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**INTELLIGIBILITY OF ENGLISH VERBS ENDING IN *-ed* FOR  
BRAZILIAN LEARNERS OF ENGLISH AS LISTENERS**

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Fernanda Delatorre

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Esta tese foi julgada adequada para obtenção do Título de “Doutora em Estudos da Linguagem” e aprovada em sua forma final pelo Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários.

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To my parents, Leonel and Maria, my sisters  
Patrícia and Alice, my brothers-in-law, Rogério and  
Rodrigo, and, especially, to my nephew, Antônio,  
with love and gratitude.





“A second reason for a primary focus on L2 pronunciation is that it is impossible to examine L2 speech without explicitly recognizing the contribution of pronunciation to communicative success” (Levis, 2015, p. 4)



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## RESUMO

Este estudo investigou a inteligibilidade dos verbos regulares do inglês para 14 ouvintes brasileiros que tiveram que transcrever ortograficamente as sentenças nas quais os verbos estavam inseridos nos dois testes de inteligibilidade administrados num intervalo de quatro meses. Os verbos foram produzidos por oito falantes, sendo dois falantes de PB, dois de Espanhol, dois de Alemão e dois de Inglês, os quais leram e gravaram em áudio 96 sentenças contendo um verbo no passado em cada uma delas e incluindo 72 sentenças com verbos regulares e 24 com verbos irregulares. Os 14 ouvintes brasileiros ouviram 32 sentenças no primeiro teste e 32 sentenças no segundo teste de inteligibilidade, incluindo 24 verbos regulares e 8 verbos irregulares, todos no passado simples, em cada teste. Os oito falantes, assim como os 14 ouvintes e responderam ao questionário do seu respectivo grupo a fim de levantar informações sobre seus perfis educacionais e como eles tem aprendido, ensinado usado ou lidado com o inglês na escola/universidade ou no trabalho. Os quatro professores dos grupos de ouvintes que participaram do estudo também responderam ao questionário. Os resultados do presente estudo indicaram que a porcentagem de verbos inteligíveis em ambos os testes foi inferior a porcentagem de palavras inteligíveis encontrada em estudos anteriores conduzidos com ouvintes brasileiros enquanto que resultados para quebras de comunicação foram superiores no presente estudo quando comparados aos resultados de estudos anteriores e inteligibilidade das outras formas verbais foi menor em ambos os testes. Além disso, os resultados do presente estudo também demonstraram que inteligibilidade correlacionou com a familiaridade dos ouvintes com os verbos testados, com sua proficiência e experiência com o inglês em ambos os testes; que os ouvintes brasileiros tiveram mais dificuldade de transcrever ortograficamente verbos produzidos por falantes nativos do inglês do que verbos produzidos por falantes não-nativos em ambos os testes de inteligibilidade, mais dificuldades de transcrever verbos produzidos por falantes de alemão, como L1, seguindo por verbos produzidos por falantes de espanhol como L1 e menos dificuldade em transcrever verbos produzidos por falantes de PB como L1, demonstrando que houve um efeito da L1 do falante na inteligibilidade dos verbos terminados em *-ed*.

Resultados do presente estudo também demonstraram que o alomorfe do verbo não pareceu influenciar a inteligibilidade dos verbos. Como os dados do presente estudo foram coletados em dois diferentes momentos, os resultados demonstram que houve variação entre os ouvintes no mesmo teste de inteligibilidade e entre os resultados dos dois testes de inteligibilidade, como proposto pela Teoria dos Sistemas Dinâmicos. Estes dados também demonstraram que os ouvintes brasileiros não puderam identificar um modelo na produção dos verbos terminados em *-ed* e que o ensino de pronúncia deve ser levando em consideração na sala de aula e que os professores deveriam incentivar seus alunos a ouvirem inglês produzido por seus falantes com diferentes L1s a fim de facilitar o ouvir e o entendimento e evitar problemas de comunicação.

**Palavras-chave:** verbos regulares no passado simples, ouvintes brasileiros, inteligibilidade, comunicação, ensino de pronúncia, variação, estudo longitudinal.

## ABSTRACT

This study investigated the intelligibility of regular verbs in the simple past tense for 14 Brazilian listeners who had to orthographically transcribe the sentences in which the verbs were inserted in the two intelligibility tests administered in a four month interval. The target verbs were produced by eight talkers, two native speakers of BP, two of Spanish, two of German and two of English who read aloud and audio-recorded 96 sentences containing one verb in the simple past tense in each of them and including 72 sentences with regular verbs and 24 sentences with irregular verbs, which were the distractors in this study. The 14 Brazilian listeners listened to 32 sentences in the first and other 32 sentences in the second intelligibility test, including 24 regular verbs and 8 irregular verbs in the simple past tense in each test. The eight talkers, as well as the 14 listeners and answered their own group profile questionnaires in order to gather information about their education background, how they have learned and/or taught English, used it or dealt with it at school/university or at work. Four listeners' teachers also answered their profile questionnaire. Results of the present study indicated that the rates for intelligible verbs in both tests were lower than the intelligibility rates found in previous studies with Brazilian listeners whereas the results for breakdowns were higher and the other verb forms was low in both tests. In addition, results of the present study also demonstrated that intelligibility correlated with listeners' verb-familiarity, language proficiency and language experience, that Brazilian listeners had more difficulty in orthographically transcribing verbs produced by English talkers than verbs produced by non-English talkers and, among the English non-native speakers, by German, followed by Spanish and then less difficulty with verbs produced by Brazilians talkers, demonstrating that there was talkers' L1 effect on the intelligibility of verbs ending in *-ed* in both intelligibility tests. Finally, results of the present study also demonstrated that verb allomorph did not seem to affect intelligibility of verbs. As this study had data gathered in two different moments, results demonstrated that there was variation in the results among the listeners and between the two moments of data collection, as proposed by the Dynamic System Theory. These data demonstrated that Brazilian listeners could not identify a prototype in talkers' productions

of verbs ending in *-ed* and that pronunciation teaching must be taken into account in class and that teachers could incentive students to listen to English produced by its speakers with different L1 backgrounds in order to facilitate listening and understanding and avoid communication problems.

**Keywords:** regular verbs in the simple past tense, Brazilian listeners, intelligibility, communication, pronunciation teaching, variation, longitudinal study.



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## LIST OF ABBREVIATIONS

BP: Brazilian Portuguese  
BPT: Brazilian Portuguese talker  
CC: consonant-consonant (two-member consonant)  
CCC: consonant-consonant-consonant (three-member-consonant)  
CEFR: Common European Framework of Reference for Language  
CG: Control group  
COCA: Corpus of Contemporary American English  
CVC: consonant-vowel-consonant  
DST: Dynamic System Theory  
EFL: English as a foreign language  
EIL: English as an international language  
ELF: English as lingua franca  
EP: European Portuguese  
ESC: English speaking country  
ET: English talker  
FL: foreign language  
FONAPLI: Laboratório de Fonética Aplicada  
GA: General American  
GT: German talker  
H: hypothesis  
IL: interlanguage  
IPA: International Phonetic Alphabet  
ISIB: Interlanguage speech intelligibility benefit  
L: listener  
LFC: Lingua Franca Core  
LOR: Length of residence  
L1: first language  
L2: second language  
NNS: non-native speaker  
NNT: non-native talker  
NS: native speaker  
OPT: Oxford Placement Test  
PCNs: Parâmetros Curriculares Nacionais  
PPGI: Programa de Pós-Graduação em Inglês

RQ: research question  
SLA: second language acquisition  
ST: Spanish talker  
T: Teacher  
TG: Training group  
TIG: Training instruction group  
UFRGS: Universidade Federal do Rio Grande do Sul  
UFSC: Universidade Federal de Santa Catarina  
UK: United Kingdom  
SPSS: Statistical Package for Social Sciences  
USA: United States of America  
VOT: Voice-onset-time



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## CHAPTER 1. INTRODUCTION

Levis (2015) affirmed that “Interest in second language (L2) pronunciation has never disappeared” (p. 1). However, the author pointed out that the pronunciation field has been neglected since the early seventies with the advent of the communicative approach, and that there has been a lack of institutional support to conduct studies and to form more researchers in the area. The author also mentioned a lack of professional identity for language students and researchers in this field. In addition, Levis (2015) observed that pronunciation has received little attention since little research and publications in L2 pronunciation were done, few conferences on L2 pronunciation occurred, and few books on teaching or pedagogy, where pronunciation was included, were published from the 1970s up to the end of the first 21<sup>st</sup> century decade. Nevertheless, Levis (2015) and Munro and Derwing (2015a) highlights that, despite these difficulties, there were professionals interested in L2 pronunciation, conferences and publication of some journal issues in the field specially from the end of the first decade of the 21<sup>st</sup> century (Munro & Derwing, 2015a).

According to Munro and Derwing (2011, 2015b), studies in the field had focused on phonological prediction error and analysis on the basis of first language (L1) interference, comparison between native and non-native speakers’ production, the relationship between L2 speech perception and production, and learner variables (e.g., age of learning, length of residence), which can account for individual differences in phonetic learning success.

Besides the traditional focus in the field of L2 pronunciation studies just mentioned in the previous paragraph, Munro and Derwing (2015a, b) consider that, in real communication, production of words is always influenced by words that occur close to them; situation in which they are produced (e.g., connected/free speech or sentence/paragraph reading), social context and physical environment (e.g., quiet or noisy room). According to Alameen and Levis (2015), Munro and Derwing (2015b), and Trofimovich, Kennedy and Foote (2015), all these factors may interfere in listeners’ understanding of speakers’ messages that result from their interaction.

In addition, Munro and Derwing (2015a) also consider that pronunciation studies can follow a broad perspective and involve “education, phonetics, sociolinguistics, psycholinguistics, second language acquisition (SLA), psychology and speech science” (p. 12-13), which, due to

their diverse characteristics, may follow different data collection methods and orientations, such as “theoretical vs. applied, structuralist vs. post-structuralist, and quantitative vs. qualitative” (p. 13).

Thus, studies on L2 pronunciation may go a step further, focusing, as Munro and Derwing (2015b) claim, on L2 learners’ intelligibility<sup>1</sup> development in cross-sectional or longitudinal studies and on the possible treatment effect on pronunciation change. Moreover, Levis (2015), following Munro and Derwing (1995, 2015b), claim that, besides intelligibility, the L2 pronunciation can also examine different topics, such as comprehensibility and accentedness.

Taking into account the rise of English as an international language or as a language for communication (Crystal, 2003), authors highlight that it is essential to consider pronunciation (Levis, 2015) and intelligibility (Derwing & Munro, 2014; Munro & Derwing, 2011) contributions to achieve a successful communication. In addition, Alameen and Levis (2015), Derwing and Munro (2014), Levis (2015) and Munro and Derwing (2015b) claim that listeners may be aware of differences in other speakers’ speech, accent or pronunciation, which, according to the authors, may or may not interfere in communication and/or in listeners’ judgments and understandings of L2 pronunciation and speech. However, as Derwing and Munro (2014) highlighted, listeners’ judgments and understandings of “what listeners perceive” (p. 12) as meaningful in L2 pronunciation and speech is what “matters most” (p. 12).

Moreover, there has been arise in the use of English as a language for communication and arise on the interest in intelligibility, and consequently, on the investigation and publication of intelligibility<sup>2</sup> studies involving English native and/or non-native speakers who were either the listeners or the talkers. Munro, Derwing and Morton (2006) argue that in L2 “pronunciation research, teaching and testing” (p. 114), L2 learners’ intelligibility has frequently been analyzed by English native speakers, which are not the only interlocutors for L2 learners, since these L2 users may interact among themselves and, thus, be intelligible among them.

Considering the evolution in the understanding of intelligibility, Catford (1950) indicates that speaker and hearer play an important role in situations in which language is used. Following this line of thought, Catford

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<sup>1</sup> Intelligibility, as well as comprehensibility and accentedness, will be defined in Chapter 2.

<sup>2</sup> See Chapter 2 for a review on the issue of intelligibility.

states that to have an intelligible utterance, the speaker may choose the (a) correct linguistic forms, such as words, sounds, and word order that fit the community where the language is spoken, and (b) contexts, such as linguistic, situational, and cultural backgrounds, whereas the hearer may correctly identify the linguistic forms s/he hears. Moreover, Catford claims that if these conditions are not attained, there is a loss in intelligibility. Smith and Nelson (1985), on the other hand, brought into light some issues, including intelligibility and its correlation with other variables, such as, speaker's and listener's proficiency, effort to communicate with both native and non-native speakers of English and attitudes towards different spoken varieties.

In their seminal article to the intelligibility field, in which they define intelligibility, comprehensibility and accentedness, Munro and Derwing (1995) point out that for both, listener and speaker, a foreign accent may cause misunderstandings since it makes the recognition of segments, words or even larger structures, more difficult. Munro and Derwing (1995) also acknowledge that even when a message is understood, foreign language (FL) accent may interfere in communication because listeners may become irritated with the accented message and in the recognition of segments and larger units (e.g., syllables), since more time would be required to recognize segments that are not similar to the prototypes and to process spoken language, possibly resulting in problems of speech comprehension. Moreover, Bradlow and Pisoni (1999) state that word recognition<sup>3</sup> is a process that is influenced by some factors, such as, talker, listener, utterance and situation in which it occurs and that multi-talker voice and articulation may influence intelligibility of the utterances talkers produce.

Bent and Bradlow (2003) consider that adult L2 learners from different L1 backgrounds tend to produce non-target forms, which has resulted in a variety of studies in the field of perception and production of English sounds that has taken the L1-L2 influence into account. In addition, Munro, Derwing and Morton (2006) argue that L2 listeners' analyses are affected "by their own linguistic backgrounds and their experience with different speech varieties" (p. 111). However, authors also mentioned that listeners' analyses may be affected by talkers' speech properties and listeners' familiarity with talkers' L1 or accent. In this regard, British listeners who participated in Garcia's (1990) and in Cruz's (2004) studies with Brazilian

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<sup>3</sup> In this study, intelligibility will be used interchangeably with the term sentence and/or word recognition.

talkers raised two interesting issues regarding the way L2 speech may be understood by the listeners. Garcia's listeners mentioned that vowel epenthesis made it difficult to understand speech produced by Brazilian participants while Cruz's listeners indicated that the listeners' own accent and educational background also interfered in the way speech was understood.

Considering studies conducted in Brazil in the field of English Phonetics and Phonology, a recent search conducted by Silveira, Delatorre, Reis and Gonçalves (2017) revealed that the vast majority of them followed a more traditional perspective in the field, focusing mainly on perception and production of single segments in cross-sectional studies whereas studies that investigated suprasegmentals (e.g., beyond word level, sentence stress, rhythm and intonation) as well as intelligibility of English sounds, were incipient at that moment.

Regarding the target sound investigated in the present study, previous studies with Brazilian learners of English revealed that (a) the vast majority of them focused on the production of regular verbs in the simple past tense formed with the addition of the *-ed* morpheme and found that Brazilians tend to add a vowel, that is, to produce an epenthetic vowel, in order to pronounce these verbs (e.g., Alves, 2004, 2007; Delatorre, 2005, 2006a, 2010a, Delatorre & Baptista 2014; Fernandes, 2009; Frese, 2006; Gomes, 2009; Mariano, 2009; Pereira, 1994; Silveira & Alves, 2006); (b) two studies investigated the relationship between perception and production of these verbs (e.g., Frese, 2006, 2009; Silveira & Alves, 2006); (c) five of them investigated the effect of treatment (e.g., instruction or perceptual training) in their production (e.g., Alves, 2004; Delatorre, 2010a, Delatorre & Baptista, 2014; Mariano, 2009; Silveira & Alves, 2006), and, (d) three studies investigated the intelligibility of verbs ending in *-ed* produced by Brazilian speakers in the context of English as a Lingua Franca (ELF) (e.g., Fernandes, 2009; Gomes, Brawerman-Albini & Engelbert, 2014; Riella, 2013)<sup>4</sup>.

Thus, taking into account the fact that communication among English speakers, either native or non-native, as well as the interest on intelligibility studies have increased and that the production of regular verbs ending in *-ed* by Brazilians tends to deviate from the target-like pattern due to vowel epenthesis, the present study investigated the intelligibility of simple past

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<sup>4</sup> Riella (2013) and Gomes, Brawerman-Albini and Engelbert (2014) used the same data from Gomes' (2009) study.



tense *-ed* verbs inserted in short sentences produced by both native and non-native speakers of English (talkers) with different L1 backgrounds which were later analyzed by the researcher and transcribed by Brazilian learners of English (listeners). Talkers' data collection took place in single session, whereas listeners' data collections were divided into two different sessions. In addition to talkers' L1 influence, listeners' verb-familiarity, proficiency and their experience with English language were also taken into account in the present study.

Well-known researchers, such as Derwing and Munro, claim in their reviews (e.g., Derwing & Munro, 2014; Munro & Derwing, 2015a) that more longitudinal studies are needed in the area. Thus, the present study tried to follow their recommendation and collect data indifferent moments in order to keep its longitudinal characteristics, bringing a new perspective into the area of Phonetics and Phonology in Brazil, since up to this moment the majority of the studies conducted in this field in the country tended to be cross-sectional or had a pre/post test design with two data collections separate by the treatment period, as pointed out by Silveira et al (2017). Furthermore, this longitudinal characteristic of the present study allowed the use of a more dynamic approach to investigate L2 acquisition, the Dynamic System Theory (DST)<sup>5</sup>, which, according to De Bot, Lowie and Verspoor (2007), Ellis (2007), Larsen-Freeman (1997), Lowie (2011, 2013) and Trofimovich, Kennedy and Foote (2015), is a system that takes into account variation in language acquisition along time and is “open to change”, as pointed out by Thomson (2015, p. 221). Moreover, for Trofimovich, Kennedy and Foote (2015) variability in language acquisition under the DST perspective may also occur “within and across individuals” (p. 364) in “interaction, across lessons, during semesters of course work, throughout years of language experience” (p. 364). De Bot, Lowie and Verspoor (2007) and Ellis (2007) also suggest that variation in L2 acquisition may be affected by some conditions, such as learner experience with the target language.

Thus, according to Thomson (2015), this variation in language acquisition in the DST perspective includes changes in L2 pronunciation that do not necessarily mean to achieve a native-like pronunciation, rather, they may reflect, as pointed out by Trofimovich, Kennedy and Foote (2015), the pronunciation learning process as an interactive process, which takes place

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<sup>5</sup> See Larsen-Freeman's, De Bot's and Lowie's works on this issue discussed in Chapter 2.

in class (instructional setting) or at workplace (naturalistic setting) with variable quantity and quality of input and language experience, for instance.

Considering the focus of the present study on the intelligibility of simple past tense *-ed* verbs under this longitudinal and DST perspective, rather than on their cross-sectional perception and/or production tests, its methodology, results and conclusion make it relevant for the field because it brings some new insights into the area of Phonetics and Phonology as well as in L2 acquisition, pronunciation instruction and teaching, especially in Brazil.

In addition to the academic motivation to conduct a study and write a doctoral dissertation, it is essential to have a personal motivation and a personal reason to do it. In the case of the present study, the motivation and inspiration to conduct a study on intelligibility comes from the researcher's childhood and adolescence in the 1980's when she listened to English words and sentences in songs, tried to understand, 'phonetically' transcribe them without any knowledge about the International Phonetic Alphabet (IPA), and, finally, imitate what the singer was singing. But, it was not easy. Actually, it was difficult to accurately understand what they were saying or singing maybe due to the influence of orthography and lack of knowledge of English Phonology or of English pronunciation that she learned only when she entered the *Letras* course at *Universidade Federal de Santa Catarina* (UFSC) in 2000. The undergraduate program in *Letras Inglês* at UFSC also provided the researcher the opportunity to conduct a small scale study on the production of initial /s/-clusters, final-single consonants and simple past tense *-ed* by Brazilian teachers of English (Delatorre, 2004), which was the beginning of this researcher's history in the field of English Phonetics and Phonology studies. As the majority of the studies on English verbs ending on *-ed* has focused on their production while few of them have focused on verb intelligibility and as the researcher has been intrigued with listeners' ability to understand what they have listened, the researcher decided to design a study focusing on the intelligibility of English verbs ending in *-ed*.

Thus, taking into account the personal motivation and theoretical background, this study investigated how familiarity with the target verbs, English proficiency and experience with English language, talkers' L1 and

the three allomorphs<sup>6</sup> of simple past tense *-ed* verbs affected the performance of Brazilian listeners<sup>7</sup> on intelligibility tests with English regular verbs in the simple past tense in two tests in a period of four months. More specifically, the research questions used to conduct this study asked (1) how Brazilian listeners transcribed verbs ending in *-ed* over time; (2) how listeners' L2 proficiency, experience with English language and verb familiarity correlated with intelligibility of regular verbs in the simple past tense over time; (3) how talkers' L1 affected intelligibility of simple past tense *-ed* verbs over time and, (4) how type of allomorph influenced intelligibility of English regular verbs in the simple past tense over time.

Besides this chapter that presented a brief overview of the main points that will be addressed in this dissertation, the present study will also have a chapter that addresses the review of literature on which this study was based (Chapter 2), the method that was used to conduct the study (Chapter 3), the results obtained and their discussion (Chapter 4) in the light of literature previously presented in chapter two and, finally, the main conclusions (Chapter 5).

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<sup>6</sup> An allomorph is a variation in the pronunciation of a morpheme, which is influenced by the context and may express the relation between phonology and morphology (adapted from Cristófaró-Silva, 2011 and Crystal, 2008).

<sup>7</sup> Brazilian learners of English were the listeners of this study.



## CHAPTER 2. REVIEW OF LITERATURE

### 2.1. INTRODUCTION

This section presents the theoretical background that guided this research, which included a review of literature on (a) intelligibility and its related constructs of comprehensibility and accentedness<sup>8</sup> (section 2.2.); (b) studies that have taken intelligibility into account involving speakers/listeners with different L1 backgrounds (section 2.3.1) and with Brazilian speakers/listeners (section 2.3.2), (c) studies about English verbs in the simple past tense *-ed* (section 2.4) and (d) the DST (section 2.5).

### 2.2. MAIN CONCEPTS ON INTELLIGIBILITY

Smith and Nelson (1985) and Nelson (2008) present a retrospective on the English intelligibility and comprehensibility in which they evaluated books and articles, representing research that had been done up to the time the papers were written. Based on these studies they reviewed, Smith and Nelson (1985) observe that (a) the native speaker is not the only judge of what is intelligible in English since non-native speakers of English are interacting in English; (b) intelligibility is the center in the interaction between the speaker and the listener, and, (c) the greater the involvement and familiarity a learner has with an individual speaker or English variety, more intelligible the individual speaker speech and that specific English variety will be for this learner. Moreover, Catford (1950) and Munro and Derwing (2011, 2015a, b) consider that pronunciation instruction must be taken into account in order to achieve intelligibility. Nevertheless, Munro and Derwing (2011) observe that it is not possible to teach or to deal with intelligibility without a clear understanding of what it is and how it can be achieved.

Catford (1950) considers that an utterance may be effective and intelligible, that is, effective when it establishes communication between the hearer and the speaker, and induces the speaker to make the correct or more adequate linguistic choices, and, intelligible when the “hearer

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<sup>8</sup> Although comprehensibility and accentedness are not going to be addressed in this study, their definition will be provided here in order to clarify them since they are mentioned in the studies reviewed in this chapter.

understands the words” (p. 8). Catford acknowledges that an utterance may be intelligible but ineffective if the hearer’s response was not what the speakers were expecting to get.

Smith and Nelson (1985) present the concepts of intelligibility, comprehensibility and interpretability and claim that it is important to have a clear definition for each of them to conduct studies in this field. They define intelligibility as ‘words/utterance recognition’ (p. 334), comprehensibility as ‘word/utterance meaning’ (p. 334), and interpretability as ‘meaning behind word/utterance’ (p. 334).

Nelson (2008) analyzes the use of at least one of the three constructs of intelligibility, comprehensibility and interpretability found in Smith and Nelson (1985). Nelson points out that authors make different use and interpretations of the concepts of intelligibility and comprehensibility from those proposed by Smith and Nelson (1985) involving native or non-native speakers of English as listeners. Among them, Nelson (2008) mentions Munro and Derwing (1995) and Munro, Derwing and Morton (2006) definitions of intelligibility and comprehensibility, also found in Smith and Nelson (1985), and in the new definition of accentedness. Based on his analysis, Nelson (2008) considers that the concepts Smith provided (e.g., intelligibility, comprehensibility and interpretability) found in Smith and Nelson (1985) better explain the success or the breakdown in communication because speakers can maintain their identities and personalities and be comprehensible and accessible.

However, Munro and Derwing (2015b) considered that their concept of intelligibility encompasses all the definitions made by Smith and Nelson (1985) since they believe that their concept takes into account ‘shared knowledge and social context’ (p. 379) which may affect understanding, according to the authors. Thus, Munro and Derwing (1995) define intelligibility as the extent to which an utterance is understood, which is accessed by the orthographic transcription of all listened words, whereas comprehensibility is defined as listeners’ difficulty in understanding utterances, and accentedness as how strong the talkers’ foreign accent is perceived to be. Munro and Derwing’s (1995) definition of intelligibility is going to be adopted in this study because it considers how the target words are transcribed and because it takes orthographic transcription into account, which facilitates researchers’ work to gather intelligibility data.

In addition, Munro and Derwing (2015b), Munro, Derwing and Morton (2006) and Thomson (2015) point out that intelligibility,

comprehensibility and accentedness are considered to be related but independent dimensions of L2 speech. Munro, Derwing and Morton (2006) explain that an utterance can be highly accented but perfectly understood by the listener, that is, it may be accented but also intelligible.

Munro and Derwing (2015b) highlight that listeners may partially or fully understand utterances they hear, misjudge the unintelligible ones by believing they understood them, which, in fact, they did not. Moreover, Munro, Derwing and Morton (2006) claim that some variables may interfere with intelligibility, such as phonological properties of the speakers' output as well as listeners familiarity with accents and to a particular speaker and listeners' L1, and listener and speaker sharing the L1. Thus, the following section will present empirical studies that address some of these variables that may affect intelligibility.

### 2.3. STUDIES INVOLVING INTELLIGIBILITY

With the change in the focus of English as foreign language (EFL) to ELF or as an international language and the introduction of the concepts of intelligibility, comprehensibility and accentedness (Munro & Derwing, 2015a, b), there is also a change in research focus in which foreign language learners' performance was frequently compared to the English native speakers' to studies in which English non-native speakers' performance are compared among themselves, and sometimes with the native speakers' performance, taking into account listeners' and the talkers' role to interact and communicate. There are empirical studies taking into account intelligibility, comprehensibility and accentedness issues involving different L1 speakers (e.g., Mandarin and Spanish L1 speakers) learning English as well as English native speakers, and some studies involving Brazilian learners of English and/or native/non-native speakers of English. However, as the present study does not focus on comprehensibility and accentedness, the review of literature will mainly focus on intelligibility. Studies reviewed in the following two sections were included because they discussed at least one of the factors investigated in the present study, such as the influence of listeners' familiarity with the target words, exposure to English or experience with the target language, proficiency level, talkers' L1 or final cluster, longitudinal or cross-sectional perspective used in the data collection. Also, studies reviewed in the following sections do not necessarily have the participation of native

speakers of English, which is something that varied according to the methodology adopted in each study.

Thus, this section will first cover studies with other non-native speakers of English (section 2.3.1), followed by studies with Brazilian learners that focus on different sounds of English, including studies on the intelligibility of simple past tense *-ed* (section 2.3.2), that is the focus of the present study. The first study to be reviewed in section 2.3.1 is Munro and Derwing (1995), which may be considered a reference in the area of intelligibility studies that has received increased interest in the last two decades.

### **2.3.1. Intelligibility studies with listeners/speakers with different L1 backgrounds**

Thus, taking into account studies that investigated intelligibility of English sounds by speakers and listeners with different L1 backgrounds, including English native and non-native speakers, Munro and Derwing (1995) investigated if a foreign accented message was understandable or not, how difficult it was to be understood, how much time listeners took to understand it and if there was a relationship among verification times, comprehensibility and accent for highly intelligible utterances. Twenty adult talkers, ten L1 Mandarin speakers learning English and ten English native speakers and 20 English native listeners as well as four independent native-speaker raters participated in this study. Each of the 20 talkers recorded 50 sentences in English that were analyzed by the four independent raters who agreed to eliminate 10 of the sentences<sup>9</sup> from the test to be presented to the 20 native listeners. The 20 native listeners transcribed the sentences for the intelligibility test and rated them from 1 (close to native-like pronunciation) to 9 (strongly accented pronunciation) for the comprehensibility and accentedness tests. Thus, the results of Munro and Derwing (1995) study indicated that (a) Mandarin speakers' sentences took longer to be evaluated than the native speakers', suggesting that there was an effect of accent in response time; (b) non-native speakers' speech may be highly comprehensible even with a strong foreign accent, and (c) accent familiarity has an effect on response times. Finally, the authors suggested that aspects that interfere with the intelligibility and comprehensibility of

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<sup>9</sup> Nine sentences were eliminated due to ambiguity and one due to item unfamiliarity to Mandarin speakers.



speakers' speech must be taught in the classroom in order to communicate with other speakers.

