

PRONUNCIATION INTELLIGIBILITY: A STUDY WITH TWO GROUPS OF EFL BRAZILIAN LEARNERS

Neide Cesar Cruz
Universidade Federal de Campina Grande

1 INTRODUCTION

Discussions concerning pronunciation intelligibility have been included in the literature for decades (Catford, 1950; Abercrombie, 1956; Smith & Nelson, 1985; Kenworthy, 1987; Jenner, 1996; Bamgbose, 1998; Jenkins, 2000, Field, 2003). One of the aspects highlighted by the discussions refers to the reasons which led to the conclusion that learners should have as their target an intelligible pronunciation, instead of an accent which resembles that of a native speaker. Field (2003) mentions three reasons: (1) only a few students are likely to achieve a native-like accent; (2) learners may want to speak with a foreign accent in order “to retain a sense of their own personal and national identity” (p. 34); and (3) it is unrealistic to expect that non-native teachers acquire a native-like accent, since many of them do not have the chance to acquire it. Despite the importance given to an intelligible pronunciation opposed to a native-like performance, little work involving Brazilian learners of English has been conducted in order to find the pronunciation features which are likely to hinder the intelligibility of their speech. As an attempt to diminish this discrepancy, I develop a research project which investigates the pronunciation intelligibility of Brazilian learners’ English.

The project comprises three studies, each one investigating the features of mispronunciation in the speech of Brazilian learners of English which affect their intelligibility to different groups of listeners. The first study involves British listeners living in Birmingham, England, unfamiliar with the way Brazilians pronounce English words (Cruz, 2006). The second study includes British and American listeners, living in Brazil, familiar with the way Brazilians pronounce English words. The third, which is the study reported in this article, investigates which features of mispronunciation in the speech of Brazilian learners of English living in the south of Brazil affect their intelligibility to a group of Brazilian undergraduate students majoring in English living in the northeast of Brazil.

2 METHOD

2.1 DATA COLLECTION

Two types of data were collected with two groups of participants. The first group comprises 10 Brazilian learners enrolled in the Extracurricular courses¹ at UFSC (Federal University of Santa Catarina), who were interviewed one at a time by an Englishman. The learners' proficiency levels ranged from level 5 (corresponding to the intermediate level) to level 8 (equivalent to the upper intermediate level), and their ages ranged from 18 to 24. None of them had visited an English speaking country, either for study purposes or on holiday. Thus, their knowledge of the English language and their pronunciation were acquired entirely in Brazil.

Thirty samples containing features of mispronunciation were selected from the learners' speech and presented to the second group of participants, 12 Brazilian undergraduate students majoring in English, at a university in a state in the northeast of Brazil. The listeners' ages ranged from 21 to 26, and their proficiency levels ranged from level 6 (corresponding to the upper intermediate level), to level 7 (corresponding to the advanced level). Six of them worked as teachers in private schools, and four worked in state schools. One only had visited an English speaking country for study purposes, specifically the United States, for four months.

The listeners were asked to listen to the samples once, as intelligibility is regarded here as being the first impression, and carry out two tasks: (1) to rate the samples on a 6-point scale: 1 = impossible to understand; and 6 = very easy to understand; and (2) to write the samples down. The listening sessions were individual, and the samples were played to the listeners on a CD player accompanied by two speakers. The researcher controlled the CD player and observed the twelve listeners as they performed their tasks. After the tasks, the listeners were asked to explain, if possible, how they had been able to recognise the words they had written down. This question was asked as an attempt to find the probable factors which might have influenced their writing of the samples. The listeners' answers were recorded.

