo controle - submetido apenas ao curso de Inglês - e grupo experimental - submetido à aulas de fonética da língua inglesa anteriores ao curso de Inglês. Os participantes foram submetidos ao teste de processamento auditivo e a um teste oral em inglês (Oral Test) antes e após as aulas. Foram analisados os dados dos testes anteriores e posteriores às aulas. Resultados: estes foram expressos estatisticamente por meio do teste t student e mostraram que não houve diferença nos testes entre os grupos. Os escores indicaram melhor atuação do grupo controle ao responder as perguntas em Inglês no Oral Test. Houve melhor execução do grupo experimental no processamento auditivo após ser submetido às aulas de fonética e ao curso de Inglês. Conclusão: o conhecimento prévio básico da língua inglesa não favoreceu o aprendizado geral (melhora na pronúncia) da segunda língua do grupo como um todo, mas melhorou a capacidade de processamento temporal no teste realizado.
Palavras-Chave: Linguagem; Fonética; Percepção Auditiva.

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Introduction

Language is a type of communication performed in many different ways differentiated by grammar rules and established according to the environment (2). Hence, second language acquisition consists in separating the linguistic aspects that compose a global grammar from all grammar aspects (1, 2, 3). Learning a second language (L2) may be delayed or enhanced by the characteristics of the first language (L1). Yet, L2 acquisition is keeping phonological, morphosynthatic and semantic variations at reasonable levels, though (2,4,5). When one is late exposed to L2 learning, they rarely acquire competences similar to L1 since basic linguistic structures are not completely acquired. However, if learning aims to obtain basic communication skills, it may Begin after childhood (2,5).

Auditory processing is benefited if the individual is proficient in two languages for its auditory perception contributes to the speech development and understanding. The effectiveness and speed of information processing is enhanced when one learns two languages, since it makes the recognition of the sound sequence standard easier. On the other hand, it may negatively affect the learner given that there are two different linguistic contexts which may lead them to processing errors (6,7).

Thus, this study aimed to examine whether previous contact with the English Phonetics favors general learning of English in Portuguese speakers with basic level of proficiency. In addition, it also aimed to assess the performance by an auditory processing test (Random Gap Detection Test) (16) before and after having L2 lessons.

Method

All procedures were approved by the Ethics in Research Committee of FOB-USP, protocol 39/2008.

Eight subjects, aged 18 to 22 years, college students, Portuguese speakers, with basic level of proficiency participated. Subjects were selected by a Placement Test (17). to assess their knowledge as exclusion criteria. The test contained 30 multiple choice questions and was elaborated by an English Teacher graduate in Languages bachelor in Arts. It was applied by the researcher and analyzed by both the researcher and the English teacher.

First, subjects were submitted to conventional auditory assessment to confirm normal hearing by the Random Gap Detection Test (16) to assess the temporal resolution skills and by an Oral Test to check their pronunciation and background knowledge of English Phonetics. Groups were equally divided into two: - control group (CG) and experimental group (EG).

GC had only 20 hours of English lessons which were divided into 4 hours/week for two months. GE had 10 lessons of Phonetics, two hours/week for one month and 20 hours of English lessons divided as in the CG. English lessons were taught separately, by the same person (researcher) and had the same content. It is important to point out that the researcher is proficient and fluent in English. At the end of the lessons, subjects were assessed by the auditory processing test and the Oral test to compare their performances.

The Oral Test was elaborated by the English teacher. It consisted of 20 sentences in English and 3 questions in Portuguese to be answered in English, which evaluated respectively the pronunciation and oral skills of each subject. Both of them analyzed the knowledge on a second language phonetics. The number of errors of each subject was considered as criteria. All Oral Tess were recorded in audio MD in two stages. All 16 recordings were analyzed and evaluated four times by the researcher.