Following this line of research, Derwing and Munro (1997) investigated the relationship among intelligibility, comprehensibility and accent in the speech of native speakers of Spanish, Polish, Japanese and Cantonese intermediate learners of English. Forty-eight adult non-native speakers (NNSs), 12 from each of the four languages mentioned above, and 26 native speakers (NSs) of English participated in the study. The non-native speakers described and tape-recorded a story and the first full sentence of each narrative was randomized, grouped into two audiotapes, and then analyzed by the native listeners who had to listen to the utterances and orthographically transcribe them; to rate them regarding accentedness (no accent to extremely strong accent), and comprehensibility (extremely easy to extremely difficult to understand); and finally to indicate the speakers' L1 and what made their speech in English difficult to understand. Listeners analyzed (a) grammatical errors, such as, inappropriate verb tense, incorrect use of plurals, preposition choice and pronoun assignment; (b) phonemic errors, such as, deletion, insertion or substitution of a segment; (c) nativeness of prosody (rated as native like to extremely accented); and (d) speaking rate measured in syllables per second to evaluate speakers' intelligibility, comprehensibility and accent in each of the utterances analyzed.

Results of Derwing and Munro's (1997) study indicated that intelligibility and comprehensibility tend to be more influenced by grammatical errors than by pronunciation errors, which in turn, together with speaking rate, tend to influence prosody. The authors pointed out that the speakers' lower proficiency level, compared to the proficiency level of Mandarin speakers learning English in Munro and Derwing (1995), and the fact that there were four different L1 languages involved in Derwing and Munro's (1997) study, made the listeners analysis more difficult because they could not establish criteria to analyze the data as they probably did in the study with Mandarin speakers learning English. Finally, Derwing and Munro (1997) pointed out that teachers should pay attention to grammar errors and prosody, besides pronunciation errors, in order to improve their students' speech intelligibility and comprehensibility and decrease their accent.

Munro, Derwing and Morton (2006) extended and replicated Derwing and Munro's (1997) study and investigated intelligibility, comprehensibility and accentedness in the extemporaneous speech of 48 L1

speakers of Japanese, Cantonese, Polish and Spanish (12 from each L1) rated by 40 listeners, including 10 Japanese and 10 Cantonese, who share the L1 with talkers, 10 Mandarin (who do not speak either Japanese or Cantonese) and 10 English L1 speakers. Thus, Munro, Derwing and Morton (2006) found weak evidence that sharing L1 and accent familiarity lead to better understanding since they only found a slight advantage for Japanese listeners analyzing Japanese-accented English, but they did not find the same advantage for Cantonese listeners analyzing Cantonese-accented speech, for instance. Authors considered that this result was influenced by Japanese listeners' use of English since they reported daily use English more often than Cantonese and Mandarin L1 speakers. As there was only a slight difference in the analysis of Japanese speakers by Japanese listeners, Munro, Derwing and Morton (2006) concluded both non-native and native listeners rated non-native English speakers' speech in the same way despite their different linguistic background, as pointed out by the authors.

Taking into account the fact that word recognition (see footnote 3) may be influenced by talker, listener, utterance and situation in which the word is pronounced, Bradlow and Pisoni (1999) state that multiple-talker voice and articulatory characteristics as well as multiple-speaking rate and familiarity with the target word affect the intelligibility of utterances produced by native speakers of American English of English when they are heard by native speakers of American English and non-native speakers.

Following this line of thought, Bradlow and Pisoni (1999) investigated English native and non-native speakers' recognition of easy and hard<sup>10</sup> words produced by ten native speakers of American English (talkers). Two groups, one composed of 20 native speakers of American English and a second one composed of 20 non-native speakers of English whose L1 was Korean, Chinese, Russian, Japanese, Spanish, Bengali, Nepali and Dani were the listeners. They had to listen to and identify the words recorded by the ten talkers in three different speaking rates. Results of Bradlow and Pisoni (1999) indicated that listeners easily identified words produced by the same talker and more often correctly identified easy words than hard words at the medium speaking rate. The authors explained that the listeners got more used to the same talker's voice and articulation, which facilitated the identification of words produced by the same talker.

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<sup>10</sup> Easy words are words that have few phonetic similar words while hard words have many phonetic similar words and for this reason listeners tend to have more difficulty with hard words than with easy words, according to Bradlow and Pisoni (1999).

In addition, Bradlow and Pisoni (1999) also emphasized that non-native speakers had more difficulty than native speakers in perceiving sounds that could differentiate words, which indicated a difficulty with fine phonetic details by the non-native listeners. Furthermore, authors also stated that, on the one hand, numbers of years studying English and the age it started did not help listeners to better recognize hard words, and, on the other hand, the amount of exposure to English in an English speaking environment helped them to do so. The authors concluded that signal characteristics, such as speaking rate, listeners' knowledge about language sounds and their experience with talker's voice and sound articulation determined listeners' performance on the intelligibility test, and that the recognition of words is an adaptive process.

Bent and Bradlow (2003) conducted another study that investigated intelligibility, comprehensibility and familiarity of English words by non-native English speakers and the possible influence of non-native English talkers in these processes. Five female talkers, one native speaker of English, two native speakers of Chinese and two native speakers of Korean participated in the study. Among the non-native talkers, one Chinese and one Korean L1 speaker were considered high proficient in English and other Chinese and Korean speakers were considered low proficient in English. The 64 listeners were grouped in four groups, one group with 21 Chinese L1 listeners, a second one with 10 Korean L1 listeners, a third one with 12 speakers of different L1s and finally, a fourth group with 21 native speakers of English. Bent and Bradlow found that the vast majority of words tested in the familiarity test were considered to be familiar by the listeners. The authors also found that low proficient Chinese and Korean talkers were the least intelligible ones and the native English talker and the high proficient Chinese and Korean talkers were the most intelligible ones, who were more intelligible for listeners with the same L1 backgrounds, that is, to Chinese and Korean L1 listeners. Moreover, Bent and Bradlow found that high proficient Chinese and Korean talkers were more intelligible to seven out of the 12 non-native speakers of English in the mixed L1 group and that one low proficient Korean was as intelligible as native speakers. All together, these results suggest that there was a matched interlanguage speech intelligibility benefit in which L1 listeners benefited from sharing the L1 with the talker, and a benefit from talkers' proficiency in which high proficient non-native speakers of English were more intelligible to the listeners than the low proficient talkers.

In a more recent study on the interlanguage speech intelligibility benefit, that is, when speakers and listeners (do not) share the L1, Julkowska and Cebrian (2015) investigated intelligibility, comprehensibility and accentedness on the production of English sentences produced by 11 Polish L1 speakers learning English and two native speakers of British English as well as the influence of word-stress and segmental errors on the perception<sup>11</sup> of these sentences, which were analyzed by six Polish (matched-L1) and six Spanish listeners learners of English (mismatched-L1), as well as six native speakers of English. The 13 speakers recorded 39 sentences which were randomly presented to the 18 listeners who heard them once, orthographically transcribed them, rated them for accentedness using a 9-point Likert scale in which 1 meant no foreign accent and 9 strong foreign accent, and, finally, rated the sentences for comprehensibility using another 9-point Likert scale in which 1 meant easy to understand and 9 difficult to understand. Listeners also took a proficiency test.

Overall, results of Julkowska and Cebrian's (2015) study demonstrated that the relationship between intelligibility and comprehensibility was strong, whereas the relationship between intelligibility and accentedness was weak, thus corroborating previous studies. In addition, results of their study also demonstrated that all listeners (e.g., Spanish, Polish and English L1 speakers) considered English talkers more intelligible and comprehensible than Polish talkers, whereas English and Spanish listeners considered English talkers more intelligible than the Polish talkers and only Polish listeners considered Polish talkers as intelligible as the native English talkers. Moreover, authors also observed that (a) familiarity with Polish accented English possibly facilitated the recognition of Polish talkers' speech by Polish listeners and (b) the lack of familiarity with Polish accented English possibly affected Spanish listeners' recognition of Polish talkers' speech.

Regarding the proficiency test, Julkowska and Cebrian (2015) found that listeners' scores in this test correlated with the intelligibility test results, thus demonstrating that the more proficient listeners had a better performance in the transcription of both native and non-native speakers. However, authors also found that the proficiency test results did not correlate with comprehensibility and accentedness tests results.

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<sup>11</sup> Authors of the study considered perception and intelligibility as synonyms.

Julkowska and Cebrian's (2015) also acknowledged that speech properties "may play a stronger role than the listener's language background in the perception of L2 speech" (p. 230) and that pronunciation teaching should also take suprasegmental features into account besides segmental features, and focus more on intelligibility rather than on native-like pronunciation or accent reduction. Finally, authors also claimed that intelligibility, comprehensibility and accentedness are partially independent variables and that an accented speech may be intelligible and comprehensible.

Li and Mok (2015) also investigated the interlanguage speech intelligibility benefit (ISIB)<sup>12</sup> of Mandarin learners and speakers who also knew English. Listeners of this study were nine learners of Mandarin with different L1 backgrounds (e.g., German, Russian, Japanese, Hungarian, Indonesian, Dutch, and Italian) who were living in Beijing when the data were collected, nine English native speakers learning Mandarin in a classroom setting in Hong Kong, eight native speakers of English with no-knowledge of Mandarin living in Hong Kong and nine native speakers of Mandarin. Talkers were seven female native speakers of Mandarin who produced 36 carrier sentences with consonant-vowel-consonant (CVC) minimal pairs, such as 'peace', 'piss', 'bet', 'bat', 'cup', 'cub'.

Overall, results of Li and Mok's (2015) study revealed that Mandarin listeners more frequently identified words produced by Mandarin learners of English than English native speakers learning Mandarin and learners of Mandarin with different L1 backgrounds who also knew English, suggesting an ISIB for Mandarin L1 speakers.

Results found by Li and Mok (2015) indicated that listeners with different L1 backgrounds living in Beijing were more accurate in identifying Mandarin accented English than native speakers of English learning Mandarin in a classroom setting in Hong Kong. Authors attributed these results to higher exposure to Mandarin accented English and its implicit learning of some cues that the group of listeners with different L1 backgrounds had compared to English learners of Mandarin who lived in Hong Kong, a predominantly Cantonese area, according to the authors, and who only had contact with Mandarin accented English in class. Li and Mok also considered that listeners' proficiency did not affect the results since English learners of Mandarin, who were less accurate in identifying English words

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<sup>12</sup> This term was coined by Bent and Bradlow (2003).

produced by Mandarin speakers, were more proficient than the different L1 background group learners of Mandarin. Finally, the authors also observed that having some knowledge of Mandarin phonetics and phonology did not help native speakers of English, who were learning Mandarin in class in Hong Kong, to accurately identify Mandarin accented CVC English words.

Kennedy and Trofimovich (2008) carried out a study that took into account the role of the listener in the intelligibility, comprehensibility and accentedness in the English speech of six Mandarin L1 speakers learning English in Canada and six adult native English speakers. Each of the 12 speakers produced 90 utterances that were rated by 24 adult native speakers of English, 12 with experience with foreign accented English and 12 without experience with foreign accented English. The recorded utterances contained five content words each and included (a) 42 true-false sentences (real-world utterances) that contained four or five frequent content words, (b) 24 meaningful (semantically meaningful sentences) and 24 meaningless utterances (semantically anomalous sentences).

Results obtained by Kennedy and Trofimovich (2008) indicated that (a) experienced English native speaker listeners understood more speech from both native and non-native English speakers than inexperienced English native speaker listeners, who understood better the native English speech, and, (b) experienced and inexperienced listeners rated Mandarin and English speakers' speech in the same way regarding comprehensibility and accentedness. Moreover, the results also demonstrate that both groups of listeners understood Mandarin speakers' speech in English according to the semantic context, that is, true-false utterances were better understood than meaningful utterances, which in turn were better understood than the meaningless utterances. Regarding teaching of English to speakers with different L1s, Kennedy and Trofimovich (2008) suggested that they should be trained to recognize and deal with different accents in English and that native speakers of English should also be aware of how English non-native speakers' speech sounds like and differs from theirs.

O'Neal (2015) investigated the intelligibility of English initial, medial and final clusters produced by speakers from different L1 backgrounds (e.g., Chinese, Vietnamese and Taiwanese exchange students and Japanese students) in a free-speech-on-line-pair-homework activity from an English course at a Japanese University. In the oral activity administered, a pair of speakers (always one Japanese student and one exchange student) had to negotiate, repair and restore the intelligibility of words by

transforming their coda or the entire rhyme, or to give up and change the conversation when intelligibility was not reached.

Results of O'Neal's (2015) study demonstrated that, contrary to what the *Lingua Franca Core* (LFC)<sup>13</sup> advocated, changes in the pronunciation of final clusters also interfered in intelligibility of words, as initial and medial clusters do. For instance, O'Neal (2015) found that vowel quality improvement and consonant insertion in the pronunciation of the unintelligible words 'old' [ɔl] and 'assistance' [ə'sɪstəns]/[ə'sɪstæn] influenced the production of their repaired versions [oʊld] and [ə'sɪstæns], respectively, thus, becoming more intelligible to the talkers' interlocutors.

Jenkins (2012) suggests that ELF takes intelligibility into account, which, according to Jenkins (2000), is related to the LFC. Thus, following Jenkins (2000), some researchers, such as Becker (2013), Fernandes (2009, 2010), Gomes, Brawerman-Albini and Engelbert (2014), O'Neal (2015) and Reis and Cruz (2010), investigating intelligibility of English isolated sounds and words by speakers with different L1 backgrounds have taken into account this relationship between intelligibility and LFC in an ELF context. However, as the LFC, proposed by Jenkins (2000), does not consider the teaching of final clusters as important, especially those found in verbs ending in *-ed*, which seem to be difficult for Brazilian learners of English, the LFC is not going to be taken into account in this research. In addition, ELF is not going to be considered in this study because (a) it also takes into account native speakers' speech, which the ELF does not include (see Jenkins, 2012) and (b) Brazilian learners of English tend to have more contact with English spoken by its native speakers in classroom (e.g., listening activities from their textbook or brought by their teachers) or outside it (e.g., TV series, news, movies, music), despite the increase interest in providing Brazilians contact with English spoken by speakers from different L1 backgrounds, either natives or non-natives, increasing Brazilians learners' awareness about different English pronunciations. Thus, the present study followed an approach that took into account English as an International Language (EIL) which, according to Kilickaya (2009), considers English spoken by speakers of Kachru's (1985) Inner, Outer and Expanding circles<sup>14</sup>.

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<sup>13</sup> The LFC was published by Jenkins (2000) and predicted that speakers of English from different L1 backgrounds would not have difficulty in pronouncing final clusters. See Dauer (2005) for a further discussion on LFC issues, and others that it does not take into account, which, however may be taught in class.

<sup>14</sup> Inner circles include native speakers of English (e.g., Americans and New Zealanders), whereas Outer circles include speakers who speak English besides other official languages

If studies on the intelligibility, comprehensibility and accentedness of English speech by different speakers and listeners described so far were cross-sectional, the following studies are longitudinal or have a pre and posttest design, which in turn, follow the learner for a longer period of time than cross-sectional studies.

Derwing, Munro and Thomson (2007) conducted a longitudinal study, whose main intention was to examine their participants' comprehensibility and fluency<sup>15</sup> development taking into account exposure to English outside the classroom. Participants were two groups of Chinese (Mandarin) and Slavic (Russian and Ukrainian) immigrants in Canada, who were observed for a period of two years. Thirty-three native speakers of English (six male and twenty-seven female) were the listeners and evaluated speakers' fluency and comprehensibility in English as an L2 by using two different 7-point Likert scales, one for fluency and another for comprehensibility. Researchers found that Slavic speakers improved, a little at least, their comprehensibility and fluency in English whereas Mandarin speakers did not improve over time.

Despite the fact that Derwing, Munro and Thomson (2007) did not evaluate classroom curriculum, they pointed out that lack of instruction in class possibly interfered with the lack of improvement in fluency and comprehensibility, especially for Mandarin speakers. Moreover, authors also observed that exposure to English outside the classroom, such as listening to the radio, watching TV, and having ten-minute conversations with native speakers probably helped Slavic speakers to improve the comprehensibility and fluency of their speech when rated by native speakers of English.

In a follow up publication in which most of the participants of the study just presented also participated, Munro, Derwing and Thomson (2015) investigated the intelligibility of onsets and codas containing singleton consonants or clusters involving stops, fricatives, nasals and approximants, which occurred in words such as 'proud', 'school', 'shakes',

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(e.g., Indians and Malawians) and Expanding circles include speakers who speak English as a foreign language or speakers to those English is not the official language (e.g., Uruguayans and Japanese). Examples are taken from Oliveira (2014).

<sup>15</sup> According to Thomson (2015), fluency does not have a clear definition and for this reason it may be seen as fast speech production of a number of tokens produced per second or minute (language fluidity), for instance. Thomson also observed that hesitation, repetition or self-correction may be seen as breakdown in fluency (disfluency) or as a discourse strategy that talkers use, which does not necessarily mean fluency breakdown.



‘cold’, ‘wind’, ‘think’ and ‘vast’. The 17 Mandarin and the 23 Slavic (17 Russian, 5 Ukrainian, and 1 Croatian) speakers, who were living in Canada for about four months when the study started, listened to and then audio-recorded words with 11 onset targets (6 singletons, 5 clusters) and 10 coda targets (4 singletons and 6 clusters), which were produced by a female speaker of Canadian English. Participants were tested in Time Two, Time Four, Time Six and Time Seven, thus following them for a two year data collection period. Regarding data analysis, the third author of the study prepared a list of words with singleton or cluster onset or coda grouped together and presented to the first two authors these blocks of words with the same targets, which were individually analyzed and, then, compared.

Overall, Munro, Derwing and Thomson (2015) found that both groups of speakers (e.g., Mandarin in one group and Russian, Ukrainian and Croatian in another group) significantly improved their production of initial clusters over the two years of test even without pronunciation instruction and that, on the other hand, Mandarin and Slavic speakers had more difficulty to improve their production of clusters in syllable final position and of single consonants in both syllable initial and final positions over the two years of test. Moreover, the authors explained that there was improvement in some specific targets, such as /ʃ/ and /w/ in onset and /ŋ/ and /ŋk/ in coda for Mandarin and Slavic speakers, respectively, and whereas the onsets /ɹ/, /st/, /d/, /θ/, and /w/ and the codas /l/, /ld/, and /ŋ/ were difficult for Mandarin speakers and the onsets /θ/, /θɹ/, and /w/ and codas /d/, /ld/, /nd/, and /ŋ/ were difficult for Slavic speakers. However, Munro, Derwing and Thomson (2015) observed that their data were limited and that both groups had difficulty with different targets, which requires more research in this area. As the results for their study presented variation between the two groups of speakers, Munro, Derwing and Thomson (2015) also suggested the investigation of the possible effect of pronunciation instruction on intelligibility that focused on the consonants or clusters that seemed to be difficult for speakers of these two groups to master in this period of two years of contact with English but without pronunciation instruction.

Derwing, Munro, Foote, Waugh and Fleming (2014) investigated the effect of pronunciation instruction on intelligibility, comprehensibility, perception and fluency<sup>16</sup> of language produced by seven Vietnamese immi-

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<sup>16</sup> Fluency was measured in this study “by counting the number of syllables and computing speaking rates in syllables per second” (Derwing et al, 2014, p. 539).

grants, including one Khmer L1 speaker and six Vietnamese L1 speakers, who had been living in Canada for about 19 years previous to the data collection beginning and had been working in a window factory for some period of time. The seven talkers reported they did not speak English frequently when they arrived in Canada and started working at low positions at the window factory, which changed when they assumed high positions at work and had to speak English more frequently and with more people.

Two authors of the study administered the perception and production pretests, analyzed the data and realized that the Vietnamese speakers of English had problems with the perception and production of English consonants and clusters, which were either eliminated or reduced; vowels, especially when wrong word stress was assigned, and with rhythm and intonation, which authors considered could affect speakers' intelligibility and comprehensibility to their interlocutors outside the company. The 17-hour pronunciation instruction focused on the perception and production of (a) consonants and clusters, including word endings; (b) word and sentence stress and (c) sentence intonation, as well as on consonant articulation.

With these data in hand, Derwing and colleagues (2014) developed five perception tasks similar to those found in pronunciation books, such as (a) cloze test, in which the Vietnamese and Khmer L1 speakers had to fill in the blanks of a printed text; (b) sentence dictation task, in which they had to transcribe the 4 to 6 word sentences they had listened to; (c) oddity task, in which they had to choose which word was different among the three words heard by comparing the initial or final consonants or clusters; (d) word stress perception in a sentence in which they had to distinguish between words with subtle word stress differences inserted in sentences, such as, *can/can't*, or *eighteen/eighty*; and (e) word stress recognition task in which they had to indicate the correct token for the same two- or three-syllable word produced with different stress placement. These five perception tasks were administered by the researchers at the pre and posttest in order to assess the possible effect of pronunciation instruction on the participants' performance.

Regarding production tasks, the seven Vietnamese immigrants produced three tasks: (a) suitcase narrative in which they produced spontaneous speech by recounting a story displayed in eight cartoons; (b) safety talk task in which they had to talk about fatigue at work, and, (c) true-false sentence (intelligibility) task in which they read a list of 28 real sentences, such as *Many people like to drink coffee*. These three tasks were administered at the pre and posttest and analyzed by the listeners.

Thus, Derwing et al's (2014) study also had 28 listeners, all native speakers of Canadian English, who reported having no contact with Vietnamese or Khmer L1 speakers or with these languages. They listened to and analyzed the suitcase picture description activity and the safety talk segments the speakers produced. In order to analyze these two tasks, the listeners used two 9-point-Likert scales, one for each task, to evaluate speakers' fluency, comprehensibility and accentedness, in which 1 was extremely fluent, extremely easy to understand, no accent, and 9 was extremely disfluent, extremely difficult to understand and extremely heavy accent. In addition, the listeners also analyzed the speakers' production of 28 sentences in which they had to indicate if the sentences were true or false, or if they were unsure about the sentence in order to analyze speakers' intelligibility. The true/false sentences were phonemically transcribed by the first author of the study following the probable Canadian English pronunciation for the target sentences. Possible mismatches between speakers' production and the Canadian English speakers' pronunciation, such as insertions, deletions, and substitutions, were computed. All these data were obtained from the pre and posttest, which were compared.

Results for the five perception tasks indicated that pronunciation instruction was effective for four of them, except for word stress perception in sentences (e.g., *can/can't*, *eighteen/eighty*). Regarding production tasks, each listener's means for pre and posttest ratings of fluency, comprehensibility, and accent were computed separately for the suitcase and safety talks, thus yielding different results. Comprehensibility had a statistical significant improvement from the pre to the posttest in both suitcase narrative and safety talk tasks, whereas accentedness got worse in the suitcase narrative and reduced in the safety talk task, and fluency did not improve from the pre to the posttest. As for the true/false intelligibility task, authors found that there was an improvement on the number of sentences indicated as true for each listener, which indicated an improvement on intelligibility from the pre to the posttest.

Derwing et al (2014) concluded that (a) living in an English speaking country does not guarantee that pronunciation improves, even after living in this country for a long period; (b) immigrants may benefit from pronunciation instruction; (c) fossilized pronunciation may be disrupted with instruction especially with focused activities using their own vocabulary, for instance; and (d) improvement in segmental production may positively affect the prosodic level, since insertion or deletion of phonemes affect

syllables, which in turn affect rhythm and then listeners' ability to process speech, as possibly occurred in the true/false intelligibility task for the present study.

Having concluded the section with the studies on the intelligibility with speakers or listeners with different L1 backgrounds, the following section will present intelligibility studies involving Brazilian learners of English as talkers or listeners.

### **2.3.2. Intelligibility studies with Brazilian listeners/speakers**

The issue of intelligibility has been in evidence in Brazil in the more recent years when some studies have been conducted in this area. As pointed out by Gonçalves and Silveira (2015) and Silveira et al (2017), these studies have (a) focused on different aspects of phonological acquisition (e.g., individual sounds, groups of segments, or suprasegments, which were previously selected or not by the researcher); (b) followed different data collection methodologies (e.g., talkers' sentence or paragraph reading, spontaneous speech presented to the listeners; listeners' transcription of the material they heard), and (c) considered Brazilians as talkers evaluated by both native and non-native speakers of English or as listeners who evaluated speakers from different L1 backgrounds, either native or non-native speakers of English, speaking English.

For instance, Becker (2013), Cruz (2004), Cruz and Blanche (2014), Cruz and D'Ely (2015), Cruz and Pereira (2006), Lima Junior (2014), Oliveira (2014) and Reis and Cruz (2010) investigated intelligibility of words and/or sentences in free speech or sentence reading, with no focus on specific sounds, in studies in which Brazilians were either listeners or talkers. On the other hand, there are few studies that have investigated the intelligibility of specific sounds in which Brazilians frequently were the talkers and their speech intelligibility was analyzed by both native and/or non-native speakers of English with different L1 backgrounds. For example, Gonçalves (2014), Schadech (2013) and Schwartzhaupt (2015) studied the intelligibility of English vowels, rhotics, and voice-onset-time (VOT), respectively, produced by Brazilian learners of English (talkers) and analyzed by English non-native speakers from different L1s and/or English native speakers (listeners) (see section 2.3.2.1). Finally, three studies took into account the intelligibility of English regular verbs in the simple past tense (e.g., Fernandes, 2009, 2010; Gomes, Brawerman-Albini & Engelbert,

2014; Riella, 2013) by Brazilians whose speech was analyzed by native and/or non-native speakers of English with different L1 backgrounds (listeners) (see section 2.32.2).

### 2.3.2.1. Intelligibility studies on segments, words and sentences with Brazilian listeners/speakers

First studies reported in this section focused on the intelligibility of words and/or sentences in free speech or sentence reading that did not focus on any specific sound, and, second, on the investigation of the intelligibility of specific sounds, including studies on the intelligibility of words with the high front vowels // and the // and // consonants. The review begins with Cruz (2004), the first study on intelligibility conducted with Brazilian learners of English.

Cruz (2004) investigated intelligibility in the speech of ten Brazilian EFL learners who were orally and individually interviewed by a native speaker of British English. Listeners were 25 native speakers of British English (11 female and 14 male) who first rated the samples they heard as 1 = impossible to understand – to 6 – very easy to understand and second, orthographically transcribed the interviews. Listeners also answered a profile questionnaire and at the end of each listening session, explained what they did to recognize, and transcribed words they had listened to.

Among the expected 750 samples, her listeners were able to accurately transcribe only 207 since they could not understand many samples and words within samples. In addition, few of her listeners were unable to transcribe a single word in some samples leaving the space blank, refusing to even guess the words in each sample, and, thus attributing value 1 to some samples. With this data set, Cruz found that some pronunciation problems, such as misplaced word stress, inappropriate consonants, and spelling pronunciation<sup>17</sup> in the speech of Brazilian learners affected more seriously their intelligibility to British listeners than inappropriate vowel production and vowel insertion (epenthesis), although the intelligibility of the samples containing inappropriate vowel pronunciation and vowel insertion were considered moderate. In addition, she found that some target words, such as “culture”, were transcribed in different ways, that is, they were replaced by other words since listeners did not understand what

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<sup>17</sup> Pronunciation affected by English word spelling.

Brazilian talkers had said. For instance, samples in which the word “culture” was found or where the // in initial //-cluster was voiced<sup>18</sup> as in “smallest”, tended to be less intelligible samples for British listeners.

Moreover, according to the qualitative analysis of her data, Cruz (2004) found that listeners rated the samples as moderate, difficult and impossible to understand even when they were able to transcribe them accurately, which suggests that difficulty in understanding talkers’ speech does not necessarily mean impossibility to correctly recognize the words. In addition, the qualitative analysis demonstrates that comments made by the listeners indicate that other factors, such as linguistic context; phonetic cue; listener’s own accent; listener’s experience with L2 accents; and listener’s educational background influenced their correct recognition of the samples. Regarding the implications for pronunciation teaching, Cruz considered that even words with moderate intelligibility should be pointed out in class.