2.2 FEATURES OF MISPRONUNCIATION

In order to identify the features of mispronunciation in the speech of the Brazilian learners, I adopted as a guideline the phonemes of English which are regarded as being difficult for Brazilian learners to pronounce, and the sound types these learners produce due to these difficulties. They are identified in four studies - Mascherpe (1970), Lessa (1985), Lieff & Nunes (1993) and Baptista (2001). Thus, the pronunciation of all

¹ Extracurricular courses are open access language courses offered by UFSC. Each English level course lasts one semester, and includes three hours per week.

the participants shared closely similar features: they spoke a prototypically Brazilian English. The features of mispronunciation were divided into five groups:

- (1) misplaced word stress, as in *vegetables* [æ≡Z∇τειβουσ], stressed on the second syllable;
- (2) inappropriate consonants, as in *think* [ϕ ικ], where the dental fricative /θ/ was replaced by the labio-dental [ϕ] and the velar nasal /ŋ/ omitted, causing the nasalization of the preceding vowel [ι~];
- (3) inappropriate vowels, as in *sit* [σιτ] produced with the front vowel [ι] instead of /i:/;
- (4) vowel insertion, where *walk* [ωουκι] shows vowel insertion after the velar plosive /k/; and
- (5) spelling pronunciation², where the spelling < l >, corresponding to a mute consonant letter, was pronounced as [υ] in the word *talk* [τϕ̄ουκι].

The thirty samples analysed are presented in the Appendix.

3 INTELLIGIBILITY

Two aspects regarding intelligibility need to be considered: (1) the concept of intelligibility adopted in this study; and (2) the variables involved in the measurement of intelligibility.

3.1 CONCEPT OF INTELLIGIBILITY

A variety of definitions for intelligibility have been proposed. I follow the concept suggested by Smith & Nelson (1985): “recognition of words and utterances” (p. 334). Factors related to discourse and pragmatics, found in comprehensibility and interpretability, are not included here. Their inclusion would demand a methodology different from the one I adopted.

3.2 VARIABLES INVOLVED IN INTELLIGIBILITY

Intelligibility is extremely complex to measure, owing to the many variables which contribute to facilitating or impeding intelligibility (Field, 2003). Variables related to both the learners and the listeners are considered here.

Two learner variables are identified: grammatical errors (Tomyiama, 1980), and errors at the level of lexis (Wang, 1987). Since these errors are likely to affect speakers and students’ communication with native speakers, there was an attempt to eliminate grammatical and lexical errors from the learner data of the present research.

² Spelling pronunciation refers to a pronunciation which is based on the spelling of a word without regard to its historical or traditional pronunciation.

The listener variable considered here refers to the listener familiarity with a particular accent (Gass & Varonis, 1984; Smith & Bisazza, 1982; Dewing & Munro, 1997; Field, 2003). This variable is considered here, since the listeners, as with the speakers, are all Brazilian learners of English, and reported having had the habit of speaking in English with other Brazilians.

4 ANALYSIS AND RESULTS

The data was analysed at both, quantitative and qualitative levels.

4.1 QUANTITATIVE

4.1.1 Interrater reliability

The interrater reliability was measured by using Pearson Correlation. All of the correlations were positive. The maximum coefficient value was $r = 0.86$, and the minimum was $r = 0.33$. These numbers show, thus, that the correlations are found to be high.

4.1.2 Features of mispronunciation and ratings

As an attempt to achieve the objective of this study, the correlation coefficient between the total number of features of mispronunciation in the five categories - (1) misplaced word stress; (2) inappropriate consonants; (3) inappropriate vowels; (4) vowel insertion; and (5) spelling pronunciation - and the listeners' ratings were calculated to investigate a possible relationship between these two variables. The overall number of features of mispronunciation in each of the five categories is presented here in descending order: (1) inappropriate vowels = 115; (2) inappropriate consonants = 66; (3) spelling pronunciation = 21; (4) vowel insertion = 12; and (5) misplaced word stress = 7. These values were organised in different intervals or breaks, each including varying numbers of features of mispronunciation³. The aim of the statistical procedure was to find the effect, on the ratings, of the features of mispronunciation grouped in intervals. This is obtained by comparing the ratings of the intervals in the 5 categories. ANOVA was applied. ANOVA calculates the mean of the ratings in each interval, and determines the contrast existing among them. Out of the five categories, one was significant: misplaced word stress ($F = 5.885$; $p < 0.01$). Misplaced word stress was, thus, the only feature of mispronunciation which had a high rate of significance. The remaining four categories - inappropriate vowels, inappropriate consonants, spelling pronunciation and vowel insertion - were not found to be statistically significant.