The Random Gap Detection Test (RGDT) (16) enabled the assessment of the temporal resolution by the presentation of several pairs of pure tones with a time variation between two stimuli from 2 to 40ms, at 500Hz, 1kHz, 2kHz e 4kHz (11, 12). Temporal resolution is the minimum time required to segregate or solve acoustic events (8). Skill improvement was expected and, consequently a decrease of the time in milliseconds (ms) for a subject to notice the presence of two pure tones.

English lessons took place at the classroom block of the Speech Pathology and Audiology Department and the auditory processing test at the clinic Speech Pathology and Audiology of the School of Dentistry of Bauru (FOB-USP).

Results

Results were comparatively shown between the total score of alteration of both groups by the t student. The lower the score at the Oral Test and ms at the auditory processing, the better the group performance was. At the Oral Test, the higher was the score, the better the performance.

Table 1 shows that the CG had an average of -12, 00, whereas the EG had -9, 25 at the sentences of the Oral Test. Thus, The CG had a better

performance at the English pronunciation after the course. It is possible to state that the CG was better at answering the questions of the Oral Test. There was no significant difference ($p<0.05$) between groups, according to the t Student test.

According to the results of Table 2 the EG had higher scores at the auditory processing test after the English lessons. However, there was no significant difference ($p < 0, 05$).

Table 3 shows there was no improvement at the RGDT (15) with the performance of the English pronunciation, because the EG had a better performance at the auditory processing test but did not improve at the Oral Test, which examined the effectiveness of the studied language. The EG had lower scores at the Oral Test.

TABLE 1. Comparison of the average performance between Control Group (C) and experimental (GE) at the *Oral Test*.

Variable/Group	Control Group		Experimental Group		
	n	Average	n	Average	Value of p (0,05)
Sentences	4	-12,00	4	-9,25	0,596598
Question 1	4	14,25	4	10,25	0,348233
Question 2	4	13,25	4	11,50	0,580491
Question 3	4	14,25	4	13,50	0,882069

TABLE 2. Comparison of the average performance between the control group (CG) and experimental (EG) at the *Random Gap Detection Test*.

Variable/Group	Control Group		Experimental Group		
	n	Average	n	Average	Value of (0,05)
Auditory Processing	4	-4,75	4	-7,00	0,69579

TABLE 3. Comparison of the average performance between the control group (CG) and experimental (EG)at the auditory processing test with the English pronunciation by the *Oral Test*.

Group/Variable	Sentences	Question 1	Question 2	Question 3	*RGDT*
Control Group	-12	14,25	13,25	14,25	-4,75
Experimental Group	-9,25	10,25	11,5	13,5	-7,00

Discussion

The CG had a better performance at the Oral Test, showing more knowledge on pronunciation and conversation which allows to suggest that this group has taken more advantage of the language, using better resources such as the work memory, to achieve these results. When one is able to preserve, to process and store the content of the studied language, they are keen to reading comprehension of a passage in a target language. (1).

A second language is learned when there is the ability of modeling communication strategies and keeping the linguistic variations at acceptable limits and used to transmit ideas and messages in natural forms of communication independently of the previous contact f the phonemes in English (5). The CG utilized better resources and strategies appropriate to enhance their performance at the Oral Test.

The L2 learner is not always as proficient as in L1 since they do not completely acquire the basic linguistic structures, producing incorrect and incomplete forms of the language (5). The EG did not have enough linguistic structures to obtain better results at the Oral Test when compared to CG. It is relevant to state that this study had short time to improve phonetic content which may be a significant variable. According to the linguistic experience, there are several neurophysiologic processes to phonological and phonetic perception (9, 10).

Although the EG had previous contact with English, it has not favored the language learning. Nevertheless, it is not confirmed by literature which states that lessons on the phonetic and phonological systems are important to the effective learning of a target language (4). Being proficient in a language is to establish a system of rules that enables to relate sound and sense to infinite sentences (1, 2). Therefore, the phonetic system lessons were not fundamental for a better performance on the studied language.