Cruz and Pereira (2006) investigated the intelligibility of five female Brazilian learners of English speech (talkers) by one group of eight native speakers of English, one British and seven Americans, who had some contact with Brazilian learners of English and some knowledge on how they tend to speak English and by another group of eight Brazilian undergraduate students and teachers of English. The two main objectives of this study were to check to which of the two listeners’ groups talkers’ speech was more intelligible and if listeners familiarity with talkers’ way of speaking English would facilitate listeners’ comprehension of talkers’ speech. In order to collect the data, Cruz and Pereira asked participants to describe and audio-record a day in their life they would never forget, a person, a movie or a book they liked/didn’t like as well as possible cultural differences among Brazilian geographical regions. Listeners had to listen to the recordings, orthographically transcribe them and, after that indicate if it was difficult, very difficult or impossible to understand the talkers’ speech.

Results of Cruz and Pereira’s (2006) study indicated that undergraduate Brazilian learners of English speech was more intelligible to Brazilian listeners than to native speakers of English listeners in all items tested, that is, syllable stress placement in the word “existence” in which Brazilians tend to put stress in the first syllable rather than in the second

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<sup>18</sup> Voicing the // in initial //-clusters is a process frequently adopted by Brazilian learners of English, as pointed out by Bettoni-Techio (2008), Cornelian Jr. (2003), Rauber (2002, 2006), Rebello (1997), Santos (2016), for instance.

one; inadequate production of the interdental fricatives and vowels as in “happy” with the omission of the final vowel //; vowel paragoge in “best” and “gift”, and, the word “culture”. In addition, Cruz and Pereira also indicated that Brazilian listeners correctly understood 96 items whereas English native speakers understood 68 items and none of them understood the word “culture”, which was pronounced as  $\theta$ . Thus, these results indicated that the Brazilian listener group was more familiar with the Brazilian talkers’ speech than the English native speakers, and that familiarity with the way Brazilians tend to pronounce English words facilitated comprehension of talkers’ speech by Brazilians, which was more difficult for English native speakers despite the fact that they had some familiarity with English spoken by Brazilians.

There are few more recent studies on the intelligibility of English words and/or sentences produced or analyzed by Brazilians, such as Becker (2013), Cruz and Blanche (2014), Cruz and D’Ely (2015), Lima Junior (2014), Oliveira (2014) and Reis and Cruz (2010). Following the same line of thought of Cruz and Pereira (2006), Cruz and Blanche (2014) investigated the pronunciation intelligibility of Brazilian learners of English analyzed by an American female listener and a Cameroonian female listener, both with some knowledge on how Brazilians pronounce English words. They also investigated to which listener the Brazilian pronunciation is more intelligible and if listeners’ familiarity with Brazilian pronunciation of English influences their comprehension and how. The authors presented the listeners with ten samples containing features that characterize Brazilian English pronunciation and asked them to (1) transcribe what they heard and (2), with their transcriptions, identify the words that were difficult to understand, very difficult to understand and impossible to understand. The results of Cruz and Blanche (2014) demonstrated that familiarity influenced listeners in a similar way, but Brazilian pronunciation was more familiar to the Cameroonian listener, which they attributed to the fact that, in general, Cameroonian listeners seem to be more frequently exposed to the English spoken by speakers with different L1 backgrounds than English native speakers and to the similarity between Cameroonian and Brazilian pronunciation of English words.

In another study, Reis and Cruz (2010) investigated the intelligibility of spontaneous speech in English by three native-speakers of Brazilian Portuguese (BP) and three native-speakers of French speakers of ELF taking into account which features could hinder their mutual intelligibility and

which of these features would fit into Jenkins' (2000) LFC. The data were collected in five different sessions ranging from 26 minutes to one hour and three minutes, involving from two interlocutors in the first session to four interlocutors in the fourth and in the fifth sessions, in a one-year time frame. Besides audio-recording sessions of each interaction, which was based on natural conversations and debates, (a) data gathered were examined to identify possible communication problems; (b) listeners were interviewed to explain these possible communication problems while they were interacting; (c) the nine excerpts<sup>19</sup> that emerged from the whole dataset were orthographically and phonetically transcribed, and (d) field notes were taken throughout the data collection period.

Results of Reis and Cruz (2010) indicate that deletion of the final consonant /t/ in the words 'spirit', by French speaker, and 'what', by Brazilian speaker, replacement of different vowels by different Brazilian and French speakers, deletion of the // and // from the diphthongs // and // and unaspiration of initial consonant // in 'could', for instance, affected the intelligibility of Brazilians and French speakers interacting in English. The authors concluded that their results corroborate Jenkins' (2000) LFC.

Oliveira (2014) focused on the intelligibility of English sentences produced by Brazilian talkers that were analyzed by speakers from different L1 backgrounds as well as English native speakers. Oliveira's study objectives were to identify how English speakers from different L1 backgrounds understood Brazilian speakers of English speech regarding its intelligibility and to propose the acoustic analysis as a tool to better describe speech intelligibility. To reach these objectives, five Brazilian talkers and six listeners from different L1 backgrounds participated in the study. Brazilian talkers were four male and one female, whose ages varied from 23 to 40, from different areas of interest who reached level C1<sup>20</sup> (proficient user) in the Common European Framework of Reference for Languages (CEFR) and use English in their daily life activities or have some experience with the

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<sup>19</sup> Only excerpts with clear phonological problems or those excerpts that were not elicited even after the listeners' interviews were presented to the listeners in order to be transcribed.

<sup>20</sup> According to the CEFR, to reach a C1 means that language user "Can understand a wide range of demanding, longer texts, and recognize implicit meaning. Can express him/herself fluently and spontaneously without much obvious searching for expressions. Can use language flexibly and effectively for social, academic and professional purposes. Can produce clear, well-structured, detailed text on complex subjects, showing controlled use of organisational patterns, connectors and cohesive devices" (p.24). The CEFR also defines C1 as proficient user (see its page 24).



language. Listeners were two male and four female, whose ages varied from 21 to 40, two from each of the three circles proposed by Kachru (1985), that is, one American and one New Zealander from the inner circle, one Indian and one Malawian from the outer circle, and one Uruguayan and one Japanese from the expanding circle.

Regarding the procedures for data collection and analysis, Brazilian talkers first audio-recorded a three-to-five minute spontaneous speech in which they described an event, a remarkable trip they took, which was later individually analyzed by all the listeners. Listeners had to indicate whether talkers' speech was intelligible or not by using a five-point scale that varied from completely intelligible to unintelligible. After this intelligibility analysis, listeners had to identify what was difficult or easy in their analysis of talkers' speech. Besides listeners' analysis, Oliveira (2014) first conducted a phonetic analysis in which she examined if her data displayed some pronunciation problems regarding final consonants, vowels, vowel epenthesis, and word stress placement, transcribed them according to the IPA and, second, analyzed them with the help of the PRAAT<sup>21</sup> software. The audio-recordings were on-line on internet, which, according to Oliveira (2014), made the acoustic analysis more difficult because the on-line recordings did not seem to guarantee good quality in the oral recordings.

Results of Oliveira's (2014) study demonstrate that all listeners classified all talkers' speech as intelligible to completely intelligible, thus indicating that, despite being accented, they did not have much difficulty in understanding Brazilian talkers' speech. However, the author pointed out some listeners' comments, as part of the data analysis. For instance, Oliveira mentioned that (a) the American listener, from Kachru's inner circle, reported that there were some grammatical problems in all talkers' speech, which did not affect the general comprehension of their speech; (b) the Malawian listener, from Kachru's outer circle, reported that the first talker had some pronunciation problems with the regular verbs in the past, which however, did not affect much the comprehension and that the third talker had some pronunciation problems which the listener could understand because of the contact with Brazilians' speech in English, and (c) the Uruguayan and Japanese listeners, from Kachru's expanding circle, reported that it was easy to understand talkers' four and five speech, but

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<sup>21</sup> Praat is a free software package developed and maintained by Paul Boersma and David Weenink from University of Amsterdam which is used by linguists to analyze speech (Styler, 2015).

it was more difficult to understand talkers' one and two speech due to vocabulary problems and sentence construction.

Oliveira (2014) concluded that (a) the non-native speakers of English, as the Uruguayan and the Japanese L1 speakers, were stricter than native speakers in analyzing Brazilians' speech probably because they also learned English as foreign language, as Brazilians, thus taking into account the native-like pattern, (b) talkers who had more experience with the English language and used it more frequently in their daily life, as talkers four and five, who have been studying English or teaching it for a long time, were better evaluated or easily understood than talkers who seemed to have less contact with the language in their daily life, as talker two; and, (c) listeners, as the Malawian listener, who had been teaching English to Brazilians at the moment of data collection, probably have less difficulty than those who do not have much contact with Brazilians speaking English in order to understand their speech.

Lima Junior (2014) considered that language acquisition is a complex and dynamic<sup>22</sup> process, that is, language acquisition is not linear and may vary across individuals and over time. Thus, within this perspective, he investigated the influence of age in which Brazilians started learning English on the intelligibility<sup>23</sup> and on the degree of foreign accent in a paragraph reading task and spontaneous speech they produced. The 29 Brazilian talkers were enrolled in the advanced level of their language course and were split into three groups, according to the age they started studying English, that is, nine in the children group, for those who started learning English under 12, 10 talkers in the adolescents group, for those who started learning it between 12 and 14, and other 10 talkers enrolled in the adults group, for those who started learning English after being 16. A control group of 10 native speakers of English also participated in his study. Listeners were three Brazilians and three native speakers without experience in teaching English to Brazilians and knowledge on their English pronunciation and three Brazilians and three native speakers of English with about 15 years of experience in teaching English to Brazilian learners.

All talkers in Lima Junior's (2014) study read aloud and audio-recorded a paragraph extracted from Time magazine, as well as recorded

<sup>22</sup> The Dynamic System Theory is addressed in section 2.5 of this dissertation.

<sup>23</sup> Lima Jr. (2014) considers intelligibility what is considered comprehensibility in the present study. Despite this difference, the present study did not replace intelligibility by comprehensibility and thus followed the author's choice.

a spontaneous speech passage in which they described the last weekend previous to the data collection and answered a profile questionnaire related to their experience with the language out of classroom, possibility to learn an L2 in Brazil as well as their motivation and strategies to learn English. Listeners evaluated each reading and free speech production of all talkers following a seven-point Likert scale for intelligibility, which ranged from unintelligible to completely intelligible, and another seven-point Likert scale for degree of foreign accent, which ranged from a lot of foreign accent to absolutely no foreign accent. In addition, listeners also evaluated talkers' proficiency level by indicating if they were beginning, intermediate or advanced speakers of English.

Overall, results found by Lima Junior (2014) indicated that intelligibility and proficiency level tended to decrease and degree of accent tended to increase as age of starting learning English increased. However, as Lima Junior pointed out, intelligibility, degree of foreign accent and proficiency level varied within each of the three groups tested (e.g., children, adolescents and adults), which he attributed to the dynamic process of language acquisition even in a classroom learning context, as it occurs in Brazil.

Becker (2013) followed a different perspective, compared to Cruz' (2004) and Oliveira's (2014) studies, for instance, and asked Brazilian learners of English to listen to the speech of other speakers of English available at the Speech Accent Archive from George Mason University, accessed at <http://accent.gmu.edu/index.php>. Thus, Becker (2013) investigated intelligibility of a paragraph read by eight speakers of English, one male and one female native speakers of each of these four languages: Mandarin, Japanese, German and two English (Americans) who were the talkers in her study. The paragraph each talker read had 69 words, including 41 content words<sup>24</sup> and 28 function words, and was analyzed by 80 Brazilian learners of English (listeners) enrolled as English language students (teachers to be) at federal universities in the South of Brazil. Four groups with 20 Brazilian listeners analyzed the reading of two speakers from the same L1, that is, 10 listeners to the male and other 10 listeners to the female talker, from the same L1.

Listeners had to perform three tasks in order to analyze the intelligibility of these native and non-native speakers of English. First, they

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<sup>24</sup> Content words are words that convey semantic meaning, such as nouns, verbs, adjectives and adverbs, and function words are words that convey grammatical function, such as pronouns, articles and prepositions (Cristófaró-Silva, 2011; Crystal, 2008).

listened to the whole test and indicated in percentages how much they had understood from that reading passage; second, they listened to the text divided into small parts and wrote down what they could understand; and third, they listened to the whole text again and indicated which tokens were the most difficult for them to understand, which thus interfered in the intelligibility. They were also asked to indicate the nationality of the speaker if they could in this third task. Besides the two native speakers of English that produced the speech, six female native speakers of American English also participated in the study to evaluate the test. However, their answers were not included in Becker's analysis.

Results of Becker's (2013) study indicated that 77.2% all words produced by Germans, 77% of all words produced by Americans, 80.1% of all words produced by Mandarin speakers and 61.3% of the words produced by Japanese speakers were intelligible to the 20 Brazilians who listened to each group of speakers. Considering only content words, which were used by Becker to analyze the data, 75.1%, of the words produced by Germans, 78.8% of the words produced by Americans, 76.3% of the words produced by Mandarin speakers and 56% of the words produced by Japanese speakers were intelligible to the respective Brazilian listeners' group.

By comparing two groups of speakers, Becker also found that only those comparisons in which Japanese learners of English were included yielded statistical significant difference, suggesting that English spoken by Japanese talkers was not so intelligible to Brazilian listeners as English spoken by Mandarin, German and English talkers seemed to be, or in other words, that Brazilians had more difficulty in understanding English spoken by the Japanese speakers than by Mandarin, German and even English speakers. Moreover, Becker also observed that about 50% of the content words produced by English, Mandarin and German talkers had at least 90% of intelligibility whereas only 15% of the content words produced by Japanese talkers were at least 90% intelligible to Brazilians.

Overall, Becker (2013) attributed the lack of intelligibility to (a) Brazilian listeners' difficulty in understanding talkers' production of consonants (e.g., // and// replaced by // and //, // and /r/ confusion), vowels (e.g., //), clusters (e.g., //, //) (segmental level), rhythm and intonation (suprasegmental level) and speed rate and listeners' lack of some word-knowledge; (b) frequency effects in which more frequent words tended to be intelligible to Brazilians, (c) sentence context in which the target word appeared in the sentence since listeners' difficulty in understanding it was possibly affected by the difficulty in understanding the neighbor words.

Cruz and D'Ely (2015), who also had Brazilian learners of English as listeners, as Becker did, investigated which English pronunciation features of a Cameroonian speaker of English were intelligible to ten Brazilian listeners who were unfamiliar with her accent and how far these features would be from Brazilian pronunciation of English. Brazilian listeners had to first orthographically transcribe the samples and second explain their difficulties in transcribing the samples after receiving them in the written form. Cruz and D'Ely found that vowels inserted in words produced by the Cameroonian talker, which diverged from Brazilian pronunciation of English, tended to be more unintelligible than words that started with the interdental fricatives // and words with same stress placement, to the 10 Brazilian listeners. The authors explained that Brazilian listeners' familiarity with the English spoken by the Cameroonian talker interfered in the results since the target sounds to which Brazilians were more familiar were more intelligible than the sounds to which they were less familiar. Finally, Cruz and D'Ely advocated in favor of Brazilian learners' exposure to different varieties of English spoken by native and non-native speakers.

Regarding studies that investigated intelligibility of specific sounds produced by Brazilians and analyzed by English learners with different L1 backgrounds and/or English native speakers, Gonçalves (2014) investigated the intelligibility of the two English high-front vowels // whereas Schadech (2013) investigated the intelligibility of rhotics and Schwartzhaupt (2015) investigated the intelligibility of words that started with voiceless and voiced oral stops, thus taking into account their VOT.

Schadech (2013) studied the intelligibility and comprehensibility of rhotic /r/ produced by 39, 21 female and 18 male, adult Brazilian undergraduate students of *Letras* from different programs and universities, besides two native speakers of English, one American and one British, whose age ranged from 16 to 47. Listeners of Schadech's study were split into two groups of Brazilian learners of English and one group of native speakers of English. Both groups of Brazilian learners of English were from UFSC, including one group of 24 Brazilian listeners from the Graduate Program in English (PPGI), whose age ranged from 24 to 49, and another group of 21 Brazilian listeners from the advanced level of English extracurricular course (extra), whose age ranged from 18 to 50. The native speaker group had 28 members, whose age ranged from 18 to 62.

In regard to data collection, recordings of target and non-target rhotics that occurred in the onset of the words (e.g., rabbits, rug, ride, rated, rats, roof, ropes, rank, racks, rights) inserted in sentences were made using the

website Comprehending L2 speech, which was also used to collect listeners' intelligibility and comprehensibility data since the website was designed only to collect data for Schadech's study. In order to guarantee better data quality for the recorded tokens, speakers met the researcher and individually read and audio-recorded 20 sentences in English, ten with the target rhotics and ten with distractors, besides 20 sentences in BP (15 of them containing words with the graphic <r> in different syllable positions), signed the consent form and filled in a profile questionnaire. After the recordings, data were analyzed and only the words 'rabbits', 'rug', 'rated' and 'ropes' were tested since they were the words with higher non-target productions.

Considering data collection with English and Brazilian listeners, they signed a consent form, filled in a profile questionnaire and completed an intelligibility-comprehensibility test, in which they had to transcribe the missing words from the written sentences they had also listened to, for the intelligibility test, and use a ten-point Likert scale to indicate if the words heard varied from 0 = very difficult to understand to 9 = very easy to understand, for the comprehensibility test. English native speaker listeners also had to answer about their familiarity with Brazilian Portuguese.

Schadech's (2013) results indicated that the replacement of /ɹ/ by // affected intelligibility and comprehensibility. However, the author also concluded that (a) it was not possible to establish a relationship between intelligibility and comprehensibility; (b) listeners' proficiency and L1 background did not seem to have affected the intelligibility results, (c) comprehensibility seemed to have been affected by L1 background, as Brazilian listeners tended to assign higher comprehensibility rates than native speakers of English listeners, and by proficiency level, as Brazilians enrolled at extracurricular course, possibly the less proficient ones, had more difficulty in the comprehensibility test; and (d) English native speaker listeners' (lack of) familiarity with BP did not affect their comprehensibility of rhotics produced by Brazilians.

Gonçalves (2014) investigated intelligibility of high front vowels // produced by 20, 13 female and seven male, beginner Brazilian learners of English enrolled at level one at UFSC extracurricular courses, whose age ranged from 18 to 46. Brazilian speakers answered a profile questionnaire in the classroom and then, individually audio-recorded, at the language lab at UFSC, sentences that contained words, such as 'beat/bit', 'peak/pick' and 'seat/sit' in which the vowels // occurred between two oral stops or one fricative and an oral stop in order to control for phonological context, since

vowels were further analyzed with the help of PRAAT software. Listeners of Gonçalves' (2014) study were 32, 18 male and 14 female, non-native speakers of English with 11 different L1 backgrounds, including 17 native speakers of Spanish, three of German, two of French, Russian, and Dutch and one of Arabic, Danish, Dutch-French, Finnish, Italian and Polish, whose age ranged from 18 to 50 and length of residence (LOR) in Brazil ranged from 2 weeks to 80 months.

Besides the intelligibility test, the 32 listeners answered a profile questionnaire and filled in a proficiency test in order to, respectively, get personal information about listeners' contact with English and to measure their proficiency level influence to intelligibility. Moreover, Gonçalves (2014) analyzed the possible effects of listeners' familiarity with the words that contained the vowels, listeners' familiarity with Brazilian accent and word frequency on the intelligibility of the words with the target vowels. Listeners' familiarity with all words tested in the intelligibility test was assessed with a four-point Likert scale that ranged from 0 = I don't know this word to 3 = I know this word, whereas listeners' accent familiarity was obtained from listeners' LOR in Brazil and word frequency was assessed according to the word frequency in the Corpus of Contemporary American English (COCA). In order to assess intelligibility, 35 sentences speakers produced were presented individually to the 32 listeners who had to orthographically transcribe the 20 words presented, in which the target vowels were inserted. The data collection session with the 35 listeners were individual and took place at the language lab at UFSC where they met the researcher who conducted the sessions. Regarding data analysis, the acoustic analysis conducted by Gonçalves demonstrated that vowels tended to overlap and were, thus, considered as equivalent, following Flege (1995), and that the consonants were often devoiced or palatalized.

In addition, results of Gonçalves' (2014) study for intelligibility demonstrated that the vowel // tended to be more unintelligible than the vowel //, and that listeners' word familiarity and proficiency level affected intelligibility, since the more familiar they were with the words and the more proficient they were, the higher the word intelligibility was. Moreover, Gonçalves also found that the words that were considered more frequent in the COCA were the ones to which listeners attributed higher intelligibility. On the other hand, listeners' length of residence in Brazil did not yield significant results, indicating that it did not affect intelligibility of words with /-/ vowels produced by Brazilians.

Schwartzhaupt (2015) investigated the possible effects of positive (aspirated) VOT on the intelligibility of segments with voiceless stops inserted in short sentences produced by four Brazilians, which were analyzed by six native speakers of American English and 12 proficient Brazilian learners of English. Speakers, all from *Universidade Federal do Rio Grande do Sul* (UFRGS), were two, one male and one female, undergraduate *Letras* students with no instruction on phonetics and on VOT production, who were expected to not produce accurate VOTs on English voiceless stops, and two, again one male and one female, graduate students from the Graduate Program in *Letras*, who had instruction on VOT production and on English Phonetics and were expected to produce the accurate VOTs. Speakers' age ranged from 21 to 28. Among the 12 Brazilian listeners, eight were male and four female, whose age ranged from 21 to 47, whereas the six native speakers of English listeners were four male and two female, whose age ranged from 22 to 56 when the data were collected.

Regarding data collection, all speakers and listeners signed a consent form and filled in a profile questionnaire. The four speakers audio-recorded the stimuli at a professional studio with acoustic isolation in order to allow for further acoustic analysis and selection of samples with the help of the software PRAAT. The 18 listeners transcribed 24 words with CVC syllables in which the initial consonant was a voiced or voiceless oral stop // followed by one of the four vowels /ʌ/, as in 'pill/bill', 'tab/dab', 'cut/gut' inserted in 48 different sentences. Distractors were also included in the test. The author considered the target CVC words as accurate (highly intelligible) or inaccurate (slightly intelligible or unintelligible) in his analysis of the intelligibility test results. In addition to VOT values on the intelligibility of CVC words, participants' L1 and presence or absence of contextual information in the sentences were also taken into account to analyze intelligibility.

As pointed out by Schwartzhaupt (2015), results revealed high level of correct word transcription starting either with voiced or voiceless stops in the intelligibility test. In addition, results of his study also demonstrated that rates of intelligibility transcription were very similar between both groups of listeners (e. g., native speakers of American English and proficient Brazilian learners of English), which he attributed to (a) the high proficiency level of the Brazilian listeners and the consequent lack of proficiency level difference between these two groups, (b) to lack of ISIB since Brazilian listeners did not obtain better results in the intelligibility test due to sharing the L1 with Brazilian talkers, as expected, and, (c) to the fact that native



speakers of English listeners used other cues to transcribe the target words, such as higher familiarity with the words and this might have affected the results of his study.

The following section turns to studies that investigated the intelligibility of verbs ending in *-ed* in which Brazilians learners were the talkers and proficient English speakers from different L1 backgrounds and/or native speakers of English were the listeners.

### 2.3.2.2. Intelligibility studies on English verbs ending in *-ed* with Brazilian listeners/speakers

Thus, Fernandes (2009, 2010) is the first study to investigate the intelligibility of English learners' production of English verbs ending in *-ed*. Five Brazilian EFL learners enrolled at upper-intermediate level in a private language school participated in the study as talkers, and five European Portuguese (EP) and five Hindi L1 speakers participated in the study as listeners. In order to collect the data with Brazilian talkers, Fernandes asked them to individually audio-record (a) stories based on picture description (story telling) and (b) short texts that they read aloud, using regular verbs in the simple past tense in both recordings. Then, following Cruz (2004), Fernandes (2009, 2010) asked one EP and one Hindi listener to rate the story telling task according to a three point Likert scale<sup>25</sup> and then to orthographically transcribe the texts read by one specific Brazilian talker. Fernandes' (2009, 2010) results showed that BP speakers' speech was rated as moderately comprehensible and by both groups of raters and the transcription results also showed moderately intelligibility levels. However, as Fernandes (2009, 2010) pointed out, EP and Hindi listeners indicated that vowel epenthesis, rhythm and intonation affected their intelligibility rating in the story telling task.

Fernandes also mentioned that the high rate of vowel epenthesis was not a satisfactory result since, since as Fernandes observed, vowel epenthesis in verbs ending in *-ed* was not predicted in Jenkins' (2000) LFC as a factor that may affect intelligibility. Moreover, Fernandes pointed out that it was more difficult for Hindi listeners to understand Brazilians' epenthesized

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<sup>25</sup> The use of Likert scale is related to what the present study views as comprehensibility, but Fernandes considers it an intelligibility measure. As occurred with Lima Jr.'s (2014) classification, the present study followed Fernandes' choice and thus maintained the use of intelligibility even when it meant comprehensibility.

speech than for EP listeners due to the fact that Hindi L1 speakers learn English as an L2 whereas EP speakers learn it as an FL, as Brazilians also do. These results led her to advocate in favor of explicit instruction on the pronunciation of simple past tense *-ed* in order to improve BP speakers' speech intelligibility.

Riella (2013) is the second study to investigate the intelligibility of English verbs ending in *-ed*. He investigated if vowel epenthesis in the speech of Brazilians affected their intelligibility, thus braking down communication. In his study, 126 verbs ending in *-ed*<sup>26</sup> were produced by 46 participants, 17 male and 29 female, Brazilian learners of English with different proficiency levels, from A1 (beginner) to C2 (very proficient), in the CEFR, and two native speakers of English, two women, one American and one British. Listeners in Riella's study were ten (nine American and one Australian) female native speakers of English (group 1 – G1), ten Brazilians students<sup>27</sup> of English (group 2 – G2) and ten English speakers with different L1 backgrounds (group 3 – G3), including three speakers of French (France), two speakers of Spanish (Colombia and Chile), and one speaker of Korean, Dutch, Danish, Norwegian, besides one speaker from Belgium<sup>28</sup>. In order to collect the data, talkers individually audio-recorded their (a) readings of ten texts, eight containing regular verbs in the simple past tense, and two distracters, and (b) spontaneous speech reports of these texts, which were presented to the 30 listeners, who first orthographically transcribed the first ten sentences they had listened to twice and then listened one time to other ten sentences that were previously orthographically transcribed, and indicated if Brazilians' speech was accented or not by using a five-point Likert scale that ranged from 1 – no foreign accent – to 5 – very strong accent.

Regarding the intelligibility test, Riella (2013) demonstrated that the results for G1 and G2 were the same, 71% of correct transcription of verbs ending in *-ed*, which according to Riella, occurred even when there was vowel epenthesis in verb pronunciation and speakers' proficiency was low. However, the author mentioned that the G1 listeners had more problems

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<sup>26</sup> The sentences, and consequently the verbs, used in Riella's study are taken from the recordings of Gomes' (2009) study, which will be described in section 2.4.

<sup>27</sup> He did not specify how many Brazilians were male or female.

<sup>28</sup> Riella did not specify which was the speaker's L1, if Dutch, French or German or if his informant spoke one, two or three of them besides English and/or Brazilian Portuguese.

with specific verbs than G2's. For instance, when the verbs 'wanted' and 'concerned' were produced by beginning Brazilians, Riella observed that 40% of G1 listeners transcribed 'wanted' in the stem 'want' and 10% did not understand it at all, whereas 70% of them did not understand the pronunciation of 'concerned', with 40% replacing it by another word and 30% leaving its space blank in the answer sheet. In addition, Riella also found that 70% of G1 listeners had problems in transcribing the verb 'called' produced by the British talker, with 30% replacing it by another word and 40% leaving its space blank in the answer sheet, which he attributed to the fact that the nine American and one Australian listeners considered the British talker as foreign accented, since they might not have been used to her accent, or to the sentence in which the verb was inserted ('So I called out from my car'), which was not so common as 'She called me to ask if I wanted to help her' produced by a Brazilian talker. Riella considered that these transcription problems indicate that there were intelligibility problems in the pronunciation of these verbs and a possible breakdown in communication due to vowel epenthesis and accent.

Considering the G2, Riella called attention to the difficulty in transcribing verbs in the simple past, when they were produced by native speakers of English. Verbs, such as 'seemed' and 'called' produced by the American and the British native speakers, respectively, were considered problematic since 'seemed' was transcribed in the stem form 80% of the time and 'called' was replaced by another verb or left blank in the answer sheet in 70% of the time. However, Riella found that Brazilian listeners could easily understand other Brazilians' speech.