³ The intervals for each category were calculated on the basis of the variability of the frequency of features of mispronunciation in the samples.

4.2 QUALITATIVE

The aim of the qualitative analysis was to find how the listeners had written the words containing features of mispronunciation, and the possible factors which might have influenced their transcriptions. Results concerning misplaced word stress, the category which was statistically significant, are presented first. Then, results related to one of the categories not found to be statistically significant, inappropriate consonants, are shown.

4.2.1 MISPLACED WORD STRESS

Most of the transcriptions show that the specific words containing misplaced word stress is either missing or written differently from the participants' intended words. This supplements the statistical significance obtained for misplaced word stress in the application of ANOVA, as shown in the quantitative results. Examples of words written differently and misunderstood are shown here.

(1) In the sample “hamburger that’s my my sin”, [ɨE^l~βυγεηεΔΕτσμαιμισΙν], *hamburger*, which has stress on the second syllable instead of on the first, was misunderstood in several ways: “Book, that’s my sin”; “A handbook that’s my my sin”; “handball that’s my sin”; “redbull, that’s my sin”.

The listener who wrote “redbull that’s my sin” was asked the meaning of such a word by the researcher. She said that, as she had understood *my sin*, she thought of *redbull*, which is the name of a drink. This listener’s comment indicates the probable influence of the linguistic context. Since she had understood “that’s my sin”, she associated these words with a drink, and decided to write an invented word. The first sound of *hamburger* might not have given her a clue, as she wrote a word beginning with the phoneme /r/: “redbull”.

One listener only, listener 5, was able to transcribe *hamburger* accurately. The comment she provided explains the reason which helped her to understand:

Listener 5: “soou mais parecido com hamburger. não pensei em outra palavra. coloquei hamburger, e qdo entendi sin, liguei uma palavra a outra ... e aí como é comida, ...mas eu deduzi”

Listener 5 provides an explanation of how she was able to guess *hamburger* by exploiting the linguistic context, since she linked the word she was able to understand – *sin* – to food. This association, consequently, helped her to compensate for the inappropriate pronunciation of *hamburger*. According to her comment, as the speaker

had said ‘*sin*’, the first word would be *hamburger*. The influence of the linguistic context, facilitating the recognition of such a word by listener 5, enables me to posit that the linguistic context helps the comprehension of words which are pronounced incorrectly.

(2) “Meat eh fish vegetables”, produced as [μιτE:φιΣω≡Z∇τειβουσ], *vegetables*, which has stress on the second instead of on the first syllable, was perceived in various ways: “I need to finish the tables” “I eat fish at the tables”; “We do ... on the tables”.

Although the word *vegetables* was misunderstood by a few listeners, three of them, listeners 3, 5 and 6, wrote *vegetables* correctly, and provided the following explanations:

Listener 3: “*eu conheço esse tipo de desvio*”

Listener 5: “*eu já ouvi muito vege'table [ω≡Z∇τειβου]*”

Listener 6: “*meus próprios alunos cometem esse tipo de erro. e eu tenho q corrigir*”

As can be seen, the listeners’ comments show that their familiarity with the Brazilian accent helped them to understand *vegetables* correctly, in the sense that they recognized this particular feature of mispronunciation, misplaced word stress, in such a word. This familiarity reinforces the argument that familiarity with a particular accent facilitates comprehension (Gass & Varonis, 1984; Smith & Bisazza, 1982; Dewing & Munro, 1997; Field, 2003), (see item 3.2), as the listeners who took part in this study are all Brazilian learners of English, and, obviously, familiar with the way Brazilians pronounce English words.