However, both groups improved at the Oral Test suggesting that for the EG the Phonetic lessons enhanced their performance given the several advantages of the pronunciation learning such as: functional intelligibility, functional communication, self-confidence, development of the speech monitoring skills and modification strategies in day by day speech. Pronunciation teaching does not aim to make the learner sound like a native. Cognitive involvement is needed to accomplish the adequate language acquisition on the synthagmatic, vocabulary and phonetic-phonological aspects. Learning a second language promotes thought flexibility, better cognitive and auditory processing and work memory. When L2 structures are easily accessed and frequently used, the learner achieves a proficiency and fluency level. (2,11).

Phonetic lessons improved the temporal resolution ability in both groups. Hearing development may be benefited by the proficiency in two languages since the language acquisition and development is done by hearing, allowing people to share their ideas, information, feelings and thoughts (8, 9).

Auditory perception of the speech is enhanced by the increase of acoustic experiences and the learning of phonological rules from the studied language. Auditory processing is responsible for processing phonemes, obtaining neural organization to learn from the environment (11,12,13).

The hearing experience of a second language makes the recognition of the sound frequency standard easier. Although the lessons on the Phonetic system resulted in a better performance of the EG at the auditory processing test, the temporal resolution did not do the same for the Oral Test. The hearing experience of L2 may negatively affect for there are two different linguistic contexts which may lead to processing errors (7). Hence, it is possible to state that the EG may have made mistakes for being exposed to more content.

Results do not corroborate with literature, which emphasizes the importance of the temporal processing at the phoneme identification in speech contexts. Temporal resolution is the ability to detect fast and sudden changes at the sound stimuli to differentiate two acoustic stimuli. This differentiation is essential to the oral and reading comprehension (1,11,12,13).

A study (14) aiming to examine the association between the auditory processing and self-perception of teenagers/young adults registered at an English school program indicated the performance was affected in all age ranges. Data indicate that subjects succeeded at the RGTD (16),that is, after learning a second language they had better outcomes at the temporal resolution ability.

This study corroborates with the literature (11), which indicates that there were not found any effects of the Japanese knowledge at the temporal ability when compared to speakers of Brazilian Portuguese. Nevertheless, the study used the Test GAP in Noise (GIN).

It is important to consider, as qualitative data, that the words ended in /z/, /s/, /t/, /d/ and /th/ were pronounced incorrectly because they had the vowel i (semivowel /y/) at the end of words. Phonemes /t/ and /d/ were pronounced as affricate (/tch/ or /dch/). Another common mistake was the pronunciation of the phoneme /e/ at the end of words. This phoneme is not pronounced in English when in the end, as a voiceless sound. It indicates phonetic-phonological confusion between both languages by the subjects. It is common at the L2 learning process since it is affected by the L1 because when there is basis and development of the L1, the L2 acquisition is reinforced which may cause positive or negative consequences (5).Subjects may have performed the interlanguage, which refers to a system of bilingual production that is not equivalent to L1 neither L2 (3).It occurs due to lack of basic

elements in a language although present in the other one which leads to mental confusion (5).

The phonetic-phonological confusion occurs since both languages are activated during the reading of the words in L2. The more experience the L2 learner has, the more sensitive they are to phonological system (12,13).

Classroom experiences are also important to the target language learning. Activities are interpreted and affected by different expectations of the learners, which are influenced by their beliefs and previous expectations of the learners which are led to do several activities and create various relationships in class, affecting the learning process (15). This study states the results since other qualitative data point out the relationship among the subjects as relevant. In the control group the relationship and the interaction among subjects was more successful.

The bilingual brain must not be seen as a sum of a two-language system, but as a single and complex system that may differentiate depending on the person (12).

Conclusion

English phonetic lessons, before and after the (formal) English lessons have not favored the English language learning. However, they enhance the ability of the temporal processing of the subjects. Higher scores at the auditory processing assessment were not related to the performance of English pronunciation. It is important to state that the reduced number of the sample may have affected the results, therefore, further studies with a bigger sample are considered. This study points out the area as a new field for research in Speech Pathology and Audiology.

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