By comparing the results for G1 and G2 with G3's results, Riella observed that G3's results were less homogeneous than the other two groups' as G3's overall intelligibility rate dropped to 60% and its overall blank answer rate was higher (24%), suggesting breakdown in communication, according to the author. For instance, Riella mentioned that 50% of these listeners transcribed the verb 'seemed', produced by the American talker, in the stem form, whereas 30% of the listeners did not transcribe it. Pronunciation of the verbs 'bagged' and 'concerned' by beginning Brazilian learners were also problematic, since the first verb was not transcribed by 40% of the listeners and the second one was not transcribed by 70% of them, respectively, or was replaced by another word, as occurred with the verb 'concerned'. According to Riella, these results also suggest a possible breakdown in communication, which he explained based on the fact that this

mixed L1 group of listeners was closer to the British pronunciation rather than to General American (GA), the English accent to which Brazilian talkers seem to have more contact with or be more exposed to. However, Riella highlighted that despite vowel epenthesis in the *-ed* pronunciation and the possible breakdowns in communication, Brazilians were frequently understood by the listeners and that the pronunciation problems that occurred with specific verbs did not seem to have interfered in the overall results. Moreover, Riella (2013) pointed out that all listeners realized the production of an epenthetic vowel by Brazilians in the pronunciation of verbs ending in *-ed* as well as their accented speech. Riella also found that the unintelligibility increased as proficiency level of Brazilian talkers decreased.

Gomes, Brawerman-Albini and Engelbert (2014) investigated intelligibility of stressed suffixed words, such as ‘categorize’, ‘satisfying’ and ‘modifier’; and simple past tense *-ed*, such as “called”, “loved” and “touched” which are problematic for Brazilian learners of English, according to the authors, but were not explicitly included in Jenkins’ (2000) LFC<sup>29</sup>. Participants and the procedures for data collection of this study were the same of Riella’s (2013). To complement the analysis of the intelligibility of regular verbs ending in *-ed* made in Riella (2013), Gomes, Brawerman-Albini and Engelbert (2014) considered that the epenthesized production of regular verbs by Brazilians was not problematic for the three groups of listeners since the vowel epenthesis is expected to cause fewer intelligibility problems than consonant deletion, as suggested by Jenkins (2000). Regarding word stress, they found that it affected intelligibility of words produced by Brazilian learners of English, since listeners substituted the target words by similar words, trying to adapt the sentences in which they were inserted, thus, contradicting Jenkins’ (2000) suggestion that word stress seems not to affect word intelligibility. However, authors claimed that more research in the field is needed.

After presenting the intelligibility studies, the following section will present the studies involving perception, production of regular verbs ending in *ed* and the possible effect of instruction and/or perceptual training on verb perception and/or production.

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<sup>29</sup> Jenkins (2000) does not explicitly mention clusters formed with the addition of the *-ed* morpheme to the verb stem and word stress assignment as cause of intelligibility problems in the LFC. However, they are problematic for Brazilians, as reported in section 2.4.

## 2.4. PRONUNCIATION OF SIMPLE PAST TENSE *-ED* BY BRAZILIANS

Studies carried out in other countries (e.g., Bermúdez-Otero & McMahon, 2006; Bybee, 2001, 2010; Bybee & Moder, 2007; Bybee & Slobin, 2007; Hare, Ford & Marslen-Wilson, 2001; Nicoladis & Paradis, 2012; Paradis, 2010; Paradis, Nicoladis & Crago, 2007; Paradis, Tremblay & Crago, 2008; Ullman, 1999) have focused their attention on the acquisition of both English regular and irregular verbs produced in the simple past by native or non-native speakers of English. However, none of them has focused on verb pronunciation (e.g., perception and/or production). Thus, as the report on the empirical studies regarding simple past tense will be based on production and perception of simple past tense *-ed* verbs as well as in the possible effect of instruction and/or perceptual training on these processes, a theoretical description on the three *-ed* allomorphs pronunciation will be provided first. After that, a brief description of how Brazilians tend to pronounce the simple past tense *-ed* will be provided before presenting the empirical studies.

Regarding the pronunciation of the three *-ed* allomorphs, the literature (e.g., Celce-Murcia, Brinton & Goodwin, 1996; Hagen & Grogan, 1992; Hancock, 2003; Lane, 1993; Prator & Robinett, 1985; Reed and Levis, 2015) on this issue says that by the process of assimilation, *-ed* is pronounced as//in verbs that end in voiceless obstruents, such as // as in the verbs *liked*, *stopped*, *laughed* and *watched*, and as // in verbs that end in voiced obstruents, sonorants or vowels, such as // found in verbs such as *robbed*, *loved*, *screamed*, *judged*, *tried*, *slowed*, and *played*. In verbs ending in // and //, the *-ed* endings must be pronounced with the addition of a syllable, such as // or /ə/, found in verbs such as *wanted*, *voted* and *needed*, *decided*, respectively.

Baptista (2001, 2002) points out that the pronunciation of regular verbs ending in *-ed* is among the most frequent pronunciation problems of Brazilian learners of EFL, along with vowel distinction (e.g. //, //, //), initial and final single consonants (e.g., //), initial /s/-clusters; word stress, rhythm and intonation. Moreover, empirical studies have demonstrated that the addition of a vowel (e.g., Alves, 2004; Delatorre, 2006a; Fernandes, 2009; Gomes, 2009; Pereira, 1994) and the omission of the *-ed* (Alves, 2004; Delatorre, 2005, 2006b; Delatorre & Baptista, 2014; Fernandes, 2009), leading to verb production in their stem forms, seem to be common strategies

adopted by Brazilians in order to deal with the pronunciation of the simple past tense *-ed*.

Regarding empirical studies, Pereira (1994) was the first study to investigate the production of regular verbs ending in *-ed* by beginning and advanced Brazilian EFL learners. She found that (a) beginners tended to insert an epenthetic vowel in the production of these verbs more frequently than did advanced learners; (b) there is considerable L1 transfer in the production of clusters formed by the addition of *-ed* morpheme; (c) greater experience in the foreign language seems to reduce L1 interference; and (d) orthographic input and/or insufficient instruction may hinder the accurate production of regular verbs ending in *-ed* by Brazilians.

As pointed out by Delatorre and Baptista (2014), there was a ten year gap in the study of the pronunciation of the English regular past from Pereira (1994) to Delatorre (2004). Delatorre investigated the production of regular verbs ending in *-ed* in free speech of six Brazilian EFL teachers, and found that two of them produced vowel epenthesis in *-ed* ending verbs. Thus, one of them produced an epenthetic vowel after both consonants and vowels preceding the *-ed*, while another epenthesized only in the verb *studied*, which may be attributed to fossilization of her pronunciation of this specific verb. It was suggested that the results may reflect a difference in proficiency level, since the four teachers who consistently pronounced these verbs correctly had had more contact with the language, either by traveling to an English-speaking country and/or by doing graduate-level study in English in Brazil or in the United States.

Delatorre and Baptista (2014) pointed out that phonological context preceding the *-ed* is a variable that is most frequently taken into account in the studies with verbs ending in *-ed*, which was found to have a strong influence on the production of epenthetic vowels on these verbs. This was the case in Delatorre (2005, 2006b) on the *-ed* production of 9 intermediate Brazilian EFL learners, in Delatorre (2006a, 2008) and Delatorre and Koerich (2008) on the *-ed* production of 26 upper-intermediate Brazilian EFL learners and in Delatorre and Baptista (2014) on the effect of instruction in the production of regular verbs ending in *-ed* by one adult Brazilian EFL learner. These studies found (a) more epenthesis after consonants than after vowels, (b) more epenthesis after voiceless consonants than after voiced consonants, and (c) more epenthesis in resulting in three-member-consonant (CCC) codas than in two-member-consonant (CC) codas. However, Gomes (2008) and Gomes (2009, 2010, 2011), investigating

24 and 46 beginning to advanced Brazilian EFL learners, respectively, found higher rates of epenthesis production after voiced consonants than after voiceless consonants. Moreover, Frese (2006, 2009) investigated 32 advanced Brazilian EFL learners' perception and production of regular verbs ending in *-ed* and obtained results similar to those of Gomes: that voiceless // induced less vowel epenthesis than voiced // and that the // were the easiest contexts (e.g., stopped, spotted, locked, robbed, godded, logged) in both perception and production of regular verbs ending in *-ed*.

Considering the influence of preceding manner of articulation, Delatorre (2006a, 2008) also demonstrated that (a) within the class of obstruents preceding the *-ed*, affricates induced more vowel epenthesis production than stops, which induced more than fricatives; (b) within the class of sonorants, nasals induced higher rates of vowel epenthesis than liquids; and (c) both voiced obstruents and the whole class of obstruents induced more vowel epenthesis than sonorants before the *-ed*. She attributed these results to the influence of sonority, the less sonorous classes inducing higher rates of vowel epenthesis, although the place of affricates along the sonority hierarchy is somewhat controversial (Hooper, 1976; Selkirk, 1984). Furthermore, Gomes' (2009, 2010, 2011) results followed this tendency of obstruents inducing higher rates of epenthesis than sonorants as preceding *-ed* contexts. She attributed these results to the fact that learners encounter final sonorant-obstruent clusters more often than obstruent-obstruent clusters during their learning process.

Delatorre and Baptista (2014) found that the production of vowel epenthesis after sonorants and voiced obstruents preceding the *-ed* varied along the period of study. They found that the accurate production of these verbs was 33.33% after sonorants and 66.66% after voiced obstruents in Semester 1, 16.00% after sonorants and 0% after voiced obstruents in Semester 3 and 100% after sonorants and 75% after voiced obstruents in Semester 4. They attributed this U-shape curve in the learning of the *-ed* pronunciation to the fact that their participant probably produced the verbs by memory, in Semester 1, unsuccessfully tried to follow pronunciation rules in Semester 3, which, they considered, she partially achieved in Semester 4. Regarding the higher rate of accurate productions after voiced obstruents in Semester 1, they claimed that this result was influenced by the fact that the fricatives // and // were the contexts that preceded the *-ed*, which according to Delatorre (2005, 2006a, 2008), were easier than the other voiced obstruents for Brazilians since fricatives are more sonorant

than voiced obstruents and to the fact that the // also occurs in the coda of Brazilian Portuguese, the native language of the participant<sup>30</sup>.

Besides the influence of phonological context, cluster length and manner of articulation, proficiency level also seems to affect the production of regular verbs ending in *-ed*. Alves (2007) and Pereira (1994) obtained similar results and found that their beginning participants induced higher rates of vowel epenthesis than the advanced participants, thus suggesting that the improvement in the proficiency level has a positive effect on the production of vowel epenthesis since it tends to decrease as proficiency improves. Gomes (2008, 2009, 2010, 2011) found a strong influence of proficiency in the frequency of epenthesis in the production of simple past tense *-ed* by Brazilian EFL learners reading short texts. Moreover, Gomes pointed out that persistent epenthesis production was not uncommon even among advanced participants with some knowledge of the *-ed* pronunciation rules. In addition, Delatorre and Baptista (2014) also found that improvement in proficiency, continued accurate input, motivation, and explicit instruction can have a very positive effect on the learning of the pronunciation of the past-tense *-ed* morpheme, possibly because their pronunciation seems not to be only a phonological question, on the contrary, it seems to be morphophonological.

Considering the mental representation of the past tense *-ed*, Delatorre (2010a) had two adult female Brazilian EFL learners<sup>31</sup> who first read 130 sentences, each with a regular past tense verb (unevenly distributed among the three expected pronunciations) and second, indicate in a table, for each of these same verbs, whether they believed they pronounced the *-ed* of each verb with or without the extra vowel. The rates of vowel epenthesis actually produced were considerably higher than the rates of vowel epenthesis indicated by the participants in the table. Results indicate a negative and weak correlation between the rates of the two tests. Interestingly, the participant with less experience in English chose the epenthesized pronunciation more often in the table, indicating she was unaware that the vowel grapheme of the *-ed* morpheme was not to be pronounced in most of the verbs (there were only 6 with a // or // context); while the more experienced participant chose

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<sup>30</sup> The anonymous reviewer of the article suggested that the possible influence of L1 transfer from BP into English since the /s/ exists in BP codas.

<sup>31</sup> Both participants also had some knowledge of German, but since the one with more experience with German had also had more experience with English, it was impossible to evaluate the influence of the additional language.



the non-epenthesized pronunciation more often, indicating she did have either some notion of the rules, though without their specificity, or a stored mental representation of this pronunciation. The high rates of epenthesis in production, together with comments made by both participants regarding their doubts about the rules, indicates that orthography was probably an important factor affecting the results.

Further evidence for the influence of orthography in the production of simple past tense *-ed* was found by Delatorre (2005, 2006a, 2010b) and by Alves (2007). Delatorre found, in a paragraph reading task, higher rates of epenthesis in verbs such as *missed*, *planned*, and *played* than in phonologically similar monomorphemic words without orthographic *-ed*, such as *best*, *found*, and *made*. Another indication of orthographic influence was the fact that epenthesis production in *-ed* verbs was less frequent in free speech than in paragraph reading. Alves (2007) found similar results in his comparison of epenthesis production in monomorphemic clusters and in final *-ed* clusters by a mixed group of 32 Brazilian beginning to advanced EFL learners. Whereas lower-proficiency participants produced epenthesis in both the monomorphemic and the *-ed* clusters, the more advanced learners produced it only in the *-ed* clusters.

Five studies have focused on the effect of treatment on the perception and/or production of verbs ending in *-ed* by Brazilian EFL learners. First, Alves (2004) provided instruction of the pronunciation of *-ed* to 7 beginning Brazilian undergraduate students of English, preceded by a pretest, immediately followed by a posttest, and a month later by a retention test. Alves found more frequent epenthesis production in the *-ed* of verbs with base forms ending in consonants prohibited in BP codas, such as the // in *stopped* and *loved*, than ending in consonants permitted in BP codas, such as the // in *called* and *remembered*. However, vowel epenthesis production decreased from the pretest to the posttest and was maintained in the retention test, for both groups of verbs. On the other hand, the pronunciation of *-ed* in verbs with base forms ending in //, such as *wanted*, *needed*, was apparently not affected by instruction, since the epenthetic vowel often produced by Brazilian learners is actually the appropriate pronunciation of these verbs, a frequent learner modification of these verbs being the deletion of the whole final syllable.

Second, Silveira and Alves (2006), found that instruction on the perception and production of regular verbs ending in *-ed* was more effective for perception than for production, which they attributed to the saliency of

the vowel that appears when *-ed* follows one of the alveolar stops. They found that was produced and perceived best in both the pre- and posttests, while was perceived better than in the pre- and posttests, and produced better in the pretest. Despite the positive effect of instruction, the authors concluded that L1 phonological and orthographic transfer and syllable structure differences between the two languages influenced participants' production of vowel epenthesis.

Third, Mariano (2009) compared the influence of (a) perceptual training and (b) perceptual training followed by explicit instruction, in a study with a control group (CG), a training group (TG), and a training/instruction group (TIG) in a university extracurricular English program. She found the 100 minutes of perceptual training and instruction to be more effective than the 90 minutes of perceptual training in improving the pronunciation of the *-ed* in a sentence reading test. Moreover, her results showed the difference between the pre- and posttests to be statistically significant only for the TIG, calling attention to the importance of explicit instruction with training in the pronunciation of the *-ed* ending verbs.

Fourth, Delatorre (2009), in another phase of the study reported in Delatorre (2010a) above, investigated the effect of a 50-minute perceptual training session on the production of regular verbs ending in *-ed* by the same two female adult Brazilian speakers of English. Contrary to Mariano (2009), Delatorre (2009) did find a reduction after training (without explicit instruction) in the more proficient learner's production of vowel epenthesis in *-ed* verbs.

Finally, Delatorre and Baptista (2014) investigated the possible effect of explicit instruction on the production of simple past tense *-ed* by an adult Brazilian EFL learner in a period of about two years. They found that the rates of overall accurate production of regular verbs ending in *-ed* increased from Semester 1 (31.81%) to Semester 3 (43.75%) to Semester 4 (68.75%), which corroborates the results of previous studies (e.g., Alves, 2004; Delatorre, 2009; Mariano, 2009; Silveira & Alves, 2006). Besides explicit instruction on the pronunciation of regular verbs ending in *-ed*, Delatorre and Baptista (2014) also mentioned that factors such as accurate input from a native speaker as well as a gradual increase in contact with the English language from the beginning to the advanced level, which may reflect in proficiency improvement, also contributed to the improvement in the pronunciation of these verbs. However, they also highlighted

that this improvement was not linear and that it may reflect a decrease in the production of both vowel epenthesis and verb stem form, aspects that interfere in the pronunciation of these verbs by the participant of their study and of the studies of Alves (2004), Delatorre (2005, 2006b) and Fernandes (2009, 2010), for instance.

As these studies with Brazilians reviewed so far tended to focus on the acquisition of English sounds in cross-sectional studies, and as the present study tends to follow a longitudinal perspective, a more coherent SLA theory that focuses on language development, non-linear acquisition and variation among learners and between periods of time must be adopted. Thus, the DST was chosen as the SLA theory in the present study, which will be presented in the following section.

## 2.5. THE DYNAMIC SYSTEM THEORY

In order to introduce the DST, Cameron and Larsen-Freeman (2007), de Bot, Lowie and Verspoor (2007), Larsen-Freeman (1997) and Lowie (2013) observe that it derives from other sciences, such as Mathematics, Physics or Biology, in the 1960's, which was later applied to linguistics and language acquisition.

Cameron and Larsen-Freeman (2007) and Larsen-Freeman (2007, 2014) consider language as a complex dynamic system and that language use by its community members may change the language. Following this line of thought, de Bot, Lowie and Verspoor (2007), Elis (2007) and Thomson (2015) also consider that second languages function as complex and dynamic systems that take together important factors in language learning and use. Cameron and Larsen-Freeman (2007) consider that both the learners' brain and learners' community behave as complex systems, corroborating de Bot, Lowie and Verspoor's (2007), Elis' (2007) and Thomson's (2015) observations that DST takes into consideration the cognitive and social aspects of language development<sup>32</sup> and provides a coherent approach to SLA in which learner and environmental (context) conditions interact and affect each other. In addition, according to Cameron and Larsen-Freeman (2007), de Bot, Lowie and Verspoor (2007), Ellis (2007), Larsen-Freeman (1997, 2014), Lowie (2011, 2013)

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<sup>32</sup> Cameron and Larsen-Freeman (2007) and Larsen-Freeman (2014) consider that language development emerges from language use in real time in multiple ways and directions.

and Trofimovich, Kennedy and Foote (2015), dynamic systems are in constant flow and change, allow variation to occur, do not have an end state, which makes the DST very sensitive to initial conditions, any kind of input and to interactions among the systems.

Thus, according to de Bot, Lowie and Verspoor (2007), Larsen-Freeman (1997, 2014) and Lowie (2011, 2013), the learner's language is a system divided into sub-systems or components, such as phonology, morphology, lexis, semantics, pragmatics, and a change in one of these sub-systems or components, according to Larsen-Freeman (1997) and Thomson (2015), may cause a change in the other(s) because they are considered to be interdependent. Thomson (2015), for instance, considers that attention to pronunciation may affect grammatical and lexical access and, and lead to a breakdown in speech production and lack of fluency.

Moreover, de Bot, Lowie and Verspoor (2007), Ellis (2007) and Larsen-Freeman (1997) also emphasize that DST visualizes the whole language learning development and considers that individuals need a disposition to learn languages, but not necessarily an innate universal grammar. In this regard, Larsen-Freeman (1997) states that "the source language, the target language, the markedness<sup>33</sup> of the L1, the markedness of the L2, the amount and type of input, the amount and type of interaction, the amount and type of feedback received" (p. 151) may affect learners' interlanguage (IL) development both in instructional or natural settings. Moreover, Cameron and Larsen-Freeman (2007) also consider that L2/FL learners must have contact with language variation, experience the language they are learning, obtain feedback from their teachers and colleagues in order to develop their IL as a dynamic system.

Based on a growth system of L1 acquisition described by Van Geert (1995), de Bot, Lowie and Verspoor (2007) observe that the characteristics of the growth system, such as (a) internal resources that occur within the individual, as capacity and time to learn, language knowledge and motivation, and (b) external resources that appear outside the individual, such as access to language use and reinforcement by the peers, books and TV, are taken into account in the dynamic systems, leading to non-homogeneous

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<sup>33</sup> According to Eckman (1987), markedness is expressed in terms of typological markedness in which the presence of a certain phenomenon A, that tends to be more difficult, implies the presence of B, which tends to be less difficult, in a language. In other words, this difference in markedness and the degree of difficulty may also affect learners' IL development, as suggested by Larsen-Freeman (1997).

outcomes and to a gradual language learning development. Moreover, Larsen-Freeman (1997) and Trofimovich, Kennedy and Foote (2015) also consider that age, aptitude, motivation and attitude, cognitive styles, individual abilities, learning strategies, cultural background and ethnicity, for instance, may interfere in the second language development processes success, which, according to the authors, may overlap and interact, suggesting that second language development is a complex nonlinear process and that ILs are unstable, under constant change as natural languages, and complex and dynamic systems.

Larsen-Freeman (2007, 2014) presents an overview on SLA since its beginning in the 1960's and 1970's up to the papers publications, in which she considered that SLA varied from its behaviorist focused approach, to its cognitive and to its social approach. She observes that cognitivist researchers consider how language learners increase their performance becoming more accurate, complex and fluent, whereas social oriented researchers consider how language resources are used in social situations and interactions.

Regarding adult SLA under DST, Ellis (2007) believes that it is the result of language use, change, perception and interaction among the community members, who adapt the language to facilitate interaction, to establish communication and to create solidarity among the speakers, as pointed out by Cameron and Larsen-Freeman (2007) and Larsen-Freeman (2014). De Bot, Lowie and Verspoor (2007) and Pisoni and Lively (1995) state that many details, such as variation, developmental stages and the real language facts, including different talker speech, emotional stages, social context and noise may be considered as "part of sound you get in real life" (de Bot, Lowie & Verspoor, 2007, p. 7), which should be taken into account in order to study language acquisition.

Another real life aspect that should be taken into account, especially into adult second language acquisition studies, is literacy or contact with the orthography or the written form of the language and vocabulary knowledge. As Walley (2007) points out, vocabulary knowledge also contributes to developmental changes in word perception and recognition, which could work as language subsystems affecting each other.

As pointed out by de Bot, Lowie and Verspoor (2007), Ellis (2007) and Larsen-Freeman (2014), traditional theory of second language acquisition tends to understand language acquisition as a finite and homogeneous process in which the learners' outcomes are always compared to the native

speakers', whose aims are always to reach a native-like pattern. Moreover, as pointed out by Ellis (1997), Gass and Selinker (1994, 2001), Nunan (1996) and Van Patten and Williams (2007), for instance, the more traditional SLA studies tend to be cross-sectional with only one data collection session implemented, or, as an alternative to longitudinal studies, cross-section data collection sessions are implemented with learners from different proficiency level participating in the study. However, as pointed out by Larsen-Freeman (1997), according to the traditional SLA theory with pre and posttest design studies, posttest results (performance) have to exceed the pretest's, which sometimes despite the instructional positive effect on learning, may not be observed in the acquisition of some items because the acquisition process is still developing and the learner cannot express it (produce new forms) in terms of target-like productions, as expected.

Larsen-Freeman (1997, p. 154) also states that “grammars of speakers in the same community *adapt*<sup>34</sup> to each other”, “*adaptation* is present in dynamic, complex, and nonlinear systems”, ‘individual creativity and social interaction combine to influence the shape of the developing grammar’ and that the complexity theory understands SLA as a *both/and* rather than *either/or* process in which all small details are important and should not be overlooked. Thus, studies under the DST cannot follow the traditional model of SLA studies that tend to be cross-sectional and linear and to consider the entire group of learners as a homogenous group since the acquisition process is not homogeneous and the development is emergent and comes from real use in real time, as pointed out by Larsen-Freeman (2014). Moreover, as observed by Pisoni and Lively (1995), studies under the DST cannot rely in an idealized, abstractionist and symbolic view of speech perception. In this regard new studies have to be conducted taking into account English native speakers and non-native speakers perception and/or production of sounds and possible syllable simplification strategies since L2 learners may be exposed to a variety of pronunciations and interlocutors.

Taken together the characteristics of the dynamic systems applied to language learning, including L2 learning (e.g. social and cognitive aspects, flow, change, context, interaction) and the possible connection among pronunciation, intelligibility and communication with different interlocutors, Alves (2015) suggests that pronunciation teaching should be included in daily FL class activities. Alves suggested, for instance, first to follow the five steps to teach pronunciation in class designed by Celce-Murcia, Brinton

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<sup>34</sup> Italics in the original.

and Goodwin (1996) and Celce-Murcia, Brinton, Goodwin and Griner (2010), which include perception and production training, feedback and conversation practices, and, second, to use of meaningful and communicative activities that contemplate the theme and the topics for that class.

## 2.6. SUMMARY OF THE CHAPTER

This chapter presented the literature in the field in which this study was based. It presented the definitions of intelligibility (e.g., Catford, 1950; Smith & Nelson, 1985; Munro & Derwing, 1995), which is a central construct in the present study; reviewed some studies on intelligibility conducted with speakers of English with different L1 backgrounds, including BP, Spanish, Polish, Mandarin L1 speakers, for instance; provided an overview on studies about the pronunciation (e.g., perception, production, effect of instruction or perceptual training) of English verbs ending in *-ed* by Brazilian learners of English as well as on verb intelligibility in which Brazilians were the listeners or the talkers, which had been conducted so far, and provided a review on the Dynamic System Theory, which was the theory of second language acquisition adopted in this study.

According to this theoretical background, the present study aimed at investigating how Brazilian listeners would orthographically transcribe the verbs inserted in short sentences, and how their familiarity with these verbs, proficiency level and language experience as well as talkers' L1 (e.g., BP, Spanish, German, English) and verb allomorph (//) affected verb intelligibility for these Brazilian listeners learners of English.

After presenting the theoretical background for the study and a brief summary on the research questions that guided it, the following chapter will present the research questions and hypotheses that will guide it and describe the participants that will participate in the study, as well as the material and procedures for data collection and analysis.





## CHAPTER 3. METHOD

### 3.1. INTRODUCTIONS

The purposes of this study were to investigate the possible influences of verb familiarity, listener proficiency, talker L1 and verb allomorph in the intelligibility of regular verbs ending in *-ed* as well as the possible Brazilian listeners' development on the intelligibility of these verbs over time. Thus, in order to achieve these purposes, talkers from different L1 backgrounds provided speech samples that were listened to and transcribed by Brazilian learners of English in two data collection sessions.

Taking into account the purposes of the present study, this chapter presents the research questions and the hypotheses that guided the study as well as the theoretical background (section 3.2); the three groups of participants that participated in this study (section 3.3), the materials and procedures used to collect and analyze the data, (section 3.4) and the pilot study (section 3.5).

### 3.2. STATEMENT OF THE PROBLEM, RESEARCH QUESTIONS AND HYPOTHESES

The present study addressed the issue of intelligibility of English sounds, which has brought some new insights to the field of phonetics and phonology, since it involves the interaction between talkers and listeners from different L1 backgrounds, either native or non-native. In addition, the present study was conducted in Brazil, where English is predominantly learned in an instructional setting, but Brazilians also may have access to English language via TV shows or series, music, movies or chats on internet. This difference in learning context may bring new and different insights in the area, since the vast majority of intelligibility studies have been conducted in English speaking countries with participants supposedly immersed in the target language. Moreover, the present study also investigated the role played by the participants' proficiency level in the intelligibility of English verbs ending in *-ed*, in addition to examining the possible influence of word familiarity, talkers' L1 and listeners' language experience in a longitudinal perspective, factors which have been hardly explored in the field of phonetics and phonology in Brazil.

In sum, this study investigates how Brazilian learners' ability to perceive and transcribe English regular verbs in the simple past develops and the possible influence of talker L1, listener initial proficiency level, language experience as well as listeners' familiarity with verbs ending in *-ed*. The research questions (RQs) and hypotheses (Hs) that guided the study follow. As RQ1 is exploratory, no hypothesis was established for it.

**RQ1:** How do BP listeners transcribe English regular past tense verbs within a four-month interval?

**RQ2:** How do Brazilian listeners' L2 proficiency, experience with English language and verb familiarity correlate with the intelligibility of regular verbs in the simple past tense within a four-month interval?

**H1:** Language experience, verb familiarity and listener proficiency of Brazilian learners of English will correlate with intelligibility of English verbs ending in *-ed* in a four-month interval.

**Background:** Bradlow and Pisoni (1999), Derwing and Munro (1997), Derwing, Munro, Foote, Waugh and Fleming (2014), Derwing, Munro and Thomson (2007), Gonçalves (2014), Julkowska and Cebrian (2015), Kennedy and Trofimovich (2008), Lima Junior (2014), Munro, Derwing and Morton (2006), Munro, Derwing and Thomson (2015), Schwartzhaupt (2015).