It is possible to establish a relationship between the scores marked on the 6-point scale and the samples transcribed accurately. The 5 listeners who wrote Sample 7, “Meat eh fish vegetables”, [μιτE:φιΣω≡Z∇τειβουσ], correctly marked low scores on the 6-point scale: between 1 and 3. One of the listeners even asked me to confirm whether the participant had meant what she had written. The low scores marked by these listeners indicate empirically that they rated the samples as moderate, difficult or impossible to understand even when able to transcribe them accurately. Listener 3 explained why she marked low score for sample 7:

Listener 3: “*porque não foi tão fácil de entender, ... eh ... não sei eu precisei parar pra pensar um pouquinho ... pra: mesmo sabendo q brasileiros cometem esse tipo de desvio ... não sei o q acontece no cérebro mas mas ... é como se houvesse uma falha. tem q pensar segundos a mais, digamos assim, pra compreender*”

Although Listener 3 wrote sample 7 correctly, she admits her effort to understand it. This shows that the listeners' correct recognition of words was not easily made.

The finding above, consequently, leads to two intelligibility issues. First, that difficulty in understanding a sample, which is revealed on the 6-point scale, does not necessarily mean impossibility of recognising the words correctly. A word containing either misplaced word stress or vowel insertion, for instance, can be rated as difficult to understand, but still recognisable. Second, that there is likely to be a lack of relationship between the two tasks the listeners were asked to carry out. An either low or high score marked for a given sample, does not reveal how correctly this sample is transcribed.

4.2.2 INAPPROPRIATE CONSONANTS

Although the category 'inappropriate consonants' was not found to be statistically significant, a few words containing this feature of mispronunciation were not understood correctly. The example shown here refers to the substitution of the dental fricative /θ/ by either /t/ or /f/.

In sample 12, "I had three dogs and the first"

[αιηι{δτ≤ιδΟγζ≡νδεφ≡ στ}] and in sample 15, "She's I think near thirty years old"

[Σισαιτ□ι ~νι≡ ∇τ3 τιφI≡ ζουδ], the voiceless dental fricative in *three*, *think* and *thirty* was produced as the plosive /t/; whereas in sample 3, "I think it's expensive"

[αιφι ~κσΕκ∇σπε~σIϖι], /θ/ in *think* was replaced by the labio-dental /f/. The words *three* [τ≤ι], *think* [τ□ι ~] and *thirty* [∇τ3 τι] were understood correctly by all of the listeners. However, the word [φι ~κ] was misunderstood by 8 listeners. Seven of them left the space blank, such as in the transcriptions "expensive" and "it's expensive". One only wrote "I feel it's expensive", showing that the production of the fricative in word initial position in *think* [φι ~κ] served as a phonetic clue. Considering such a qualitative result, it is possible to interpret, although the evidence is limited, that the substitution of the dental fricative /θ/, by the labio-dental /f/, is likely to affect Brazilian learners' intelligibility to a group of Brazilian listeners, learners of English, while the replacement of the dental fricative by the plosive /t/ is not.

None of the listeners was able to explain why they had misunderstood *think* [φι ~κ]. They only explained that the words produced with /t/ instead of /θ/ were

recognised and written without difficulty, as shown in the comment provided by listener 12:

Listener 12: “Com t como thirty [∇τ3 τ], foram as palavras q tive mais certeza”

5 FINAL CONSIDERATIONS

The results of the quantitative analysis of this study show that one feature of mispronunciation in the speech of Brazilian learners of English living in the south of Brazil affected their intelligibility to a group of Brazilian undergraduate students majoring in English living in the northeast of Brazil. Such a feature is misplaced word stress. The qualitative analysis supports these results, and particularizes, through the examples presented here, words containing misplaced stress which were interpreted as influencing the listeners' recognition. Thus, on the basis of these findings, it is suggested that misplaced word stress, which hindered the learners' intelligibility even to other Brazilians learners of English, should be pointed out in pronunciation teaching for Brazilians.

6 REFERÊNCIAS BIBLIOGRÁFICAS

ABERCROMBIE, D. *Problems and principles in language study*. London, Longman, 1956.

BAMGBOSE, A. Torn between the norms: innovations in world Englishes. *World Englishes*, v. 17, n. 1, 1998.