**RQ3:** How does the talkers' L1 affect the intelligibility of regular verbs in the simple past tense for Brazilian listeners within a four-month interval?

**H2:** Brazilian listeners will more easily recognize non-native talkers' productions of simple past tense *-ed* verbs than native English talkers' productions of these verbs within a four-month interval.

**Background:** Becker (2013), Cruz and Blanche (2014), Cruz and D'Ely (2015), Fernandes (2009, 2010), Oliveira (2014), Riella (2013).

**H3:** Brazilian listeners will more easily recognize talkers' production of simple past tense verbs produced by BP speakers or speakers whose L1 is more similar to BP (Spanish) than those whose L1 is more dissimilar to BP (German) within a four month interval.

**Background:** Bent and Bradlow (2003), Cruz and Pereira (2006), Julkowska and Cebrian (2015), Li and Mok (2015), Munro, Derwing and Morton (2006).

**RQ4:** How does type of allomorph<sup>35</sup> affect the intelligibility of the English regular verbs in the simple past tense for Brazilian learners of English within a four-month interval?

**H4:** Verbs with the allomorph /Id/ will be more easily recognizable than verbs with the allomorphs/t/ which in turn will be more easily recognizable than the allomorph /d/ within a four-month interval.

**Background:** Frese (2006)<sup>36</sup>.

Having presented the research questions and hypotheses, the following section will describe the method that was used to conduct the study and gather data.

### 3.3. PARTICIPANTS

Participants of the present study belonged to two different groups. The talkers' group included eight speakers of English, two-native speakers and six non-native speakers, while the listeners' group included 14 Brazilian learners of English. Furthermore, the study gathered information from the listeners' English teachers, four Brazilians who were teaching classes to the listeners when the data were collected. The following sections provide information about talkers (3.3.1), then the listeners (3.3.2), and finally the listeners' teachers (3.3.3).

#### 3.3.1. Talkers

Besides the two native speakers of English, who came from different countries, two of the non-native speakers of English are native speakers of BP, two of Spanish and two of German. In addition, each of the four talker languages has a female and a male representative. Table 1 displays talkers' background information.

As Table 1 shows, eight talkers were adults living in Florianópolis at the moment of data collection, whose age ranged from 20 for the female

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<sup>35</sup> See footnote 6 in Chapter 1.

<sup>36</sup> It was chosen as background for H4 because its results were consistent, statistically significant and followed a pattern established by the Markedness Structural Hypothesis (MDH, Eckman, 1987), which was not found for the intelligibility of verbs ending in *-ed* for Brazilian learners in Delatorre, Silveira and Gonçalves (submitted paper) and in Delatorre and Baptista (2014) for the production of these verbs by a Brazilian learner of English.

German speaker from Germany to 55 for the female native speaker of Spanish from Argentina ( $M= 32.25$ ). According to Table 1, BPT1<sup>37</sup>, BPT2 and ST1 obtained an MA degree in English language in Brazil, whereas (ST2) received an MA degree in Design in Spain; GT2 graduated in Germany; ET2 was completing his undergraduate studies in English language and literature here in Brazil, at UFSC; ET1 was taking Portuguese classes at *Universidade do Sul de Santa Catarina*, and GT1 came to Florianópolis for a trip.

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<sup>37</sup> BPT, ST, GT and ET mean native speakers of Brazilian Portuguese, Spanish, German and English who were the talkers of the present study and provided the oral data used to collect the data with the Brazilian listeners. Number 1 represents female talker whereas number 2 represents male talker.

Table 1  
Talkers' background information

	<b>BPT1</b>	<b>BPT2</b>	<b>ST1</b>	<b>ST2</b>	<b>GT1</b>	<b>GT2</b>	<b>ET1</b>	<b>ET2</b>
<b>Sex</b>	F	M	F	M	F	M	F	M
<b>Age</b>	29	29	55	33	20	42	21	29
<b>Origin</b>	Brazil, Rio Grande do Sul	Brazil, Paraná	Argentina Buenos Aires area	Spain Extremadura area	Germany Berlin area	Germany Brandenburg area	Australia Perth area	USA California area
<b>L1</b>	BP	BP	Spanish	Spanish	German	German	English	English and BP
<b>Time in Brazil</b>	26 years	29 years	1 ½ years	1 ½ years	2 months	12 years	2 months	20 years
<b>Education</b>	MA	MA	MA	MA	High school	Graduation	High school	High school
<b>Went to an English speaking country</b>	USA – 3 ½ years 21–24 years old	England – 1 week 29 years old	USA – 2 weeks 30 years old	England – 2 months 25 – 26 years old	USA – 10 months 16 – 17 years old	Ireland and England – few days 25 years old	-----	-----
<b>Worked and/or studied there</b>	Worked for 3 ½ years; studied for 3 years	Did not work or study there	Did not work or study there	Did not work but studied for 2 weeks	Did not work but studied for 10 months	Worked for few days but did not study	-----	-----
<b>Know another language</b>	No	Italian	Italian	No	Spanish	Spanish and Russian	No	Spanish and Italian

In addition, Table 1 also shows that the six non-native speakers of English traveled to an English country for a short period of time, at least. Only BT1 reported having been there (USA) for a longer period (three years and six months) and only BPT1 reported having worked for three years and a half in the United States and GT2 spent a few days in England and Ireland. ST2 and GT2 also reported having used English at work in Europe when ST2 worked in a tourism business in Spain, and GT2 worked for international companies in Germany and English was the main language spoken in these places. Furthermore, BPT1, BPT2 and ST1 are teachers of English or work with translation studies, which means that they have a daily contact with English nowadays. Moreover, Table 1 demonstrates that(a) only BPT1 studied in an English speaking country for three years and ST2 for two weeks and (b) BPT1, ST1, GT2 and ET2 also have some contact with other foreign languages, namely, Spanish, Italian or Russian.

Furthermore, the analysis of talkers' background presented in Table 2 revealed the amount of time each non-native speaker of English got in contact with English, which varied from 4 years (GT2) to 23 years (ST1) ( $M = 14.5$  years). In the present study, length of time studying English was obtained by adding the years of study at school and language school, which sometimes are simultaneous.

*Table 2*

*Non-native talkers' experiences as English learners*

	<b>BPT1</b>	<b>BPT2</b>	<b>ST1</b>	<b>ST2</b>	<b>GT1</b>	<b>GT2</b>
<b>Pre-school</b>	-----	-----	3 years	-----	-----	-----
<b>Elementary school</b>	-----	4 years	4 years	-----	6 years	-----
<b>Junior high</b>	2 years	4 years	4 years	3 years	-----	2 years
<b>High school</b>	3 years	4 years	4 years	4 years	1 year	2 years
<b>Graduation</b>	3 years	-----	4 years	-----	-----	-----
<b>Language course</b>	-----	4 years	4 years	-----	-----	-----
<b>Other</b>	USA 3 years at university	-----	-----	England 2 weeks at university	German Gymnasium – 6 years;	-----
<b>Total – in years</b>	11 years	16 years	23 years	7 years	13 years	4 years

As Table 2 demonstrates, the length of study for non-native speakers of English varied from four years (GT2), seven years (ST2) to 23 years (ST1), and that Brazilians were in between (11 years of English study for BPT1 and 16 for BPT2). In addition, Table 2 also demonstrates that (a) the non-native speakers of English studied it at regular school, mainly at Junior High and High School and (b) ST1 studied it in pre-school; BPT2, ST1 and GT1 studied it at elementary school, but with a different range of time; BT1 and ST1 studied it at university, and BPT2 and ST1 studied English at language courses, which frequently happened during the junior high and high school periods, thus, adding extra time of contact with English.

In addition, listeners' educational background analysis also revealed the frequency with which they studied English grammar, reading, writing, speaking, listening and pronunciation, which is summarized in Table 3.

*Table 3*

*Frequency of studying some aspects of English language*

	<b>Most of the time</b>	<b>Sometimes</b>	<b>Almost never</b>
<b>Grammar</b>	50% ST1, ST2, GT2	50% BPT1, BPT2, GT1	
<b>Reading</b>	66% BPT1, BPT2, ST2, GT2	33% ST1, GT1	
<b>Writing</b>	50% BPT2, ST2, GT2	50% BPT1, ST1, GT1	
<b>Speaking</b>	16% BPT1	66% BPT2, ST2, GT1, GT2	16% ST1
<b>Listening</b>	33% BPT1, BPT2	50% ST1, GT1 GT2	16% ST2
<b>Pronunciation</b>		33% BPT2, GT1	66% BPT1, ST1, ST2, GT2

Despite the time participants spent studying English, demonstrated in Table 2, information displayed in Table 3 indicates that different aspects of the English language tended to be more frequently taught and studied than others in the talkers' learning process. Thus, the results in Table 3 indicate that grammar, reading and writing skills were more frequently addressed in class, whereas speaking and listening skills as well as pronunciation

were less frequently targeted in class, indicating that those aspects most frequently related to speaking and/or oral communication were not the focus in the English classes attended by these non-native participants', independently of their country of origin or L1.

All talkers' background information presented in this section and in Tables 1, 2 and 3 were gathered from talkers' profile questionnaire, which was added here in order to help better understanding the results of talkers' verb production, which in turn will be used as the stimuli to prepare the intelligibility tests that will be administered to the Brazilian listeners. As previously mentioned, data collection procedures will be described in section 3.4. Within the data collection section, details about how the talkers' produced the target verbs will be provided, as this information will become relevant to understand the way the listeners' results were analyzed.

As previously mentioned, this study also involved the participation of Brazilian listeners, who will be described in the following section.

### **3.3.2. Listeners**

The second group of participants was the listeners, which included 14 Brazilian learners of English enrolled at the *Secretariado Executivo* undergraduate program from UFSC. Listeners 1 to 8 were enrolled in the second and fourth semesters when the first and the second data collections took place whereas listeners 9 to 14 were enrolled in the third and fourth semesters, respectively, when the two data collections occurred. They were 12 female and 2 male, whose age varied from 18 to 46 ( $M= 24.71$ ) in the first data collection session and also from 18 to 46 ( $M= 24.85$ ) in the second data collection session. In addition, their proficiency level varied from Beginner, 16 points, to Upper-Intermediate, 44 points in the Oxford Proficiency Test (See more details about the proficiency test in section 3.4.5). Table 4 provides personal background information from Brazilian listeners, which was also obtained from the profile questionnaire.



Table 4  
*Listeners' profile*

<b>Listener</b>	<b>Sex</b>	<b>Age 1<sup>38</sup></b>	<b>Age 2</b>	<b>Proficiency level</b>	<b>Length of study English at school</b>	<b>Knowledge of other FL</b>
1	F	18	18	36 points, B1	12 years	Yes, Spanish
2	F	26	27	27 points, A2	12 years	No
3	F	22	23	19 points, A2	7 years	No
4	F	46	46	33 points, B1	7 years	Yes, Spanish
5	F	22	22	20 points, A2	7 years	No
6	F	30	30	39 points, B1	11 years	No
7	F	21	21	18 points, A2	9 years	Yes, Spanish
8	F	18	18	16 points, A1	10 years	No
9	M	32	32	33 points, B1	14 years	No
10	F	23	23	42 points, B2	3 years	No
11	M	23	23	44 points, B2	7 years	Yes, Spanish
12	F	23	23	23 points, A2	7 years	No
13	F	20	20	43 points, B2	11 years	No
14	F	22	22	33 points, B1	8 years	No

Results displayed in Table 4 demonstrate that listeners' length of English study varied from 3 to 12 years prior to the data collection and that 4 out of 14 listeners reported having some knowledge of other FL (Spanish). In addition to data presented in Table 4, listeners' profile questionnaire

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<sup>38</sup> Age 1 means listeners' age in the first data collection session and Age 2 means listeners' age in the second data collection session.

also revealed that only participant 14 reported living or even traveling to an English speaking country previous to data collection. She lived in the United States for one year and a half when she was around 10 to 11 years old, and had contact with native and non-native speakers of English there.

Having presented information about the two groups of participants, talkers and listeners, the following section – 3.3.3 – will describe listeners’ teachers, who also provided relevant data for the study.

### 3.3.3. Listeners’ teachers

Four female Brazilian teachers were teaching English classes to the listeners at the moment the data were collected. Teachers’ participation in this study was included in order to better understand the listeners’ results in the intelligibility test, which could be influenced by teachers’ work in class. Regarding the teachers’ profile, three of them owned a PhD degree and one of them an MA degree, all in English Language and Literature. Their age ranged from 30 to 53 ( $M = 39.50$ ) and their experience in English teaching ranged from 6 to 26 years ( $M = 15.25$  years). Table 5 displays more detailed information about their profile.

*Table 5*

*Teachers’ profile*

Teacher	Sex	Age	Degree	Time teaching English	Living in an ESC <sup>39</sup>	Knowledge of other languages
1	F	43	PhD	22 years	USA, England	French
2	F	53	PhD	26 years	England	Spanish
3	F	32	PhD	6 years	USA, UK Ireland, New Zealand, Australia, Trinidad & Tobago	French and Spanish
4	F	30	MA	7 years	USA	French and Spanish

<sup>39</sup> ESC: English speaking country.

Table 5 also demonstrated that all teachers' experience in English speaking countries varies and all of them have some knowledge about another FL, also a Romance language, either French or Spanish, or both. In addition, their profile questionnaire also asked how frequently they studied some aspects of English language, such as grammar, reading, writing, speaking, listening and pronunciation and how frequently they teach them. Results, displayed in Table 6 revealed that all of them studied grammar, reading, writing, speaking and listening most of the time whereas three of them studied pronunciation most of the time and one of them (Teacher 4) studied pronunciation for sometimes.

*Table 6*

*Frequency of studying some aspects of English language*

<b>Language aspect</b>	<b>Most of the time</b>	<b>Sometimes</b>	<b>Almost never</b>
<b>Grammar</b>	100% T1 <sup>40</sup> , T2, T4, T4		
<b>Reading</b>	100% T1, T2, T4, T4		
<b>Writing</b>	100% T1, T2, T3, T4		
<b>Speaking</b>	100% T1, T2, T3, T4		
<b>Listening</b>	100% T1, T2, T3, T4		
<b>Pronunciation</b>	75% T1, T2, T3	125% T4	

However, results from their profile questionnaire also demonstrate that the teaching of grammar, reading, writing speaking, listening and pronunciation is not as frequent as they were in teachers' own learning process. Table 7 shows these results.

As Table 7 shows, Teacher 2 tends to teach grammar, reading, writing, speaking, listening and pronunciation sometimes, whereas Teachers 1, 3 and 4 teach grammar, reading, writing and speaking most of the time. Teachers 1 and 4 teach listening most of the time and teachers 2 and 3 teach it sometimes. Thus, results displayed in Table 7 indicate that the three

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<sup>40</sup> T1, T2, T3 and T4 mean Teacher 1, Teacher 2, Teacher 3 and Teacher 4, respectively.

aspects that may be more involved to communication and intelligibility, that is, listening, speaking and pronunciation, are not as frequently taught as grammar, reading and writing seem to be.

*Table 7*

*Frequency of teaching some aspects of English language*

<b>Language aspect</b>	<b>Most of the time</b>	<b>Sometimes</b>	<b>Almost never</b>
<b>Grammar</b>	75% T1, T3, T4	25% T2	
<b>Reading</b>	75% T1, T3, T4	25% T2	
<b>Writing</b>	75% T1, T3, T4	25% T2	
<b>Speaking</b>	75% T1, T3, T4	25% T2	
<b>Listening</b>	50% T1, T4	0% T2, T3	
<b>Pronunciation</b>	25% T3	75% T1, T2, T4	

Regarding pronunciation, only Teacher 3 said she teaches it most of the time whereas other three teachers said they do it sometimes. Considering pronunciation teaching, Teachers 1, 2 and 4 said they follow book activities and Teacher 3 said that she only calls students' attention to pronunciation. In addition, Teachers 1 and 2 also said they call their students' attention to pronunciation and Teacher 4 said she also prepares special pronunciation material to use in class besides following book activities.

Having described the three participant groups, the following section will describe materials, instruments and procedures that were used to collect data from all the participants: talkers, listeners and listeners' teachers.

### 3.4. MATERIALS, INSTRUMENTS AND PROCEDURES FOR DATA COLLECTION AND ANALYSIS

This section describes the consent form and questionnaire for all participants, as well as the tests and procedures to collect and analyze the data gathered from each group. First, the researcher wrote de consent forms, the questionnaires, organized the sentences, the familiarity and proficiency tests. The data collection section for talkers was individual and took place in one single day for each talker in which they signed the consent form, made the recordings and answered the talker profile questionnaire. Table 8 summarizes these procedures.

*Table 8*

*Summary of the procedures used to collect data from talkers*

<b>Researcher's activities</b>		<b>Talkers' activities</b>	
<b>Procedures</b>	<b>Appendix</b>	<b>Procedures</b>	<b>Appendix</b>
Prepare the consent form	A	Sign the consent form	A
Prepare the questionnaire	B	Audio-record the 8 sentences for intelligibility test familiarization session	N
Write and group the sentences and verbs	C, D, E, G, H	Audio-record the 96 sentences for the intelligibility test	D
Analyze and phonetically transcribe the verbs	F	Answer the questionnaire	B

On the other hand, the data collection with the listeners took place in two different moments, as it was a longitudinal study. In this regard, the first data collection session for listeners was split into two days. On the first day, listeners signed the consent form, completed the familiarization session and the intelligibility and the familiarity tests, whereas the proficiency test and the listeners' questionnaire were answered on the second day of the first data collection session. This procedure was adopted to avoid that listeners got stressed and/or tired to perform these tests in one

session only. Regarding the second data collection session, as it involved signing the listeners' consent form again, administering the intelligibility and familiarity tests and answering the questionnaire, it was conducted in one day only. These procedures are summarized in Table 9.

*Table 9*

*Summary of the procedures used to collect data from listeners in the two data collection sessions*

<b>Session 1 = 25 listeners at the 2<sup>nd</sup> day</b>		<b>Session 2 = 14 listeners</b>	
<b>1<sup>st</sup> day</b>		<b>One day only</b>	
<b>Procedures</b>	<b>Appendix</b>	<b>Procedures</b>	<b>Appendix</b>
Sign the consent form	A	Sign the consent form	A
Take the familiarization session	N	Take the intelligibility test 2	G, I
Take the intelligibility test 1	G, I	Take the familiarity test 2	K
Take the familiarity test 1	K	Answer the questionnaire	B
<b>2<sup>nd</sup> day</b>			
Answer the questionnaire	B		
Take the proficiency test	L		

Finally, the listeners' teachers signed the consent form and answered their profile questionnaire in one session only. Detailed information about materials and instruments as well as procedures for data collection will be given in the following subsection. Consent forms are going to be described first.

### **3.4.1. Consent forms**

The three-group-consent-forms provided participants with information about the research and the researcher's and research group main

interests, about the research design, and details about the tasks participants had to perform during data collection, including the possibility to terminate their participation in the study at anytime should they decide it. The researcher was present at all data collection sessions and to solve any doubt that any participant might have regarding the data collection and their participation in the present research. In addition, all the consent forms included the researcher's and her advisor's contacts, such as cell phone numbers and e-mails. The three consent forms are presented in Appendix A.

The talker-group consent form stated that they had to read and sign the consent form first, read and audio-record the sentences and then answer the profile questionnaire. The talker group consent form was written in BP for Brazilians and in English for its native speakers and to Spanish and German L1 talkers, and were completed at the *Laboratório de Fonética Aplicada (FONAPLI)* at UFSC where these participants' reading aloud sessions were audio-recorded.

The Brazilian listeners' consent form stated that they were going to participate in the three data collection sessions<sup>41</sup> in which they would take an intelligibility test and a familiarity test, and answer a profile questionnaire. Furthermore, the form also stated that the listeners would take a proficiency test and a familiarization session in the first data collection session. This consent form was presented in the two data collection sessions in order to collect data from all listeners in the classroom at the two different moments of data collection.

Finally, the Brazilian listeners' teacher consent form, which was written in English, stated that they would read and sign the consent form before answering a profile questionnaire, which was filled in the classroom while their students took the familiarity test and answered their own questionnaire.

Having presented the consent forms, the following section will turn to the questionnaires and procedures to collect data with them.

### **3.4.2. Questionnaires**

Questionnaires were administered to all participants and each group answered its specific questionnaire version (see appendix B). Thus, the talker questionnaire had 16 questions (seven open questions and nine

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<sup>41</sup> Procedures for data collection will explain why this study had only two data collections rather than three, as expected when the study was designed.

multiple choice questions) related to their profile, such as their first language, age, sex, length of residence in Brazil, their occupation in Brazil, contact with Brazilians speaking English, and the possibility of teaching their first language and/or English in Brazil. Questions 1 to 8 elicited talkers' educational background information while questions 9 to 16 elicited talkers' linguistic background information. This questionnaire is based on Silveira (2012) and was written in English. It was administered at the end of the data collection session, after the procedure of sentence audio-recording, and was answered individually.

Regarding the listeners' questionnaire, it was written in BP to avoid participants' misinterpretation of the questions. It included 31 questions (24 multiple-choice questions and seven open questions) related to listeners' educational background (questions 1 to 7, 28 and 29), language experience (8 to 27), and the listeners' evaluation of the intelligibility (word recognition) and the familiarity tests ease or difficulty<sup>42</sup> (30 and 31). The listeners' questionnaire is adapted from Kluge's (2009) and Silveira's (2012) questionnaires for Brazilian learners of English and Becker's (2013) procedures for data collection in which American (control group) and Brazilian listeners indicated the amount of information they understood from the text they heard in the first test (listeners performed three tests in Becker's study). The listeners' questionnaire was administered in each of the two data collection sessions with listeners.

Brazilian listeners' teachers of English answered a profile questionnaire that elicited information about their educational background and teaching experience, including time they have been teaching English and if they teach pronunciation in class or not. The listeners' teacher questionnaire was included in this research because their attitudes and choices in class, as well as their beliefs, might interfere in the listeners' answers and, consequently, in the present study results. Thus, questions 1 to 7 of the teachers' questionnaire elicited information about teachers' personal and educational backgrounds and questions 8 to 17 about their linguistic background and teaching experience. This questionnaire was written in English and administered to the teachers while their students answered the familiarity test and the listeners' questionnaire. Each teacher answered it only once.

The following section (Section 3.4.3) will detail the tests and procedures used to collect data from talkers in the reading-sentence task that

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<sup>42</sup> Adapted from Kluge (2009) who asked participants to indicate which had been the most difficult identification test.



was audio-recorded to become the intelligibility test source. Thus, in order to know how talkers produced the input listeners would receive in the intelligibility test, the researcher analyzed talkers' productions, which will be presented in the following section, since these results are necessary to understand the categories used for analyzing the results of the intelligibility test. The following section (3.4.3) will start by describing the verbs and the sentence order list used in the reading task completed by the talkers.

### 3.4.3. Sentence-reading task and audio-recording sessions

This section presents verbs and sentences used in the sentence-reading-task during the audio-recording sessions with talkers, explains the criteria used to select these verbs and sentences, the sentence order in which they occurred, and, the procedures to conduct the sentence-reading task and the audio-recording sessions. Finally, it also presents a brief description of talkers' verb production in order to clarify how they were produced, since they were used as oral input in the intelligibility tests, which were the focus of the present study.

#### 3.4.3.1. Preparing the sentences

The sentence-reading task had 104 sentences, including eight sentences with verbs in the present tense and 96 with verbs in the simple past tense but with no indication that they were written in the simple past tense, except the verb, such as time adverbs as yesterday or last year, week or month. Among the sentences with verbs in the simple past, 72 of them had regular and 24 irregular<sup>43</sup> verbs. Regarding the 72 sentences with regular verbs, 24 sentences were written for each of the three *-ed* allomorphs. The same number of verbs for each *-ed* allomorph and for irregular verbs, that is, 24, was used in order to balance the task (See the list of sentences with verbs for each of the three *-ed* allomorphs and irregular verbs in Appendix C). Each sentence had subject, only one verb in the simple past tense, either regular or irregular, and a complement, three to six words maximum, describing daily life events in the simple past tense. The sentences used in this study were adapted from Delatorre (2006a, 2010a) or written by the researcher. Table 10 provides some samples of these sentences, while

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<sup>43</sup> Irregular verbs were considered distractors in the present study.

Appendices C and D provide the 104 sentences prepared for the sentence reading task and intelligibility tests organized according to the verb pronunciation type (Appendix C) and to sentence-reading order (Appendix D). Appendix E presents the list of verbs in alphabetical order for a quick overview of the verbs selected to be used in this study.

*Table 10*

*Sample of sentences distributed according to type of verb*

<b>Allomorph [t]</b>	<b>Allomorph [d]</b>	<b>Allomorph [ɪd]</b>	<b>Irregular verbs</b>
They skipped some exercises	The stadium cheered him	He needed a job	Kids slept for 10 hours
Suzy kissed her father	She played piano	I visited my family	She bought a new car

Following previous studies (e.g., Delatorre, 2006a, 2010a), verbs ending in *-ed* were not followed by words that started with similar sounds such as the [T] or [d], in the phonological context in the present study (see Appendices C and D to check for all the sentences). Moreover, following Delatorre (2006a), most verbs in this study had only one syllable, such as ‘kissed’ and ‘played’, in order to avoid word-stress placement influence. The only exception to this criterion in this study were the regular verbs in which the *-ed* was pronounced as [ɪd], such as “wanted”, “adopted”, “needed” and “recorded”, which contain two or three syllables in the past tense form, including one exclusive to form the simple past tense [ɪd]. Moreover, verbs with voiced and voiceless preceding *-ed* contexts (/p, t, d, k, g, f, v, s, z, ʃ, tʃ, dʒ, m, n, ɹ, l, ei, ai/) were used in the present study. Thus, verbs with the three *-ed* allomorphs were included in this study in order to balance the number of verbs with difficult and easy preceding *-ed* contexts in the reading/audio-recording session, and consequently, in the intelligibility and familiarity tests.

After writing the sentences, but previously to the audio-recording sessions, the researcher created the sentence-randomized order that was used in audio-recording sessions with talkers. Appendix D displays the sentences in the randomized order. This sentence-randomized order took into account (a) sentence distribution per talkers; (b) talkers’ L1 and (c) the three *-ed* allomorphs or irregular verb distribution among themselves and talkers, which could not occur in sequence. In other words, sentences

produced by the same talker or by talkers from the same L1 or sentences that had verbs with the same allomorph or irregular verbs could not occur in sequence, as demonstrated in sentences in Appendix D. This procedure was used in order to balance the number and type of sentences and verbs produced by each talker as well as the talker's productions and talkers' L1 since it was meant to expose Brazilian listeners to any pronunciation of English regular verbs, word and sentence stress, rhythm and intonation. Talkers' pronunciation for regular verbs in the simple past tense was neither the main concern in this study nor the criteria to choose the sentences that would appear in this study, rather, talker, talkers' L1 and type of verb (e.g., irregular or one of the three *-ed* allomorphs) were the criteria that guided the sentence randomization.

Besides the sentences in the simple past tense, previously to audio-recording sessions, the researcher also wrote eight sentences with regular and irregular verbs in the simple present tense, which were used in the familiarization sessions for the intelligibility and familiarity tests. Each sentence had only one verb and three to five words describing daily life events. These sentence and verbs are also presented in Appendix D and in Table 11 below.

*Table 11*

*Familiarization session sentences in a non-randomized order distribution*

<b>Allomorph [t]</b>	<b>Allomorph [d]</b>	<b>Allomorph [ɪd]</b>	<b>Irregular verbs</b>
Men also cook well	My parents travel every year	They print books	People make mistakes
Children cross a street	Babies cry a lot	Teachers grade students	We spend time dancing

The following section will describe the sentence-reading task, the audio-recording sessions and the procedures to analyze the data the talkers produced.

### 3.4.3.2. The sentence-reading task in talkers' audio-recording sessions and their verb production treatment

The sentence-reading task was recorded individually and took place in different days, according to talkers' availability on August 2015. It was the first part of the study to be conducted, since it was used to gather the data for the intelligibility test to be administered to Brazilian listeners, which was the focus of this study. Thus, each talker individually read the sentences before recording them in order to check for vocabulary to make sure their reading would be easy, fluent and with few pauses and hesitations. Pronunciation questions were not answered before or during the sentence recording. After this first contact with the sentences, the researcher and her assistant, a PhD student from UFSC, provided talkers with instructions in English on how they had to read and manipulate the power point presentation in which the sentences were presented, audio-record the sentences reading as naturally as possible and have the microphone in the best recording position. The audio-recording sessions of the reading task took place at FONAPLI-UFSC, a lab equipped with a sound isolation booth, a *C 520 L* professional head-worn condenser microphone connected to a hybrid audio interface *MOTU Ultra Lite mk3* and an audio editor software, *Ocean Audio*, mono connected to an iMac computer to record the data, which was used to guarantee the recording quality for further acoustic analysis and visual inspection of talkers' productions.

The same sequence of 104 sentences, first eight for the familiarization session, and then the 96 for the intelligibility test, were presented individually to each of the eight talkers and displayed in a Power Point presentation with a 54-sized-black font in a white background in order to present a comfortable reading condition for the talker. Sentences were unnumbered and were presented in the randomized order displayed in Appendix D with sentences with one of the three *-ed* pronunciations for regular verbs mixed with sentences containing irregular verbs and produced by different talkers. At the end of each individual audio-recording session, each talker had his/her individual audio file saved in the sound wave format with all 104 sentences recorded in the same sequence. All these procedures for sentence recording were followed in order to facilitate looking for each sentence produced by a specific talker and organize the three oral input files with 32 randomized sentences for each of the three intelligibility tests designed for the study, which will be detailed in section 3.4.4.

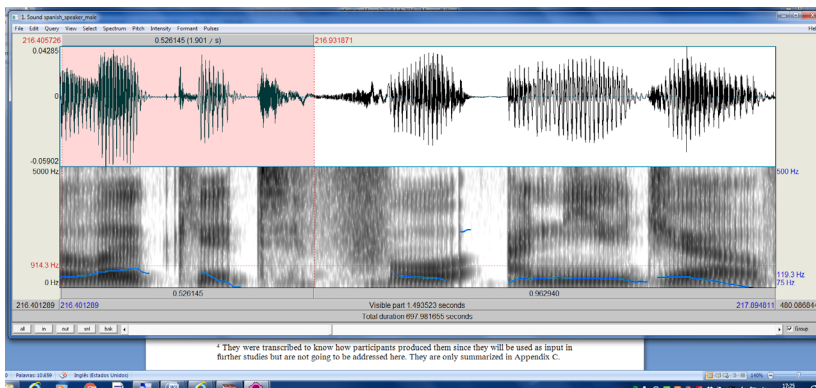
With all recordings available, talkers' pronunciation analysis of all regular and irregular verbs was made with the help of PRAAT software<sup>44</sup> to guarantee a more confident auditory-acoustic analysis (which was possible due to the great sound quality of the recordings), a clear visual analyses through spectrograms, and, a more accurate transcription of talkers' target verb pronunciation, or of their speech presented to listeners as oral input for the intelligibility test. Thus, the analyses of talkers' verb pronunciation took into account (a) the presence or absence of an epenthetic vowel in the case of verbs in ending *-ed*, as in "liked", which may be produced as [laiked] or [laikt]; (b) the absence of final consonants or entire syllables, especially when verbs are produced in the stem form, such as 'missed' and 'visited' produced as [mɪs] and [vɪsɪt], respectively; (c) the presence of orthography pronunciation, in which a verb tends to be pronounced according to its orthography, as in the case of the verb 'laughed' pronounced as [lauged]<sup>45</sup>, and (f) verb replacement by another word. In addition, right after analyzing each verb produced by each talker with the PRAAT software, the researcher phonetically transcribed each verb following the IPA. All regular and irregular verbs' transcriptions were made in the months of September and October 2015 and are displayed in Appendix F. Despite not being the focus of the present study, irregular verbs produced in the past were also acoustically and visually analyzed in order to have a broader idea of talkers' pronunciation as a whole. Note, however, that the sentences with irregular verbs were not included in the talkers' pronunciation results for the present study presented in section 3.4.3.3, neither in the intelligibility test results (Chapter 4).

To demonstrate how the target verbs were analyzed with PRAAT, Figure 1 brings the spectrogram created by this software for the verb 'looked' produced with an epenthetic vowel by ST2, which was chosen to illustrate an epenthetic production of regular verbs. Note that the spectrogram shows the presence of two vowels, thus indicating the occurrence of the extra syllable created when the informant inserted the epenthetic vowel, which is followed by a stop and a final aspiration. Indeed, the auditory analysis suggests that the target word was pronounced as [luket<sup>h</sup>].

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<sup>44</sup> Sentences for the familiarization session were not acoustically analyzed.

<sup>45</sup> Examples of *-ed* ending verb pronunciations are taken from Delatorre (2006a) and examples for the irregular verb pronunciation are based on the researcher experience and literature in the field of English Phonetics and Phonology.



**Figure 1: Epenthesis production of the verb ‘looked’ by ST2.**

As this section explained the sentence-reading task, the audio-recording sessions and the verb production treatment, the following section will briefly describe all talkers’ regular verb production results since they were the test items for the intelligibility tests and knowing how they were actually produced by the talkers is important to analyze listeners’ performance.

### 3.4.3.3. Talkers’ verb production results

This section presents the results for the production of English regular verbs in the simple past by the eight talkers, that is, the two native speakers of English and the two native speakers of BP, Spanish and German, who produced 72 regular verbs each, obtaining a total of 576 verbs. After the acoustic and visual analysis made with the PRAAT software, it was found that among these 576 verbs, 429 (74.47%) were accurately produced and 147 (25.52%) had non-target pronunciation. As Table 12 demonstrates, the non-target pronunciations were produced by both native speakers of English with 36 non-target productions out of 144 (25%) and non-native speakers with 111 non-target productions out of 432 (25.09%). In addition, Table 12 also demonstrates that Spanish talkers had the highest rates of non-target pronunciations (39.58%), followed by Germans (26.38%) and Brazilians (11.11%), which are going to be detailed in the following paragraphs. More over, according to the results displayed in Table 12, 35 verbs (6.07%) were produced with an epenthetic vowel when it was not

required<sup>46</sup>, 60 of them (10.41%) were produced in the stem form, and 52 verbs (9.02%) had other types of non-target pronunciation, such as, final cluster devoicing, changing the *-ed* preceding context; third person singular production, and word replacement. These results suggest that talkers had different strategies to deal with the pronunciation of English regular verbs ending in *-ed*. They are displayed in Table 12.

*Table 12*

*Overall results for the production of regular verbs ending in -ed by the eight talkers (percentages in parenthesis)*

Category	BRT1&2	ST1&2	GT1&2	Total NNTs <sup>47</sup>	ET1&2	TOTAL
Accurate production	128 (88.88)	87 (60.41)	106 (73.61)	321 (74.30)	108 (75.00)	429 (74.47)
Epenthesized production	04 (2.77)	31 (21.52)	00 (0.00)	35 (8.10)	00 (0.00)	35 (6.07)
Stem production	06 (4.16)	04 (2.77)	19 (13.19)	29 (6.71)	31 (21.52)	60 (10.41)
Other productions	06 (4.16)	22 (15.27)	19 (13.19)	47 (10.87)	05 (3.47)	52 (9.02)
All non-target pronunciations	16 (11.11)	57 (39.58)	38 (26.38)	111 (25.69)	36 (25.00)	147 (25.52)

N for each group of native and non-native talkers = 144; N for all NNTs = 432; Total for all talkers = 576

Regarding the accurate production of regular verbs ending in *-ed*, results displayed in Table 12 indicate an overall high accurate production rate of these verbs by these eight talkers, thus corroborating findings with more proficient BP learners of English (e.g., Alves, 2007; Delatorre, 2004; Frese, 2006; Pereira, 1994) and suggesting that these talkers were possibly more proficient than participants of previous studies (Alves, 2004; Delatorre, 2005, 2006a, b), who were basically beginning or intermediate Brazilian EFL learners. In addition, Table 12 also demonstrates that the

<sup>46</sup> This calculation does not include verbs in which vowel epenthesis must be used, that is, verbs ending in /d/ or /t/ in their base form.

<sup>47</sup> NNTs: non-native talkers.

rate of accurate<sup>48</sup> production for native and non-native speakers of English were similar, 74.30% for non-native speakers and 75% for native speakers. Nevertheless, the rate of accurate production among the four speaker groups varied from 88.88% for BPTs to 60.41% for STs, which may be related to the fact that<sup>49</sup> (a) Brazilians and ST1 were teachers of English; (b) ST2, who produced a high rate of non-target verbs, and both German L1 speakers were not teaching English and used the language at work to communicate, and (c) ET2 was also an English teacher and student in Brazil and ET1 was taking exchange Portuguese classes in Brazil in order to learn BP. Thus, it is possible that those talkers who were teachers either (a) had mastered the production of the English *-ed* forms, or (b) were more successful at, either consciously or unconsciously, monitor their speech while reading the sentences, increasing accurate productions.

Considering the non-target pronunciation, Table 12 demonstrates that 25.25% of talkers' productions were non-target, which was very similar to the rate for English non-native speakers (25.69%), GTs (26.38%) and ETs (25%), but higher than the rate for BPTs (11.11) and lower than the rate for STs (39.58%), which might have been caused by different syllable simplification strategy use. Talkers whose L1 was a Romance language (e.g., BP and Spanish) tended to use vowel epenthesis, stem productions<sup>50</sup> and other non-target productions to deal with the pronunciation of regular verbs in the simple past tense whereas both native speakers of German and English, which are not Romance languages, did not use epenthetic vowel to pronounce these verbs, rather, speakers of both languages used stem productions and other non-target pronunciations, including changes in the preceding *-ed* context, to deal with the pronunciation of regular verbs ending in *-ed*. Detailed discussion about stem productions and other non-target pronunciations will be provided in the following paragraphs. However, vowel epenthesis production by BPTs and STs will be considered first.

Regarding vowel epenthesis, results demonstrate that it occurred in verbs such as 'watched' (BPT1, BPT2), 'parked' and 'changed' (BPT2)

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<sup>48</sup> Accurate pronunciation means the standard pronunciation patterns /t/, /d/, /ɪd/ for the *-ed* morpheme, as described in pronunciation textbooks such as Celce-Murcia, Brinton and Goodwin, (1996); Hagen and Grogan (1992); Hancock (2003); Lane (1993); Prator and Robinett (1985); Reed and Levis (2015).

<sup>49</sup> The following information was obtained from the profile questionnaire.

<sup>50</sup> Stem production will be discussed in the following paragraphs since it includes talkers from the four languages involved in this study.



produced as [wɔtʃəd], [pɑrket], [tʃeɪndʒɪəd]; ‘judged’ and ‘watched’ (ST1) produced as [dʒʌdʒəd] and [wɔtʃəd], ‘stopped’, ‘jumped’, ‘planned’ and ‘played’ (ST2) produced as [stɒpət], [ʒʌmpəd], [pleɪnɪd] and [pleɪnd], respectively. These results corroborate previous studies’ results (e.g., Delatorre, 2005, 2016a, b; Delatorre & Baptista, 2014) since (a) most difficult contexts, such as /p, tʃ, dʒ/ or clusters /ndʒ, mpt, rkt/ found in ‘stopped’, ‘watched’, ‘judged’ and ‘changed’, ‘jumped’ and ‘parked’, respectively, were frequently modified by vowel epenthesis, and (b) the ST2, who was possibly the less proficient talker, frequently used vowel epenthesis in his pronunciation of regular verbs ending in *-ed*, corroborating results of Alves (2004), Delatorre (2005, 2016a, b, 2010a, Delatorre and Baptista (2014) and Pereira (1994). Thus, one talker of the present study (ST2) most frequently used epenthetic vowels in contexts where it was not required, besides other syllable modification strategies, influencing the overall high rates of non-target productions for Spanish talkers, whereas other talkers (BPT1, BPT2, ST1) produced vowel epenthesis only in specific verbs, such as ‘parked’, ‘watched’ and ‘changed’, in which the *-ed* was preceded by difficult contexts /k, tʃ, dʒ/, according to Delatorre’s (2005, 2006a) and Delatorre and Koerich’ (2008) results.

Considering stem productions for BPTs and STs, results demonstrate that it was less frequent than vowel epenthesis for these talkers and that it occurred in verbs such as ‘ask’, ‘park’, ‘judge’, ‘change’, ‘visit’ (BPT1) and ‘type’ (BPT2), ‘clap’, ‘save’, ‘provide’ (ST2), corroborating previous results for Brazilian EFL learners (e.g., Alves, 2004; Delatorre, 2005, 2016a, b; Delatorre & Baptista, 2014). In addition, results displayed in Table 10 demonstrate that German talkers, who produced stem verbs, such as ‘stop’, ‘miss’ (GT1, GT2), ‘type’, ‘plan’ and ‘post’ (GT1) and ‘help’, ‘park’, ‘ask’, ‘fix’, ‘need’ and ‘include’ (GT2), more frequently used this syllable simplification strategy than BP and/or Spanish talkers in the present study, also corroborating results of previous studies for Brazilian EFL learners (e.g., Alves, 2004; Delatorre, 2005, 2016a, b; Delatorre & Baptista, 2014). Moreover, according to results displayed in Table 12, English native talkers more frequently than English non-native talkers had stem productions in verbs such as ‘cross’, ‘dress’ (ET1) ‘skip’, ‘help’ ‘talk’ ‘kiss’ (ET2), ‘type’, ‘look’, ‘ask’ ‘miss’ and ‘fix’ (ET1, ET2). Among the 72 regular verbs included in the sentence reading task, 23 were produced in the stem form by one talker at least, as demonstrated in the examples above.

Hagen and Grogan (1992) and Alameen and Levis (2015) explain that some sound linking may occur when the sound that occurs in the onset of the following word is similar to the previous coda sound, as it seemed to have occurred in the production of the verb ‘missed’ in the sentence ‘He missed some classes’ (See Appendices C and D to check all sentences, verbs and following words). However, linking between similar onset and coda sounds cannot explain other instances with stem productions, rather, these stem productions by native and non-native speakers of English might reflect sentence misreading to all of them, lack of English proficiency for non-natives, an attempt to imitate or follow English-native-speakers’ pattern and/or difficulty to pronounce verbs in which the preceding *-ed* contexts were considered more difficult for Brazilian EFL learners to produce, such as voiceless contexts, found in 14 verbs (See Appendix F for verb phonetic transcription), followed by some voiced contexts, found in five verbs, corroborating previous studies (e.g., Delatorre, 2005, 2016a, b; Delatorre & Baptista, 2014) and then by preceding alveolar stops /t, d/ (e.g., Delatorre & Baptista, 2014; Frese, 2006, 2009).

Finally, other non-target pronunciations of regular verbs ending in *-ed* were produced by the two native speakers of English and the two native speakers of Brazilian Portuguese, Spanish and German. These non-target productions by BPTs and STs involved strategies such as (a) changes in the preceding *-ed* context in verbs ‘painted’ and ‘guided’ produced as [peɪɪd] and [kaɪəd] by BPT; ‘filled’ and ‘stayed’ produced as [fiʊd] and [steɪəd] by BPT2; ‘brushed’, ‘plugged’, ‘judged’ and ‘started’ produced as [brʊʃet], [plʌʒedɪd], [dʒʊgəd] and [stɑ:ɪtʃɪ] by ST2; (b) present third person singular in ‘fixed’, produced as [fiksəs] by ST2; and (c) verb replacement in which verbs ‘skipped’ and ‘proved’ were replaced by a word that sounded like [spɪkɪt] and by the verb ‘provided’, respectively, by ST2. Thus, these non-target productions were possibly caused by, misreading, lack of English proficiency or difficulty with the pronunciation of some contexts or clusters, such as /p, g, v, ʃ, dʒ, ks/, which are also difficult for Brazilians English learners (Delatorre, 2005, 2006a, b; Delatorre & Koerich, 2008).

In the case of German talkers, other non-target pronunciations included devoicing /g/ and /v/ preceding *-ed* contexts in the verbs ‘plugged’ and ‘saved’, produced as [plak] and [seɪf] (GT1), and, the entire cluster in ‘lived’, produced as [lɪft] (GT1, GT2), and in ‘proved’ and ‘loved’ produced as [pɹʊft] and [laft] (GT2), which seemed to have been caused by L1 interference since the <v> grapheme tends to be pronounced as [f] in

German (Antonsen, 2007). In addition, Yavas (1994) found that German speakers tended to devoice final-English obstruents, which he attributed to L1 influence, since, as pointed out by Antonsen (2007) and Crystal (2008), some varieties of German have a preference for final voiceless obstruents.

Regarding English native speakers, results demonstrate that their other non-target pronunciations included (a) the substitution of ‘caused’ by ‘cost’, possibly due to misreading, and (b) the replacement of the preceding *-ed* context /dʒ/ by [ʒ] in ‘changed’, all by ET1, and these modifications may be due to misreading or to an English L1 phenomenon in fluent speech (lenition<sup>51</sup>). Thus, these results indicate that English native speakers, as well as non-native speakers, tend to use some syllable simplification strategies that were not predicted by the previous studies reviewed here and the pedagogic literature in the field regarding English native speakers’ pronunciation of regular verbs ending in *-ed*. Considering that the present study is interested in the development of Brazilians’ ability to recognize English regular verbs produced by potential interlocutors, a decision was made to include all types of production in the intelligibility tests. This is because it is important to keep in mind that L2 learners are exposed to a variety of pronunciation, and in order to understand how their L2 perception and production develops, it is important to examine the different types of input they are exposed to.

Sixty-four sentences containing one verb in the simple past tense in each of them were used in two out of three initially designed intelligibility tests<sup>52</sup>, including 48 with regular verbs and 16 with irregular verbs. Table 13 summarizes information about talker, target verb, and type of verb production for the first and second intelligibility tests. Thus, as Table 13 demonstrates, among the 48 regular verbs ending in *-ed* used in both intelligibility tests, 17 were produced target-like, three were epenthesized, three were stem productions and one had coda change in the first intelligibility test. In the second intelligibility test, 18 verbs were produced target-like, two were epenthesized, one had stem production and three had coda change.

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<sup>51</sup> According to Crystal (2008), lenition refers to a sound strength weakening, transforming a stop into a fricative or reducing a sound to zero (Adapted from Crystal, 2008, p. 274).

<sup>52</sup> Only two intelligibility tests were administered because the number of participants reduced a lot from the first to the second test and the administration of a third test could reduce it again, thus making it difficult for the researcher to draw comparisons across three different test times.

Table 13

*Talker, target verb and type of production for intelligibility tests 1 and 2*

Intelligibility test 1			Intelligibility test 2		
Talker	Verb	Production	Talker	Verb	Production
BPT2	Bought	Target-like	GT1	Proved	Target-like
ST2	Voted	Target-like	ET1	Attended	Target-like
ET2	Trained	Target-like	BPT2	Asked	Target-like
GT2	Washed	Target-like	ST1	Drew	Target-like
BPT1	Cheered	Target-like	ET2	Danced	Target-like
GT1	Guided	Target-like	GT2	Saw	Target-like
BPT2	Played	Target-like	ST1	Crossed	Target-like
GT2	Drove	Target-like	GT1	Printed	Target-like
ET2	Painted	Target-like	BPT2	Shared	Target-like
GT1	Laughed	Target-like	ET2	Woke up	Target-like
ST1	Saved	Target-like	ST2	Adopted	Target-like
BPT2	Visited	Target-like	BPT1	Brushed	Target-like
GT1	Took	Target-like	ET1	Taught	Target-like
ET1	Judged	Target-like	BPT2	Drank	Target-like
BPT1	Skipped	Target-like	ET2	Sounded	Target-like
ST1	Avoided	Target-like	GT1	Clapped	Target-like
ST2	Had	Target-like	ST1	Joined	Target-like
BPT2	Kissed	Target-like	BPT1	Fought	Target-like
GT2	Spelled	Target-like	ET1	Failed	Target-like
ET1	Recorded	Target-like	ST1	Reminded	Target-like
BPT1	Slept	Target-like	GT1	Gave	Target-like
GT2	Waited	Target-like	ET1	Jumped	Target-like
ET2	Wrote	Coda change	ST2	Sang	Target-like
BPT1	Needed	Coda change	ET2	Called	Target-like
ET1	Made	Coda change	GT2	Dressed	Target-like
GT1	Cause	Stem	BPT2	Counted	Target-like
ET2	Missed	Stem	BPT1	Rented	Coda change
ET1	Stopped	Stem	GT2	Planned	Coda change
ST2	Screamed	Epenthesis	GT2	Added	Coda change

(continued)

(Table 13 continued)

Intelligibility test 1			Intelligibility test 2		
ST2	Looked	Epenthesis	BPT1	Changed	Stem
ST1	Came	Epenthesis	ST2	Tried	Epenthesis
ST1	Watched	Epenthesis	ST2	Worked	Epenthesis

As Table 13 demonstrates, among the 48 regular verbs ending in *-ed* used in both intelligibility tests, 17 were produced target-like, three were epenthesized, three were stem productions and one had coda change in the first intelligibility test. In the second intelligibility test, 18 verbs were produced target-like, two were epenthesized, one had stem production and three had coda change. The following section will explain how these data were used to design the two intelligibility tests and the familiarity tests that were actually administered in the study.

#### 3.4.4. Intelligibility and Verb-Familiarity tests

The Intelligibility Tests had 24 sentences containing one verb ending in *-ed* in each of them and eight sentences containing one irregular verb in the simple past tense in each sentence. Each of the three *-ed* allomorphs occurred eight times in each version of the Intelligibility Test and each talker produced one verb for each of the three allomorphs and one irregular verb (distractor) in each version of the Intelligibility Test, as exemplified in Table 14 with sentences for the first test. Appendix G displays the sentences used in each Intelligibility Test and Appendix H displays a summary of verbs inserted in each sentence produced by each talker.

Table 14

List of sentences by talker in the first Intelligibility Test

<b>Talker</b>	<b>Allomorph [t]</b>	<b>Allomorph [d]</b>	<b>Allomorph [ɪd]</b>	<b>Irregular verbs</b>
<b>BPT1</b>	They skipped some exercises	The stadium cheered him	He needed a job	Kids slept for 10 hours
<b>BPT2</b>	Suzy kissed her father	She played piano	I visited my family	She bought a new car
<b>ST1</b>	They watched a movie	The pilot saved all passengers	Models avoided eating	They came by bus
<b>ST2</b>	She looked for a new job	Children screamed a lot	They voted in the elections	The family had breakfast together
<b>GT1</b>	The audience laughed out loud	The driver caused an accident	Tom guided visitors	They took a trip
<b>GT2</b>	Mary washed her dress	The teacher spelled his name	They waited for the train	He drove for 18 hours
<b>ET1</b>	Bob stopped smoking	They judged a robber.	He recorded a video	She made a cake
<b>ET2</b>	He missed some classes	Students trained for the test	Helen painted her bedroom	He wrote a letter

As this was planned to be a longitudinal study with an expected four-month interval between the first and the second test and between the second and the third test, three different versions of the Intelligibility Test were designed<sup>53</sup> from September to October 2015 with the research assistant help, following the same structure described for the first test, obtaining a total of 96 sentences with one verb, either irregular or regular in each sentence. All verbs occurred only one time throughout the study, that is, if it occurred in the first Intelligibility Test, it did not appear again in the second test to minimize practice effect.

Besides these criteria of number of times each verb appeared in the tests, number of syllables in each verb and the type of preceding and following phonological context, described in section 3.4.3.1, distribution of verbs and talkers was another criterion to randomize the sentences for

<sup>53</sup> See footnote 52.

the intelligibility tests, as also explained in section 3.4.3.1. In other words, the same verb, talker, *-ed* allomorph or irregular verb never appeared in sequence in the same test or was never repeated in the following test. Table 15 brings sentences for the first Intelligibility Test and exemplifies the criteria to display the sentences in the tests.

*Table 15*

*Randomized distribution of the sentences in the first intelligibility test*

<b>Sentences 1 to 16</b>	<b>Sentences 17 to 32</b>
BPT2: She bought a new car	BPT2: I visited my family
ST2: They voted in the elections	GT1: They took a trip
ET2: Students trained for the test	ST2: She looked for a new job
GT2: Mary washed her dress	ET1: They judged a robber
ST1: They came by bus	BPT1: They skipped some exercises.
BPT1: The stadium cheered him	ST1: Models avoided eating
GT1: Tom guided visitors	ET2: He wrote a letter
ET1: Bob stopped smoking	GT1: The driver caused an accident
BPT2: She played piano	ST2: The family had breakfast together
GT2: He drove for 18 hours	BPT2: Suzy kissed her father
ST1: They watched a movie	GT2: The teacher spelled his name
ET2: Helen painted her bedroom	ET1: He recorded a video
GT1: The audience laughed out loud	BPT1: Kids slept for 10 hours
BPT1: He needed a job	ST2: Children screamed a lot
ET1: She made a cake	ET2: He missed some classes
ST1: The pilot saved all passengers	GT2: They waited for the train

As stated in the sections that described the listeners who participated in this study (section 3.3.2), they came from two different intact classes from an undergraduate program and took part into two different data collection sessions. Thus, the first data collection session took place in the end of the first semester of 2016 (June 2016) and the second data collection session took place four months later at the end of the second semester of 2016 (end of October and beginning of November 2016), when listeners were enrolled in the second and fourth semesters and in the third and fifth semesters, respectively. The number of listeners dropped from 25 in the

first test to 14 in the second session, which caused the researcher to give up on the original idea of having three data collection sessions.

At the beginning of the first day of the first data collection session, the familiarization intelligibility and familiarity tests were administered to each group (see section 3.4.6 for more details about the familiarization session) and instruction about these tests were given by the researcher in Portuguese to avoid listeners' misunderstandings despite the fact that the familiarization session took place immediately previous to the real data collection session. After the familiarization session, the first Intelligibility Test was administered to each group separately. Listeners listened twice to each sentence presented in Appendix G and then orthographically transcribed each of them right after listening. The transcriptions were written in the answer-sheet provided by the researcher, which was used in the two Intelligibility Tests (Appendix I). The researcher asked the listeners to transcribe everything they had listened or that they believed they had listened, since she explained them that every attempt to transcribe the sentences was going to be taken into account. The data collection session for the intelligibility test took place in the classroom, since the language lab was not available for the first data collection for the first group, which determined the use of this procedure with the two groups of listeners in the two moments of data collection with both groups (end of the first and second semesters of 2016). However, this procedure seems to have not drastically affected the results since the main focus of the present study is on intelligibility of regular verbs ending in *-ed*, which may be affected by environmental factors even in ordinary everyday interaction. All these procedures, except for the familiarization session, described in section 3.4.6, were also adopted in the second Intelligibility Test in the data collection session administered four months after the first one.

After the second Intelligibility Test, the researcher checked how many listeners participated in both intelligibility tests and came up with 14, whose transcriptions from the two tests were analyzed. In other words, the verb transcription analysis was conducted for the first and for the second intelligibility tests.

Regarding Verb-Familiarity Tests, each of them had the same 32 verbs that appeared in their respective Intelligibility Test, presented in the same order they appeared in each Intelligibility Test. This procedure was adopted in order to avoid that listeners would get used to the verbs, which could affect the results due to possible practice effect. In other words,



the same verbs that were used in the first Intelligibility Test were used in the first Familiarity Test and in the same order of occurrence, which also occurred with the verbs for the second Intelligibility and Familiarity Tests. Appendix K displays the answer sheet for the Familiarity Tests, which also provided the written instructions and the description of the five-point Likert scale adopted in this study. Thus, Verb-Familiarity in this study was measured by a five-point Likert scale ranging from 1 to 5, in which (1) meant “I don’t know this word”, (2) “I think I have seen this word before”, (3) “I recognize this word as an English word, but I don’t remember its meaning”, (4) “I know this word”, and (5) means I know this word and use it very often<sup>54</sup>. The familiarity tests followed the format presented in Table 16.

*Table 16*

*Examples from the first version of the Verb-Familiarity Test*

<b>VERB</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Bought	( )	( )	( )	( )	
Voted	( )	( )	( )	( )	
Trained	( )	( )	( )	( )	
Washed	( )	( )	( )	( )	

The Familiarity Test was administered right after the Intelligibility Test, which also took place at the listeners’ classroom. The researcher provided the listeners with instruction in Portuguese about the Familiarity Test before they filled in the answer sheet to avoid possible misunderstandings despite taking the familiarization session (see details for the familiarization session in section 3.4.6). The same procedure was adopted for the first and second Familiarity Tests, which were administered with a four month interval as the Intelligibility Tests.

Besides the tests and questionnaires, the present study also gathered data regarding listeners’ proficiency in English, which will be described in the following section.

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<sup>54</sup> This fifth category was added to Gonçalves’ (2014) four-point Likert scale, on which the present study scale is based.

### 3.4.5. Proficiency test

In order to investigate how listeners' proficiency level affects their ability to recognize regular English past-tense verbs, the pen and paper version of the Oxford Proficiency Test (OPT) (Allan, 2004) was administered. The OPT test was chosen because it has been used in other studies in the field, such as Alves (2009), Gonçalves (2014) and Perozzo (2013), and in language schools for placement purposes, as it is easy to administer, as pointed out by Gonçalves (2014). In the OPT, Brazilian listeners were tested regarding reading skills and vocabulary and grammar knowledge in a multiple-choice-question format with some graphical support in some questions. This test did not deal with listening and speaking. The full test is presented in Appendix L.