BAPTISTA, B. Frequent pronunciation errors of Brazilian learners of English. In: FORTKAMP, M. & XAVIER, R. *EFL teaching and learning in Brazil: Theory and Practice*. Florianópolis: Insular, 2001 .

CATFORD, J. Intelligibility. *English Language Teaching Journal*, 1, 1, 1950. pp. 7-15.

COOL EDIT [Computer Software]. USA: Syntrium Corporation, 2000.

CRUZ, N. C. Pronunciation intelligibility in spontaneous speech of Brazilian learners' English. *Claritas*, São Paulo, 12, 1, 2006. pp. 121-138.

DERWING, T. M. & MUNRO, M. J. Accent, intelligibility, and comprehensibility. *Studies in Second Language Acquisition*, 19, 1997. pp. 1-16.

FIELD, J. The fuzzy notion of 'intelligibility': A headache for pronunciation teachers and oral testers. *IATEFL Special Interest Groups Newsletter*, Special issue, 2003. pp. 35-38.

GASS, S. & VARONIS, M. The effect of familiarity on the comprehensibility of nonnative speech. *Language Learning*, 34, 1, 1984. pp. 65-89.

JENKINS, J. *Phonology of English as an international language: New models, new norms, new goals*. Oxford: Oxford University Press, 2000.

JENNER, B. Teaching pronunciation: The common core. *Speak out! Newsletter of the IATEFL Pronunciation SIG*, 4, 1989. pp. 2-4.

KENWORTHY, J. *Teaching English pronunciation*. London: Longman, 1987.

LESSA, A. B. C. T. A ortografia como um fator de interferência da pronúncia do Inglês como língua estrangeira. Unpublished master's thesis, PUC-SP, São Paulo, 1985.

LIEFF, C. & NUNES, Z. English pronunciation and the Brazilian learner: How to cope with language transfer. *Speak Out! Newsletter of the IATEFL Pronunciation SIG*, v. 12, 1993. pp. 22-27.

MASCHERPE, M. *Análise comparativa dos sistemas fonológicos do Inglês e do Português*. São Paulo, Empresa Gráfica da Revista dos Tribunais S.A., 1970.

SMITH, L. & BISAZZA, J. The comprehensibility of three varieties of English for college students in seven countries. *Language Learning*, 32, 2, 1982. pp. 259-269.

SMITH, L. & NELSON, C. International intelligibility of English: directions and resources. *World Englishes*, v. 4, n. 3, 1985. pp. 333-342.

TOMYIAMA, M. Grammatical errors and communication breakdown. *TESOL Quarterly*, v. 14, n. 1, 1980.

WANG, Y. The intelligibility of Malaysian English: a study of some features of spoken English produced by University students in Malaysia. Unpublished doctoral dissertation, London: University of London, 1987.

ANEXO

AMOSTRA 1

You talk about food all day

[φυτ̄ ≠ Ουκι ≡ ∇βαυτφυδ̄ ≠ Ουδει]

AMOSTRA 2

It's a good place to live in

[ιτσαγυδπ̄ λειστυλιω]

AMOSTRA 3

I think it's expensive

[αιφι ~κσΕκ∇σπε~σΙωι]

AMOSTRA 4

I say sometimes that I I'm don't have culture

[αισεισ̄ ≡ μ∇ταιιμζΕταιιαιμ:δΟ~υ~ηΕω∇κ̄ φυτΣ̄ ≡]

AMOSTRA 5

In the evenings I I walk

[ι~δι∇ιω̄ ≡ νιΝσαιαιωΟυκ¹]

AMOSTRA 6

My sister came to live with me. I had to learn how to live with her

[μαι∇σιιστ̄ ≡ κ̄ειμτυλιω̄ ΙτμιαηΕδτυλ³ νηαυτυλιω̄ ιτη³]

AMOSTRA 7

Meat eh fish vegetables

[μιτΕ:φιΣω̄ ≡ Ζ∇τειβουσ]