This test was administered on the second day of the first data collection session after the questionnaire fulfillment. Thus, in order to answer the proficiency test, each Brazilian listener received a hard copy of the test in which they first answered questions regarding reading comprehension and then questions regarding grammar and vocabulary. As the OPT follows the Common European Framework of Reference for Language (CEFR), the results obtained by each listener were organized in six proficiency levels, which are: A1 Beginner, A2 Elementary, B1 Lower Intermediate, B2 Upper Intermediate, C1 Lower Advanced and C2 Upper Advanced. The maximum score obtained in this test is 60 and the minimum varies from zero to nine for real beginners (Allan, 2004). Table 17 displays the scores for each level.

*Table 17*

*Scores for each category in CEFR*

<b>Proficiency level</b>	<b>A1</b>	<b>A2</b>	<b>B1</b>	<b>B2</b>	<b>C1</b>	<b>C2</b>
<b>Score</b>	10-17	18-29	30-39	40-47	48-54	55-60

As previously mentioned when describing the Intelligibility and Familiarity Tests (section 3.4.4), in order to avoid misunderstandings in the data collection, listeners completed a familiarization session for the Intelligibility and Familiarity Tests, as described in the following section.

### 3.4.6. Familiarization session for Intelligibility and Verb-Familiarity Tests

The test used in the familiarization session had eight sentences with verbs in the present tense to prevent listeners from identifying the focus of the study (e.g., intelligibility of English regular verbs in the simple past tense) in the familiarization session. The familiarization sentences were produced by the same talkers that produced the 96 sentences with the verbs in the simple past tense for the Intelligibility Test. These eight sentences had 3 to 6 words in each of them, thus following the same pattern used in the Intelligibility Test with simple past tense verbs. Among the eight familiarization sentences, two of them had an irregular verb in each and six of them had one regular verb that ends in one of the three *-ed* allomorphs /t, d, ɪd/ when produced in the simple past. The familiarization session sentences for the Intelligibility Test in a non-randomized order are displayed in Table 18, whereas the randomized order of talker, type of verb and allomorphs is presented in Appendix M.

Table 18

*Familiarization session sentences in a non-randomized order*

Allomorph [t]	Allomorph [d]	Allomorph [ɪd]	Irregular verbs
Men also cook well	My parents travel every year	They print books	People make mistakes
Children cross a street	Babies cry a lot	Teachers grade students	We spend time dancing

As occurred in the real Intelligibility Tests, listeners also listened twice to each sentence and then orthographically transcribed each of them according to what they had listened or believed they had listened. Appendix N provides the answer sheet for the intelligibility test administered in the familiarization session.

Right after the familiarization session for the Intelligibility Test, Brazilian listeners also completed a familiarization session for the Verb-Familiarity Test with the same verbs, and in the same order that occurred

in the familiarization session for the Intelligibility Test, following the same design used for the real Familiarity Test with verbs in the simple past tense. Verbs used in the familiarization session did not occur in the first tests with verbs in the simple past tense, but they could appear in the second or third ones (e.g., grade, make, print). Listeners completed a familiarization session to help them to get practice with the test design, which took place in their classroom, together with the real intelligibility and familiarity tests, on the first day of first data collection session.

Table 19 displays the verbs that were used in the Verb-Familiarity Test during the familiarization session and the scale<sup>55</sup>, and Appendix N displays the answer sheet for the Familiarity Test used in the familiarization session.

*Table 19*

*Verb-familiarity familiarization test*

<b>VERB</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Spend	( )	( )	( )	( )	( )
Print	( )	( )	( )	( )	( )
Cry	( )	( )	( )	( )	( )
Cross	( )	( )	( )	( )	( )
Cook	( )	( )	( )	( )	( )
Make	( )	( )	( )	( )	( )
Travel	( )	( )	( )	( )	( )
Grade	( )	( )	( )	( )	( )

Having described the material and procedures for data collection, section 3.4.7 will describe the procedures for data analysis.

### **3.4.7. Procedures for data analysis**

This study investigated the intelligibility of English regular verbs in the simple past tense produced by different L1 talkers learners of English, and possible influences of Brazilian learners of English' proficiency level,

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<sup>55</sup> The five point-scale used here was the same used to measure verb familiarity in the real familiarity test described in section 3.4.4.

verb familiarity and language experience, as well as talkers' L1 and verb allomorphs (see RQs and Hs at the of section 3.2). This section describes how data related to these variables were analyzed, including statistical tests and analysis.

Considering that this study focused on the intelligibility of English regular verbs in the simple past tense produced by different L1 talkers and on Brazilian listeners' recognition of these verbs assessed by orthographic transcription, only verb transcription was taken into account in the listeners' orthographic transcriptions of each sentence for the Intelligibility Test. In order to analyze these verbs, the researcher took into consideration all listeners' attempts to transcribe them, including inappropriate orthographic transcription, such as changes in the letters that represent vowels or consonants as in 'gaid' for the verb 'guided' and 'quist' for the verb 'kissed', both by Listener 2, 'laught' for the verb 'laughed' by Listener 4, 'kist' for the verb 'kissed' by Listener 3, all of them in the first Intelligibility Test, and the transcription of 'clapt' for the verb 'clapped', by Listener 6 in the second Intelligibility Test (see Appendix J for more examples).

After checking listeners' transcriptions, the researcher compared them with talkers' productions, described in section 3.4.3.3 and also available in Appendix J, and adopted the following criteria. Verbs were considered intelligible if they were orthographically transcribed in the simple past tense or stem productions, according to the talkers' production for each verb, such as transcriptions of the verb 'voted' as 'voted' by listener 1, and the verb 'missed' as 'miss' by listener 4, both in the first Intelligibility Test (See Appendix J to check all transcriptions and scores). This kind of transcription was scored as (1), which meant Intelligible Verb.

Verbs transcribed according to talkers' production which did not follow exactly their written form but contained all the sounds were also considered intelligible, as in the case of the verb 'kissed' transcribed as 'kist' by listener 3 in the first Intelligibility Test. Verbs were not considered completely intelligible when they were not exactly transcribed according to the talkers' production. In these cases, they were categorized as Other Verb forms, being scored as (2). The category Other Verb Form included transcriptions of verbs in the simple past when they were produced in stem forms, such as 'miss' transcribed as 'missed' by listener 1 in the first Intelligibility Test, or when they were transcribed in the third person singular, such as 'skipes' for 'skipped' by listener 3 in the first Intelligibility Test,

or in the -ing form, such as ‘screaming’ for the verb ‘screamed’ by listener 2 in the first Intelligibility Test.

However, listeners sometimes did not transcribe the verb, which was considered “blank space” in Appendix J, or the entire sentence, considered “blank sentence” in Appendix J, or replaced the target verb by another word, such as the verb ‘caused’ transcribed as ‘costs’ by listener 3 in the first Intelligibility Test, which were all considered as causing breaking-downs in communication and were scored as (3). The verb transcription analysis was conducted for the first and for the second Intelligibility Tests. With these individual data available, an Excel file was organized containing all intelligibility data for each listener and for each verb, obtaining a total for the three categories used for data analysis in each of the two intelligibility tests: (1) Intelligible verbs; (2) Other Verb Forms, and (3) Communication Break-down.

Regarding Verb-Familiarity, as explained in section 3.4.4, it ranged from 1 to 5 in the Likert Scale, demonstrating listeners’ familiarity with the verbs tested. The familiarity for each verb by each listener was typed into an excel file and then a familiarity score for each listener was calculated by adding all the familiarity values given by each listener to each verb and then dividing this value by 24, the number of regular verbs in each Verb-familiarity Test. In other words, the more familiar with the verbs the listener was, the higher his/her familiarity score was. Thus, verb familiarity scores were calculated to fit within the scale proposed in the analysis (e.g., 1 to 5 in the familiarity Likert scale).

In regard to the proficiency test, results were obtained by counting the number of correct answers each participant gave to each of the 60 questions used in the test and their scores were compared to the bands provided by the CEFR, as explained in section 3.4.5.

The data for listeners’ language experience came from the profile questionnaire administered to them, as explained in section 3.4.2. Their answers were transformed in numbers in order to type them in the excel file, as follows. Question 8, which asked if listeners had studied English previous to data collection, had five possible answers in which they should point out how much time they had had contact with English at school/university previous to data collection. Time of studying English in these different periods of student life varied from 1 to 4 years in each answer, which were then added up to estimate the amount of time (in years) listeners had studied English previous to data collection (See Appendix B – Brazilian Listeners’

Questionnaire to check this question). Question 9 asked how frequently listeners had studied grammar, reading, writing, speaking, listening and pronunciation and their answer varied from never, sometimes and most of the time, which received values 1, 2 and 3, respectively (See Appendix B – Listeners’ Questionnaire to access it). Question 10 asked if listeners had already taken a proficiency test whereas Question 23 asked if they were teaching English at the moment of data collection and Question 26 asked if they were using English at work, if they were not teaching English. Answers to these three questions were No or Yes, to which were attributed values 0 and 1, respectively.

Questions 16 and 17 asked if listeners used to speak English with native or non-native speakers, respectively, in a period of 24 hours, by the time the data were collected, whereas Question 18 asked how much time they spend listening to English (TV, music, internet in 24 hours), Question 21 asked how much time they spend reading in English (in 24 hours) and Question 22 asked how much they study English besides classes (in a one week period). In addition, Question 19 asked if they watch TV series or interviews in English and Question 20 asked if they listen to music in English and how they dealt with these issues in their daily life. Possible answers made available in the Questionnaire to Questions 16, 17, 18, 19, 20, 21 and 22 are summarized in Table 20.

Table 20

Possible answers to questions 16 to 22 of listeners' questionnaire and the numerical values attributed to each answer

Question	Possible answers and their values
Question 16: time spent speaking with native speakers of English at the moment of data collection	other = 0; do not talk = 1; less than one hour = 2; one hour or more = 3; five hours or more = 4; ten hours or more = 5
Question 17: time spent talking with non-native speakers at the moment of data collection	other = 0; do not talk = 1; only with BP speakers/colleagues = 2; less than one hour = 3; one hour or more = 4; five hours or more = 5; ten hours or more = 6
Question 18: how long they listen to English (TV, music, internet) in 24 hours	other = 0; do not listen besides class = 1; less than one hour = 2; one hour or more = 3; five hours or more = 4; ten hours or more = 5
Question 19: if they watch to TV series or interviews in English and how they deal with it	do not watch to anything in English = 0; with audio in BP without subtitles = 1; audio in BP with subtitles in English = 2; audio in English with subtitles in BP = 3; audio and subtitles in English = 4; audio in English without subtitles = 5; two of these strategies or more = 6
Question 20: if they listen to music in English and how they deal with it	do not listen = 0; translating the lyrics into BP = 1; with the lyrics and checking words at dictionary = 2; with the lyrics = 3; without the lyrics = 4; two of these strategies or more = 5

(continued)



(Table 20 continued)

Question	Possible answers and their values
Question 21: how long they read in English (in 24 hours)	from other = 0; do not read in English besides classes = 1; less than one hour = 2; one hour or more = 3; five hours or more = 4; ten hours or more = 5
Question 22: how long they study English besides classes (in a one week period)	other = 0; do not study at home = 1; less than one hour = 2; one hour or more = 3; five hours or more = 4; ten hours or more = 5

Thus, values that each listener attributed to questions 8, 9, 10, 16 to 23 and 26 were added to their answers to questions 16, 17, 18, 19, 20, 21 and 22 to form the correspondent result for each listener in the language experience variable, which would reach a maximum of 78 if the listener attributed the maximum value to the answer of each of these questions. The same procedures were adopted to analyze the data obtained with questionnaire answers<sup>56</sup> in both the first and second data collection sessions.

Questions 12, 13, 14 and 15, which asked about visiting an English speaking country and talking to either native or non-native speakers were not taken into account here because only one participant (listener 14) reported having had this experience when she was a child. However, results of tests administered in this study suggested that her visit may have not interfered in these results because she did not have a better performance than other listeners in these tests. In addition, Questions 24 and 25 were not taken into account in this study because none of the listeners were teaching English at the moment of data collection. Questions 27 to 31 were also not considered here because they were not related to the language experience topic, which is the focus of these data gathered with questionnaire. Rather, these last questions were more related to listener personal information about other FL knowledge and their opinions about

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<sup>56</sup> Similar procedures were followed by Delatorre, Silveira and Gonçalves (submitted paper).

the Intelligibility and Familiarity Tests administration. However, these data were taken into account to illustrate the results and to provide more information about listeners.

The intelligibility, familiarity, language experience and proficiency tests results were typed into excel files and then transferred into the Statistical Package for Social Sciences (SPSS), a statistical program frequently used in the area, in order to run the statistical tests. The level of confidence was 95% and the *p* value considered was equal or lower than 5% or .05. For the statistical analysis, verb intelligibility was considered the dependent variable, whereas listeners' proficiency level, verb familiarity, language experience, talkers' L1 and verb allomorph were considered the independent variables. The first research question asked if there was a change in the intelligibility results over time. Thus, the descriptive statistics were run in order to evaluate which parametric or non-parametric test could be used to analyze the data. The descriptive statistics revealed, Kurtosis was close or above 1, which according to Larson-Hall (2010) indicates that the data were not normally distributed in both moments of data collection. With these results, the Wilcoxon test was run to compare the results of both Intelligibility tests.

The second research question asked if intelligibility of verbs ending in *-ed* could correlate with listeners' proficiency level, verb familiarity, language experience in the first and in the second moments of data collection. Thus, the descriptive statistics were run to choose a test to run, parametric or non-parametric, in order to analyze the data. As occurred in the previous analysis, Kurtosis was close or above 1<sup>57</sup>, indicating that the data were not normally distributed in the two tests. Consequently, the non-parametric Spearman correlations were run separately between intelligibility and (a) verb-familiarity, (b) proficiency level, and (c) language experience in the two different moments of data collection. In addition, as this study adopted a longitudinal perspective, a comparison of the results between first and second data collection sessions was also conducted by running the non-parametric paired-sample Wilcoxon test for familiarity in the first and in the second tests and language experience tests results<sup>58</sup> in the first and the

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<sup>57</sup> The statistical analysis in this study always followed Larson-Hall (2010).

<sup>58</sup> Proficiency level was not compared between the two moments of data collection since it was administered only in the first data collection session.

second tests. The number of intelligible verbs and familiarity scores were used to run these tests in order to answer RQ1, RQ2 and test H1 (See RQs and Hs stated in section 3.2).

Talkers' L1 influence on the intelligibility of verbs ending in *-ed* was also investigated in this study. Thus, in order to do it, the verbs<sup>59</sup> produced by the six non-native speakers of English and by the two native speakers of English, transcribed according to talkers' production by the researcher and considered intelligible according to the 14 listeners, were counted by the researcher to answer RQ3 and test H2. The descriptive statistics were run separately for both moments of data collection and also demonstrated Kurtosis problems, that is, close to or above 1, in both of them, thus indicating that the non-parametric paired Wilcoxon test should be run with data from the first and the second data collection sessions. Moreover, RQ3 and H3 considered the possible BP, Spanish and German influence on the intelligibility of verbs ending in *-ed*. Again, when the descriptive statistics were run, they revealed that the Kurtosis was close to or above 1, indicating that non-parametric Friedman test should be used to compare the intelligibility of verbs produced by BPTs, STs and GTs in the first and in the second data collection sessions. This test was run to check if there was variation in the intelligibility of verbs produced by talkers from different L1s in the same data collection session, and in each of the two data collection sessions separately. In addition, a paired sample Wilcoxon test compared the intelligibility of verbs produced by BPTs, STs and GTs between the first and the second data collection sessions, which was run to check if there was any variation in the specific language influence over time, that is, from the first to the second data collection session.

Finally, this study investigated if verb allomorph affected the intelligibility of regular verbs in the simple past tense. Descriptive statistics were run and revealed that the data were not normally distributed due to Kurtosis problems, as occurred with the previous descriptive statistics. Thus, the Friedman test was run to compare intelligibility of verbs with allomorphs /t/, /d/ and /ɪd/ in each of the two data collection sessions, separately. In addition, Wilcoxon tests also allowed the individual comparison of the intelligibility levels for the three allomorphs in the two data collection sessions.

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<sup>59</sup> The number of verbs (N) considered intelligible by each listener were taken into account in this calculation, rather than the respective score, as it occurred in the previous correlational tests.

Having presented the materials, instruments and procedures for data collection, the following section will present the pilot study, which was conducted with the purpose of testing the research instruments and procedures and make the necessary adjustments for the data final data collection.

### 3.5. PILOT STUDY

The pilot study investigated Brazilian listeners' ability to recognize regular and irregular<sup>60</sup> verbs in the simple past tense. Thirteen Brazilian learners of English enrolled at pre-intermediate level of English extracurricular course at UFSC participated in the pilot study. Listeners signed the consent form, took a familiarization session for the Intelligibility Test and the Intelligibility Test itself and, then answered a profile questionnaire in one data collection session only. The familiarization session and Intelligibility Test audio-files were the same used in the first data collection session of the present study. The pilot study took place at participants' classroom and it was observed that the Intelligibility Test would require a lot of attention from the listeners, since the environment was a bit noisy. However, as it was an Intelligibility Test, it was assumed that this data collection setting was going to better represent real moments of communication and interaction in which attention is required to understand what is being said. Thus, listeners listened twice to each of the eight familiarization session sentences and then to the 32 intelligibility test sentences. The sentences were orthographically transcribed by the listeners immediately after listening to each of them. The researcher analyzed their transcriptions and questionnaire's results.

The pilot study results demonstrated that the intelligibility rate of regular and irregular verbs combined was 37.98%, pretty similar to the intelligibility rate of regular verbs (37.17%) and a bit lower than the intelligibility rate of irregular verbs (40.38%), which were lower than the intelligibility rate found in Becker's (2013) and Riella's (2013) studies, both yielding above 70% intelligibility rates with Brazilian learners of English as listeners, but with different methodologies. The rates for breakdowns (40.06%) were higher than the intelligibility rates (34.17%) which were higher than the rates for other verb forms (22.75%) for regular verbs

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<sup>60</sup> The original idea was to investigate only regular verbs but for the pilot study, irregular verbs were also included in order to have an initial understanding about the possible difference or similarity on the intelligibility of regular and irregular verbs in the simple past tense.

in the pilot study. Regarding the comparison among irregular verbs and each of the three *-ed* allomorphs, [t] and [ɪd] obtained the highest intelligibility rates, followed by the irregular verbs and by the [d], which was the least intelligible. Concerning the talker L1 influence on intelligibility, results demonstrate that there was a tendency for BP and Spanish talkers' production to be more intelligible than the German and English talkers' production, which was attributed to similarity between the BP and Spanish and to listeners' and talkers' languages. However, in both cases, type of verb and allomorph and talker L1 influence, the results did not reach statistical significance.

As previously mentioned, the pilot study also took into account listeners' experience with English in the intelligibility of English verbs, which was assessed with a questionnaire. An analysis of these results demonstrated that listeners' experience did not seem to have affected intelligibility of English regular verbs in the simple past tense, which was attributed to great contact with grammar, reading and writing skills rather than listening and speaking skills and pronunciation at junior-high and high-school where grammar, reading and writing skills are emphasized and where the listeners reported having had more contact with English during school years. Thus, a composite score for language experience was created by adding the correspondent answer number was correlated with intelligibility rates, which yielded a weak-positive but not significant correlation ( $p > .05$ ).

In conclusion, the pilot study found that talker L1 seems to affect verb intelligibility by Brazilian learners of English, since it pointed out to a trend in favor of verbs produced by talkers whose L1 were BP, also the listeners' L1, and Spanish, which is similar to BP. In addition, it also revealed that the amount of contact and experience with the English language was not sufficient to facilitate the intelligibility of English regular verbs ending in *-ed*. Detailed information about the pilot study may be obtained in Delatorre, Silveira and Gonçalves' paper (submitted to publication).

Besides the empirical results just described, the pilot study also revealed that some procedures should be taken into account in the data collection and analysis. Regarding data collection, the pilot study administration indicated that the first data collection session of the real study should be split into two parts in order to minimize the possibility that listeners get tired of answering and filling in all the tasks in one session only. Thus, following this line of thought, the first data collection session of the present study was split into consent form signing, familiarization session,

intelligibility and familiarity test for the first day and questionnaire and proficiency test for the second day of the first data collection.

Having presented the pilot study, which was the last section organized in to inform how the study was conducted, the following section will provide the summary of this chapter.

### 3.6. SUMMARY OF THE CHAPTER

This chapter presented the research questions and hypotheses that guided the study, described the three groups of participants, the material and procedures used to collect and analyzed the data and the pilot study.

Having presented the Method used to conduct this study, the following chapter will provide the results and discussion for the research questions and hypotheses proposed for the present study.

## CHAPTER 4. RESULTS AND DISCUSSION

### 4.1. INTRODUCTION

As stated in the previous chapters, the purpose of this study was to investigate the intelligibility of verbs ending in *-ed* over time as well as the possible relationship of verb familiarity, listener proficiency, talker L1 and type of allomorph on the intelligibility of these verbs when they were transcribed by Brazilian learners of English. In order to investigate these relationships and how they developed on a longitudinal study, four research questions and four hypotheses were stated, guiding the organization of the present chapter and the results discussed here. RQ1 investigated how Brazilian learners of English would transcribe English regular verbs in the simple past tense over time; RQ2 investigated if listeners' verb familiarity, proficiency level and language experience would correlate with the intelligibility of English verbs ending in *-ed* over time; RQ3 asked if talkers' L1 would affect the intelligibility of English verbs ending in *-ed* over time, and RQ4 asked if type of allomorph of English verbs ending in *-ed* would affect their intelligibility over time.

Thus, results for each of these RQs are displayed in sections 4.2, 4.3, 4.4 and 4.5, respectively. As the present study has two moments of data collection, each session presents the results for the first data collection session followed by the results for the second data collection session, and then the comparison between them to verify if there was any variation between these two moments or not. In order to answer RQ1, the following section presents an overview on the results regarding intelligibility of verbs, other verb form productions, breakdowns in communication and talkers' productions in the two moments of data collection both isolated and in comparison.

### 4.2. VERB INTELLIGIBILITY, OTHER VERB FORMS AND BREAKDOWNS IN COMMUNICATION

As stated in section 4.1, section 4.2 provides an overview on the results for two different moments of data collection in isolation and in comparison. Thus, section 4.2 presents results for Brazilian listeners of

English in the first and in the second tests and in comparison regarding (a) verb intelligibility (e.g., verbs transcribed according to talkers' production, either in the simple past or in stem); (b) other verb forms (e.g., verbs transcribed not in accordance with talkers' production, for instance, transcription with simple past when the verbs were produced in the stem, third person singular or *ing* forms); and (c) breakdowns in communication (e.g., when verbs or entire sentences were not transcribed at all or when verbs were replaced by another word). This analysis intends to address RQ1 which, as an exploratory RQ, asked how Brazilian learners of English would transcribe verbs ending in *-ed* in these two intelligibility tests. In order to have a clear presentation sequence, the results for the first intelligibility test will be presented first followed by the results for the second intelligibility test, which are then followed by a comparison between the two moments of data collection.

Overall, results for the first intelligibility test demonstrate that, among the 336 verbs evaluated by Brazilians in this test<sup>61</sup>, 136 (40.47%) were intelligible, 73 (21.72%) were transcribed in other verb forms and 127 caused breakdowns (37.79%). These results in the first intelligibility test are slightly better (higher) for intelligibility and a little lower, almost in the same proportion, for the breakdown results, and almost similar in other verb forms than those results found in the pilot study<sup>62</sup> (Delatorre, Silveira & Gonçalves, submitted paper), as Table 21 demonstrates.

*Table 21*

*Pilot study and first intelligibility test results*

<b>Test</b>	<b>Intelligibility</b>	<b>Other verb forms</b>	<b>Breakdowns</b>
Pilot study	116 (37.17%)	71 (22.75%)	125 (40.06%)
1 <sup>st</sup> intelligibility test	136 (40.47%)	73 (21.72%)	127 (37.79%)

N = 312 (pilot study) and N = 336 (first intelligibility test of the present study).

<sup>61</sup> Results displayed in chapter four take into account the intelligibility of the 24 verbs that the 14 listeners analyzed, whereas section 3.4.3.3 in the method chapter displayed results for verb production of 72 verbs by the eight talkers.

<sup>62</sup> The Pilot study is presented in section 3.5.



Moreover, as Table 21 demonstrates, results of the first intelligibility test were very similar to the pilot study's, indicating that intelligibility results in the first intelligibility test were also lower than the results of Becker's (2013), Riella's (2013) and Schwartzhaupt's (2015) studies with Brazilian learners of English as listeners; results for other verb forms were low, whereas the breakdowns in communication were high compared to the pilot study results. In addition, results of the present study displayed in Table 21, demonstrate that 127 (37.79%) out of 336 target verbs were considered as causing breakdowns in communication because they, or the entire sentences in which they were inserted, were not orthographically transcribed, as observed in Cruz (2004) and in Riella (2013), or because the target verbs were replaced by another word. As suggested by Catford (1950), this difficulty in transcribing the target words may indicate that the message was not so effective and intelligible to the 14 Brazilian listeners who had to listen, understand and then, orthographically transcribe the sentences with the target verbs.

Table 22 provides the results that may help to visualize how intelligibility, other verb forms, breakdowns in communication and type of verb production vary among verbs and talkers in the first intelligibility test.

Table 22

*Intelligibility, other verb forms, breakdowns in communication across verbs and talkers in the first intelligibility test*

Talker	Verb	Production	Intelligibility	Other verb forms	Breakdowns
ST2	Voted	Target-like	03 (21.42%)	01 (7.14%)	10 (71.42%)
ET2	Trained	Target-like	0/14 (0%)	08 (57.14%)	06 (42.85%)
GT2	Washed	Target-like	03 (21.42%)	04 (28.57%)	07 (50%)
BPT1	Cheered	Target-like	04 (28.57%)	0 (0%)	10 (71.42%)
GT1	Guided	Target-like	03 (21.42%)	04 (28.57%)	07 (50%)
BPT2	Played	Target-like	09 (64.28%)	04 (28.57%)	01(7.14%)
ET2	Painted	Target-like	02 (14.28%)	0 (0%)	12 (85.71%)
GT1	Laughed	Target-like	06 (42.85%)	02 (14.28%)	06 (42.85%)
ST1	Saved	Target-like	03 (21.42%)	0 (0%)	11 (78.57%)
BPT2	Visited	Target-like	14 (100%)	0 (0%)	0 (0%)
ET1	Judged	Target-like	01 (7.14%)	02 (14.28%)	11 (78.57%)
BPT1	Skipped	Target-like	07 (50%)	05 (35.71%)	02 (14.28%)
ST1	Avoided	Target-like	06 (42.85%)	07 (50%)	01 (7.14%)
BPT2	Kissed	Target-like	12 (85.71%)	02 (14.28%)	0 (0%)
GT2	Spelled	Target-like	02 (14.28%)	02 (14.28%)	10 (71.42%)
ET1	Recorded	Target-like	04 (28.57%)	03 (21.42%)	07 (50%)
GT2	Waited	Target-like	11 (78.57%)	0 (0%)	03 (21.42%)
BPT1	Needed	Coda change	09 (64.28%)	04 (28.57%)	01 (7.14%)
GT1	Cause	Stem	05 (35.71%)	03 (21.42%)	06 (42.85%)
ET2	Missed	Stem	04 (28.57%)	06 (42.85%)	04 (28.57%)
ET1	Stopped	Stem	04 (28.57%)	04 (28.57%)	06 (42.85%)
ST2	Screamed	Epenthesis	03 (21.42%)	09 (64.28%)	02 (14.28%)
ST2	Looked	Epenthesis	09 (64.28%)	01 (7.14%)	04 (28.57%)
ST1	Watched	Epenthesis	12 (85.71%)	02 (14.28%)	0 (0%)
TOTAL			136 (40.47%)	73 (21.72%)	127(37.79%)

N = 14 for each verb and 336 for the total

As Table 22 demonstrates, 17 verbs out of 24 were target-like produced, three of them were epenthesized, other three were produced in the stem form and one of them had a coda change. In addition, Table 22

also demonstrates that the number of verbs with intelligibility rate above 70% was low in the present study. Just the verbs ‘visited’ and ‘kissed’, both target-like produced by BPT2, ‘waited’ target-like produced by GT2, and ‘watched’ produced by ST1 as epenthesized, reached this rate<sup>63</sup>. The verbs ‘played’, target-like produced by BPT2, ‘needed’, which had coda change, replacing the /d/ by the flap after the vowel /i/, also by BPT1, and ‘looked’, which was epenthesized by ST2, reached an intelligibility rate of 64.28%, close to 70%. Moreover, as occurred with the pilot study (Delatorre, Silveira & Gonçalves, submitted paper) results, among the verbs with high intelligibility rate, only the verb ‘waited’ was produced by a German speaker, whereas all other highly intelligible verbs were produced by BP or Spanish L1 speakers, and none of them was produced by native speakers of English. These results suggest that, as occurred in Riella’s (2013) results with Brazilian listeners (G2), who apparently did to have difficulty in orthographically transcribing verbs produced by other Brazilians since the intelligibility rate was above 80%, there seems to be a tendency for the *-ed* verbs produced by BP and Spanish speakers to be easily understood and orthographically transcribed by Brazilian listeners than the *-ed* verbs produced by native speakers of German and English in the present study, which could be attributed to language similarity between listeners’ and talkers’ L1, as discussed by Bent and Bradlow (2003), Julkowska and Cebrian’s (2015), Li and Mok’s (2015) and Munro, Derwing and Morton (2006).