AMOSTRA 8

To play volleyball basket at university

[τ̄ ≡ π̄ λει∇ωολιβου∇βασκΕτ̄ ≡ Ετ∇φου:νιω̄ ≡ σιτι]

AMOSTRA 9

I'm on the third semester

[αιμΟνδ³:ΤΕ≤σε∇μΕστ̄ ≡]

AMOSTRA 10

The good programs are in the cable TV the others are are in the public TV

[δεγυδ∇π̄ ≤ Ογ≤αμζα≤ι ~δεε∇κ̄ ειβουτι∇πιιδι∇ΟΔ̄ ≡ α≤α≤ι ~δε∇π̄ οβλικτι∇πι]

AMOSTRA 11

You have to walk

[φυηΕω̄ τυωΟυκ]

AMOSTRA 12

I has three dogs and the first

[αιη{δτ≤ιδΟγζ≅νδεφ≅ στ }]

AMOSTRA 13

We we learn about the other culture

[ωιωιλ3 ν≅βαυτιδ≅ε∇ζδ≅≅ ∇κ φυτ≅]

AMOSTRA 14

It's very interesting

[ιτσ∇ωE≤ι ι~ ∇τE≤≅στι ~κ]

AMOSTRA 15

She's I think near thirty years old

[Σισαιτ□ι ~νι≅ ∇τ3 τιφI≅ ζουδ]

AMOSTRA 16

Introduction to automation engineering

[Ivτ≤∇δυκΣν=τυ:Οτ≅∇μειΣν=ενδZι∇νι≅≤ ι~]

AMOSTRA 17

It's not bringing a lot of culture to people

[ιτσνΘτ∇β≤ ι~γ ι ~αλO≤Oφ∇κ φυτΣ≅ τ≅∇π ιπου]

AMOSTRA 18

Hamburger that's my my sin

[ηE∇~βυγεηεΔEτσμαιμαισIν]

AMOSTRA 19

Just sit and talk with my friends

[δZζστ≅σιτEντ OκωIφ≤ε~σ]

AMOSTRA 20

eh we don't have time to read

[EωιδO~υ~τη { ττ≅ αιμτυ≤ιδι }]

AMOSTRA 21

They said that I'm eh very old to live with my parents

[δεισEδδ≅Eτ≅αιμE: ωE≤ιουδτυλιτωιδμαι∇π E≤≅~τσ]

AMOSTRA 22

You need to talk with someone

[φυνιδτ≅τ Oυκωιφ∇σζμωα~]

AMOSTRA 23

It's the the biggest channel

[Iτσδ≅εδ≅ι∇βιγIστκ∇τΣEνς5]

AMOSTRA 24

A great production of agriculture

[αγ≤ειτ≅π≤≅∇δυΣ≅νOωα∇γ≤ικO5τΣ≅]

AMOSTRA 25

If you don't have cable TV it's terrible

[ιφφυδO~υ~ηEω∇κ ειβουτι∇πι:ιτσ∇τ□E≤ιβου]

AMOSTRA 26

Fish I like a lot

[φιΣαιλαιικ≅λΘτ]

AMOSTRA 27

In Italy the the Roman culture

[ιν∇ιτ≅λιιδ≅:δε:∇≤ουμ≅ν∇κ φυτΣ≅]

AMOSTRA 28

The the winter is terific

[$\delta\epsilon\delta\cong\forall\omega\iota\nu\tau\cong\bar{\iota}\sigma\forall\tau\bar{E}\leq\iota\phi\cong\kappa\iota$]

AMOSTRA 29

Everything is easy

[$\forall E\omega\leq\iota\tau\iota N\gamma\iota\zeta\forall\iota:\zeta\iota$]

AMOSTRA 30

I think it's the the smallest eh capital in Brazil

[$\alpha\iota\tau\iota N\kappa\iota\tau\sigma\Delta\epsilon\delta\cong\forall\zeta\mu O\lambda\cong\sigma\tau E\forall\kappa\Box E\pi\iota\tau O5\iota\nu\beta\leq\cong\forall\zeta\iota\upsilon$]