In addition, this higher intelligibility of verbs such as ‘visited’, ‘waited’, ‘needed’, target-like produced with the addition of an epenthetic vowel, ‘watched’ and ‘looked’, produced with an unexpected epenthetic vowel, may indicate that, to Brazilian listeners who participated in the present study, it was easier to listen, understand and transcribe verbs that tend to follow the epenthesized production, typical of Brazilian learners of English production found in previous studies (e.g., Alves, 2004; Delatorre, 2006a, Delatorre & Baptista, 2014; Fernandes, 2009; Frese, 2006; Gomes, 2009; Mariano, 2009; Pereira, 1994), since it tends to be easy to recognize words that follow a prototype, as suggested by Munro and Derwing (1995). The verbs ‘kissed’ and ‘played’ also had high intelligibility rate, which was possibly caused by frequent contact of English learners with these verbs,

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<sup>63</sup> This 70% rate or above included verbs that were intelligible to 11, 12 or 14 listeners. But, as verbs that were intelligible to 9 listeners, were also mentioned, verbs that were intelligible to none of the listeners, to 1 of them at least, to 2 or 3 of them were mentioned as the verbs with less intelligibility.

given that they learn them, sometimes even inserted in chunks, from the very beginning of their learning process.

On the other hand, as occurred in the pilot study (Delatorre, Silveira & Gonçalves, submitted paper), the number of verbs with low intelligibility rate was higher than the number of verbs with high intelligibility, as results displayed in Table 20 demonstrate. For instance, ‘trained’, target-like produced by ET2, had 0% of intelligibility rate, ‘judged’, target-like produced by ET1, had 7.14% of intelligibility rate; ‘spelled’, target-like produced by GT2 and ‘painted’, target-like produced by ET2, had 14.28% of intelligibility rate, and, ‘voted’, target-like produced by ST2, ‘saved’, target-like produced by ST1, ‘guided’, target-like produced by GT1, ‘washed’, target-like produced by GT2, and ‘screamed’, epenthesized by ST1, had intelligibility rate of 21.42%, suggesting that Brazilian listeners had difficulties in listening and, then transcribing, verbs with the three allomorphs produced in a target-like manner or epenthesized by speakers of English with different L1 backgrounds.

Regarding Spanish talkers, for instance, ‘voted’ (ST2) and ‘saved’ (ST1) had low other verb form rates and high rates of breakdowns possibly due to hesitations in the pronunciation of these verbs, despite the instruction given to talkers to read sentences in which verbs were inserted as naturally as possible. The hesitation was possibly caused by the fact that (a) ST1 was an English teacher who might have tried to produce the verb in a slow speech rate as an unconscious attempt to facilitate listeners’ role and (b) ST2, who was not an English teacher and used English to communicate (See section 3.3.1 to check their profiles) possibly had some pronunciation difficulties, as pointed out in section 3.4.3.3. Moreover, ST2’s pronunciation difficulties might have affected his production of ‘screamed’, since it had high rates of stem transcriptions in the intelligibility test, possibly because listeners had difficulty to recognize the past of regular verbs despite the vowel epenthesis production, which is also characteristic of Brazilian learners of English’ speech.

Considering German talkers, ‘guided’ (GT1) had four stem transcriptions and seven, out of 14 transcriptions, were classified as breakdowns in communication, indicating that listeners had difficulty in understanding the past form of this verb despite the fact that it had an allomorph that obligatorily requires an epenthetic vowel in its target-like production. This result suggests a lack of familiarity with talkers’ accented English, since

the sentence in which it was inserted was short (e.g., Tom guided visitors<sup>64</sup>) and reflected a frequent action in a tourist city as the one in which the data were collected. In another example of verb produced by a German talker (GT2), ‘spelled’ induced five out of 14 possibilities of other verb forms and five breakdowns, possibly because listeners had difficulty in understanding talker’s production of the final dark /l/ as previous *-ed* context, as Brazilians (a) do not seem to be familiar with it since they tend to vocalize the final /l/, producing a /w/ (Baratieri, 2006); (b) frequently use an epenthetic vowel in *-ed* ending verbs production, as previously mentioned, and (c) lack familiarity with German accented English. In addition, listeners’ lack of familiarity with German talkers’ speech rate, which was not measured in this study, might also have affected Brazilian listeners’ performance when transcribing verbs ending in *-ed* produced by German speakers of English.

Finally, for English native speakers, ‘trained’ (ET2) had similar rates for both other verb forms and breakdowns (see Table 22), indicating that listeners did not listen to the past marker in this verb inserted in the sentence ‘Students trained for the test’. Conversely, ‘painted’ (ET2) had high rates of breakdowns, possibly because the sentence in which the verb was inserted (e.g., Helen painted her bedroom) might not have been clear to the listeners or was confounded with another sentence that they had in their mind as a chunk, such as ‘Helen cleaned her bedroom’, since listeners frequently transcribed the target sentence as the second one pointed out here. In the case of the verb ‘judged’ (ET1), as demonstrated by the results displayed in Table 22, high rates of breakdowns were obtained, which might have been caused by the talker’s (ET1) Australian English accent, to which Brazilian listeners do not seem to be used to or frequently exposed. Moreover, both ET1 and ET2 speech rate might also have influenced these results, but speech rate was not measured in this study.

Turning to the results for the second test (Table 23), they demonstrated that among the 336 verbs analyzed in the second intelligibility test, 160 (47.61%) were intelligible, 50 (14.88%) were transcribed in other verb forms and 126 (37.50%) caused breakdowns in communication. As occurred with the first intelligibility test, results for the second intelligibility test were higher than the intelligibility test results in the pilot study (Delatorre, Silveira & Gonçalves; submitted paper), lower for the other verb forms and similar for breakdowns. The comparison among the pilot

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<sup>64</sup> See Appendix G to check sentences produced by each talker in each intelligibility test.

study results and first and second intelligibility test results of the present study is displayed in Table 23.

*Table 23*

*Pilot study, first and second intelligibility test results*

<b>Test</b>	<b>Intelligibility</b>	<b>Other verb forms</b>	<b>Breakdowns</b>
Pilot study	116 (37.17%)	71 (22.75%)	125 (40.06%)
1 <sup>st</sup> intelligibility test	136 (40.47%)	73 (21.72%)	127 (37.79%)
2 <sup>nd</sup> intelligibility test	160 (47.61%)	50 (14.88%)	126 (37.50%)

N = 312 in the pilot study and to 336 in the intelligibility tests of the present study

Results of the second intelligibility test displayed in Table 23 demonstrate that the verb intelligibility rate was lower than the intelligibility rates found in Becker's (2013), Riella's (2013) and Schwartzhaupt's (2015) studies with Brazilian listeners, as occurred with the first intelligibility test results. Again, following the same tendency observed in the first intelligibility test results, other verb forms and breakdowns rates for the 14 listeners, displayed on Table 23, were also high in the second intelligibility test, that is 50 (14.88%) and 126 (37.50%) out of 336 target verbs, respectively, which suggest that listeners possibly had the same difficulty in listening, understanding and orthographically transcribing the target verbs in the second test, or as pointed out by Catford (1950), that the verbs and/or the sentences in which they were inserted were not effective and/or intelligible to the listeners, inducing to communication breakdowns.

In order to better visualize the second intelligibility test results, Table 24 shows how intelligibility, other verb forms and breakdowns were distributed among talkers, verbs and verb production (e.g., target-like, coda change, stem and epenthesis) in the second intelligibility test.

Table 24

*Intelligibility, other verb forms, breakdowns in communication across verbs and talkers in the second intelligibility test*

<b>Talker</b>	<b>Verb</b>	<b>Production</b>	<b>Intelligibility</b>	<b>Other verb forms</b>	<b>Breakdowns</b>
GT1	Proved	Target-like	03 (21.42%)	08 (57.14%)	03 (21.42%)
ET1	Attended	Target-like	08 (57.14%)	02 (14.28%)	04 (28.57%)
BPT2	Asked	Target-like	12 (85.71%)	01 (7.14%)	01 (7.14%)
ET2	Danced	Target-like	01 (7.14%)	04 (28.57%)	09 (64.28%)
ST1	Crossed	Target-like	11 (78.57%)	02 (14.28%)	01 (7.14%)
GT1	Printed	Target-like	10 (71.42%)	0 (0%)	04 (28.57%)
BPT2	Shared	Target-like	10 (71.42%)	02 (14.28%)	02 (14.28%)
ST2	Adopted	Target-like	08 (57.14%)	0 (0%)	06 (42.85%)
BPT1	Brushed	Target-like	08 (57.14%)	01 (7.14%)	05 (35.71%)
ET2	Sounded	Target-like	0 (0%)	03 (21.42%)	11 (78.57%)
GT1	Clapped	Target-like	07 (50%)	01 (7.14%)	06 (42.85%)
ST1	Joined	Target-like	11 (78.57%)	0 (0%)	03 (21.42%)
ET1	Failed	Target-like	05 (35.71%)	0 (0%)	09 (64.28%)
ST1	Reminded	Target-like	06 (42.85%)	02 (14.28%)	06 (42.85%)
ET1	Jumped	Target-like	05 (35.71%)	03 (21.42%)	06 (42.85%)
ET2	Called	Target-like	06 (42.85%)	04 (28.57%)	04 (28.57%)
GT2	Dressed	Target-like	06 (42.85%)	03 (21.42%)	05 (35.71%)
BPT2	Counted	Target-like	10 (71.42%)	01 (7.14%)	03 (21.42%)
BPT1	Rented	Coda change	08 (57.14%)	01 (7.14%)	05 (35.71%)
GT2	Planned	Coda change	02 (14.28%)	0 (0%)	12 (85.71%)
GT2	Added	Coda change	04 (28.57%)	01 (7.14%)	09 (64.28%)
BPT1	Changed	Stem	04 (28.57%)	10 (71.42%)	0 (0%)
ST2	Tried	Epenthesis	11 (78.57%)	01 (7.14%)	02 (14.28%)
ST2	Worked	Epenthesis	04 (28.57%)	0 (0%)	10 (71.42%)
TOTAL			160 (47.61%)	50 (14.88%)	126 (37.50%)

N = 14 for each verb and 336 for the total

According to Table 24, 18 verbs were target-like produced, three had coda change, two were epenthesized and one was produced in the stem form. As Table 24 also demonstrates, seven out of these 24 target verbs had intelligibility rate above 70% in the second intelligibility test, including, ‘asked’ ‘shared’ and ‘counted’, target-like produced by BPT2, ‘crossed’ and ‘joined’ target-like produced by ST1, ‘printed’, target-like produced by GT1 and ‘tried’, epenthesized by ST2. Thus, these results followed the tendency observed in the pilot study and in the first intelligibility test of the present study, in which verbs produced by talkers whose L1 was either BP or similar to it, as Spanish, had higher intelligibility rate (70% or above), only one verb produced by a German talker, that again obligatorily requires an epenthetic vowel in its production, was included in this group with high (70% or above) intelligibility rate, and, none of the verbs produced by English native speakers reached this high intelligibility rate of 70% or above. In sum, these results demonstrated that, as occurred with the first intelligibility test results, verbs produced by BP and Spanish L1 speakers tended to be more easily recognized and orthographically transcribed by Brazilian listeners than the verbs produced by native speakers of German and English, which, again, may be related to talkers’ and listeners’ L1 similarity, as previously pointed out.

Moreover, as Table 24 demonstrates, the verbs ‘counted’, target-like produced by BPT2, ‘printed’, target-like produced by GT1 and ‘tried’, epenthesized by ST2, were produced with an epenthetic vowel, which may have facilitated the recognition of these verbs, since epenthesized verb production is a typical process for Brazilian learners of English, as previously pointed out for the first intelligibility test results, corroborating Derwing and Munro’s (1995) claim in favor of the preference to recognize words, verbs in this case, that follow a prototype. In addition, verbs such as ‘asked’ ‘shared’, target-like produced by BPT2, and ‘crossed’ and ‘joined’, target-like produced by ST1, which may be learned early in the learning process, possibly had high intelligibility rates due to talkers’ and listeners’ L1 similarities or listeners’ linguistic background.

On the other hand, as attested by the results displayed in Table 24, only verbs produced by native speakers of Anglo-Saxon languages (e.g., English and German) had low intelligibility rates<sup>65</sup> in the second

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<sup>65</sup> As occurred in the first intelligibility test, low intelligibility rates included verbs whose intelligibility varied from 0% to 21.42% or that were indicated as intelligible by none to three listeners (out of 14) maximum.



intelligibility test as in the pilot study and the first intelligibility test of this study, which reinforce the possible influence of talkers' L1 on the recognition of verbs ending in *-ed* for Brazilian learners of English, as has been suggested in the present study. As results displayed in Table 24 demonstrate, the verbs 'sounded' and 'danced', both target-like produced by ET2, had 0% and 7.14% of intelligibility whereas 'proved', target-like produced by GT1, had 21.42% of intelligibility rate and 'planned', produced with coda change in which the final /d/ was replaced by /t/ by GT2, had 14.28% of intelligibility rate. Table 24 also demonstrates that verbs 'sounded' and 'danced', produced by ET2, had few instances (4 out of 24 or 28.57%) of other verb form transcriptions and more instances (9 out of 24 or 64.28%) of breakdown transcriptions possibly because listeners could not identify the past marker for this verb in ET2's speech and/or were not used to this talker's accent, speech rate and articulation despite the fact that he was an American talker whose accent Brazilians tend to be more exposed or used to.

Taking into account verbs produced by German talkers, 'planned' (GT2) had coda change replacing final /d/ in the simple past tense by /t/, as a common process in German as an L1 (Antonsen, 2007) which may be used in English as an L2 (Yavas, 1994), to which Brazilian listeners were possibly not familiar with as well as they were not possibly familiar with talker's German accented English since Brazilian learners of English tend not to be exposed to different L1 talkers speaking English. However, 'proved' produced by a German talker (GT1) had low intelligibility rate, and higher rate of other verb form transcriptions, as displayed in Table 24, which possibly resulted from listeners' lack of knowledge or familiarity with GT1 production of the simple past tense of this verb and/or to her accent, as well, causing them difficulty to understand the past tense of this verb.

The present section also displays individual analysis on the intelligibility, other verb forms and breakdown results by talker in both intelligibility tests, in order to illustrate the overall results, which are summarized on Table 25.

Table 25

*Intelligibility, other verb forms and breakdowns by talkers in both intelligibility tests (percentages in parenthesis)*

Test Talker	Intelligibility test 1			Intelligibility test 2		
	Intelligibility	Other forms	Breakdown	Intelligibility	Other forms	Breakdown
BPT1	20 (47.61)	09 (21.42)	13 (30.95)	20 (47.61)	12 (28.57)	10 (23.80)
BPT2	35 (83.33)	06 (14.28)	01 (2.38)	32 (76.19)	04 (9.52)	06 (14.28)
ST1	21 (50)	09 (21.42)	12 (28.57)	28 (66.66)	04 (9.52)	10 (23.80)
ST2	15 (35.71)	11 (26.19)	16 (38.09)	23 (54.76)	01 (2.38)	18 (42.85)
GT1	14 (33.33)	09 (21.42)	19 (45.23)	20 (47.61)	09 (21.42)	13 (30.95)
GT2	16 (38.09)	06 (14.28)	20 (47.61)	12 (28.57)	04 (9.52)	26 (61.90)
ET1	09 (21.42)	09 (21.42)	24 (57.14)	18 (42.85)	05 (11.90)	19 (45.23)
ET2	06 (14.28)	14 (33.33)	22 (52.38)	07 (16.66)	11 (26.19)	24 (57.14)
Total	136 (40.47)	73 (21.72)	127 (37.79)	160 (47.61)	50 (14.88)	126 (37.50)

Other forms = other verb forms; N = 42<sup>66</sup>

As Table 25 demonstrates, BPT2 was the most intelligible talker in both tests, despite the slight difference between his results in both tests, whereas BPT1 was as intelligible in the first intelligibility test as in the second intelligibility test, ST1, ST2, GT1 and ET1 became more intelligible

<sup>66</sup> Three verbs produced by each talker were analyzed by 14 listeners, obtaining a total of 42 analyses for each talker.

to the 14 listeners from the first to the second intelligibility test, whereas ET2 and GT2 became less intelligible for listeners from the first to the second intelligibility test. This variation in listeners' analysis on talkers' productions displayed on Table 25 was also found in previous studies, such as Becker (2013), Cruz (2004), Cruz and Pereira (2006), Fernandes (2009, 2010), Oliveira (2014) and Riella (2013).

Moreover, results displayed in Table 25 also demonstrate that the rates for other verb forms and breakdowns based on listeners' orthographic transcriptions of talkers' productions varied among talkers and between tests, demonstrating that listeners' rates for other verb forms and breakdowns transcriptions from the first to the second intelligibility test, respectively, (a) increased and decreased for BPT1; (b) decreased and increased for BPT2, ST2, GT2 and ET2, and, (c) decreased for both other verb forms and breakdowns for ST1, GT1 and ET1.

Overall, results displayed in Tables 21 and 22, for the first intelligibility test, 23 and 24, for the second intelligibility test, and 25, for the comparison on intelligibility, other verb forms and breakdowns for all talkers in both tests, have indicated that the 14 Brazilian listeners who participated in the present study probably had difficulty in listening, understanding, and consequently, orthographically transcribing, the target verbs in both tests, and that the recognition of verbs ending in *-ed* remained similar despite the four month interval between the first and second test, despite the slight changes in intelligibility and other verb forms displayed on Tables 22 and 24.

These difficulties that the 14 Brazilian listeners had in both intelligibility tests might have been influenced by listeners' lack of (a) knowledge on talkers' speech characteristics (e.g., speech rate and articulation), as observed in Alameen and Levis (2015), Becker (2013), Bradlow and Pisoni (1999), Cruz (2004), Derwing and Munro (1997, 2014), Fernandes (2009, 2010), Kennedy and Trofimovich (2008), Levis (2015), Julkowska and Cebrian (2015), Munro and Derwing (2015b), Oliveira (2014), O'Neil (2015) and Reis and Cruz (2010), and (b) linguistic background and language experience, as suggested by Becker (2013), Bradlow and Pisoni (1999), Catford (1950), Cruz (2004), Derwing, Munro, Foote, Waugh and Fleming (2014), Derwing, Munro and Thomson (2007), Munro, Derwing and Morton (2006), Munro, Derwing and Thomson (2015) and Schwartzhaupt (2015).

In addition, test conditions (e.g., reading, free speech, quiet or noisy room), as pointed out by Alameen and Levis (2015), Munro and Derwing

(2015a, b) and Trofimovich, Kennedy and Foote (2015), might also have affected the results since (a) the intelligibility tests were conducted at the listeners' classrooms, which was not an ideal lab condition due to outside noise, and (b) the test itself, which was based on listening of sentences written in the simple past without past markers that could aid the listeners (e.g., yesterday or last year), making the test more difficult, despite the fact that talkers were instructed to read the sentences in which the verbs were inserted as naturally as possible. Furthermore, talkers' accent with which listeners were probably not so familiar might also have influenced the results, as Bradlow and Pisoni (1999), Cruz and Blanche (2014), Cruz and D'Ely (2015), Cruz and Pereira (2006), Kennedy and Trofimovich (2008), Munro and Derwing (1995), Munro, Derwing and Morton (2006), Oliveira (2014) and Smith and Nelson (1985) suggested in their studies, as well as talkers' L1, as suggested by Bent and Bradlow (2003), Julkowska and Cebrian (2015), Li and Mok (2015) and Munro, Derwing and Morton (2006), probably affected the recognition of verbs ending in *-ed* by Brazilian listeners.

As pointed out by Alameen and Levis (2015), Derwing and Munro (2014), Levis (2015), Munro and Derwing (2015b), Munro, Derwing and Morton (2006) and Smith and Nelson (1985), listeners' (lack of) familiarity with other speakers' speech, accent or pronunciation may interfere in (a) listeners' judgment and understanding of L2 pronunciation and speech, (b) the establishment of speech patterns to identify talkers' voice and speech as suggested by Derwing and Munro (1997), and, (c) ultimately, in communication, which in turn, according to Munro and Derwing (1995), may also affect listeners' processing, requiring them more time to understand and transcribe talkers' speech, thus, causing breakdowns in communication.

In addition, the combination of the linguistic sub-systems (e.g., phonology, morphology and lexis), found in the present study, as suggested by de Bot, Lowie and Verspoor (2007), Larsen-Freeman (1997, 2014) and Lowie (2011, 2013) as well as the cognitive and environmental (e.g., classroom where the data were collected) components, proposed by de Bot, Lowie and Verspoor (2007), Elis (2007), Pisoni and Lively (1995) and Thomson (2015), according to the DST, demonstrate that listeners' (a) knowledge on talkers' speech characteristics (e.g., speech rate and articulation), (b) linguistic background and language experience and (c) the (non) establishment of speech patterns to identify talkers' voice and speech and test conditions (e.g., listen to sentences, that were audio-recorded by talkers' with different L1 backgrounds and without past markers, in class without

headphones) may affect the intelligibility of verbs ending in *-ed* for Brazilian learners of English listeners.

In sum, as has been discussed here for the first and second intelligibility test results (e.g., intelligibility, other verb forms and breakdowns rates), talkers' L1 as well as listeners' familiarity with talkers' accent and speech characteristics, such as speech rate and articulation, and linguistic background and language experience might have affected the results, since Brazilian listeners seemed not to be very familiar to German and English talkers' speech characteristics and, thus, could not establish a pattern to identify talkers' voice and speech and, consequently, orthographically transcribe the target-verbs German and English talkers had produced, as they seemed to be with BP and Spanish L1 talkers. The possible influence of listeners' language experience, talkers' L1, as well as listeners' proficiency and familiarity with the target words, which have not been discussed so far, on the intelligibility of English verbs ending *-ed* in the two intelligibility tests will be taken into account in sections 4.3 and/or 4.4.

Finally, in order to conclude this overview on how the verbs were transcribed by Brazilian listeners (RQ1), Table 26 displays the number of verbs that were intelligible, transcribed in the other verbs forms (e.g., present or past when it occurred in the other form, *ing* form, or third person singular) or caused breakdowns in communication (e.g., verbs and/or entire sentences were not transcribed at all or verb replacement by another word) to each listener in the two intelligibility tests. Thus, a total of 672 verbs were analyzed by all listeners in the intelligibility tests together or, in other words, 336 verbs were analyzed by each listener in each test.

Table 26

*First and second intelligibility test results by listener*

Test and Listener	Intelligibility test 1			Intelligibility test 2		
	Intelligibility	Other forms	Breakdown	Intelligibility	Other forms	Breakdown
1	14	5	5	14	4	6
2	7	4	13	5	3	16
3	6	4	14	5	4	15
4	14	5	5	12	3	9
5	3	5	16	2	5	17
6	9	7	8	12	6	6
7	2	5	17	5	3	16
8	3	5	16	3	4	17
9	12	5	7	15	6	3
10	15	3	6	18	3	3
11	13	6	5	20	1	3
12	9	11	4	11	5	8
13	15	4	5	19	2	3
14	14	4	6	19	1	4
Total	136	73	127	160	50	126

According to the results displayed in Table 26, there was an increase in the intelligibility rate from the first to second test, a decrease in the other verb form rate and a similar breakdown rate between the two tests. Table 26 also demonstrates that eight out of 14 listeners (6, 7, 9, 10, 11, 12, 13 and 14) increased the number of intelligible verbs transcribed from the first to the second intelligibility test whereas two of them (1 and 8) did not improve it and other four listeners (2, 3, 4 and 5) decreased the number of intelligible verbs transcribed from the first to the second intelligibility test. In addition, results displayed in Table 26 demonstrated that among the 14 listeners, ten of them (1, 2, 4, 6, 7, 8, 11, 12, 13 and 14) decreased the transcription of other verb forms whereas three of them (3, 5 and 10)

maintained the same number of other verb forms transcribed in both tests and one listener (9) had a little increase in the number of verbs transcribed in the other verb forms when both intelligibility tests were compared. Regarding breakdowns, results displayed on Table 26 demonstrated that seven out of 14 listeners (6, 7, 9, 10, 11, 13 and 14) decreased the transcription of verbs that indicated breakdowns whereas other seven listeners (1, 2, 3, 4, 5, 8 and 12) increased the transcription of verbs as breakdowns when the results of the two intelligibility tests were compared.

In addition, as occurred with Lima Junior's (2014) study results in which intelligibility, degree of foreign accent and proficiency level varied within each of the three groups tested (children, adolescents and adults who started studying English at different ages), results of the present study also demonstrate that there was variation among listeners and for the same listeners between the two tests. Thus, these results may be attributed to the dynamic process of language learning, as suggested by Lima Junior (2014), following the DST that claims that variation may occur in the learning process, as pointed out by Cameron and Larsen-Freeman (2007), de Bot, Lowie and Verspoor (2007), Ellis (2007), Larsen-Freeman (1997, 2014), Lowie (2011, 2013), Thomson (2015) and Trofimovich, Kennedy and Foote (2015).

Turning to the beginning of this section in which the exploratory RQ1 asked how Brazilian listeners would transcribe English regular verbs in the simple past tense, overall results presented so far have demonstrated that Brazilians tended to (a) have difficulty in transcribing verbs ending in *-ed* as demonstrated by the high rates of breakdowns in the transcription of verbs in both intelligibility tests attested by blank spaces for the verbs or the entire sentences in the answer sheet; (b) have a slight improvement from the first to the second intelligibility test, considering the increase in the rates of intelligible verbs (e.g., transcribed according to talkers' productions), and, (c) consequently decrease the rates of other verb forms (e.g., stem, third person singular, *ing* productions) from the first to the second test. Moreover, these results suggest that (a) there was variation in the language learning process affected by listeners' linguistic and cognitive backgrounds as well as environmental conditions, as stated by the DST; (b) the intelligibility of verbs ending in *-ed* found in this study was lower than the intelligibility rates found in other studies, and (c) talkers' L1 had different degrees of influence on the intelligibility of English verbs ending in *-ed*, as previously mentioned. In addition, listeners' lack of knowledge

on talkers' speech characteristics as well as lack of familiarity with talkers' accent, linguistic background and language experience, as well as test conditions, as previously discussed, possibly affected listeners' recognition of verbs ending *-ed* in the two intelligibility tests.

Considering all these factors that may affect intelligibility of regular verbs in the simple past tense, the present study, in the following sections, focuses on the relationship of intelligibility and listeners' (a) verb-familiarity, (b) proficiency level and (c) language experience in the first and in the second intelligibility tests (RQ2); the possible influence of talkers' L1 on the intelligibility of verbs ending in *-ed* in both intelligibility tests (RQ3) and, finally, on the possible influence of verb allomorph on the intelligibility of verbs ending in *-ed* in the two intelligibility tests (RQ4).

Having presented the overall results to RQ1, the following section will address the possible relationships of verb-familiarity, proficiency level and language experience on the intelligibility of English verbs ending in *-ed* in both intelligibility tests in order to answer to RQ2.

#### 4.3. THE RELATIONSHIP BETWEEN LISTENERS' VERB-FAMILIARITY, L2 PROFICIENCY AND LANGUAGE EXPERIENCE ON VERB INTELLIGIBILITY

Seeking to answer RQ2, this section presents the results for the possible relationship between Brazilian listeners' verb familiarity, L2 proficiency, and language experience and the intelligibility of English verbs ending in *-ed*. Considering section organization, it first presents results for the first intelligibility test followed by the results for the second intelligibility test, and the overall results compared.

As this section addresses the possible relationship between intelligibility, listeners' verb familiarity, L2 proficiency and language experience, individual Spearman correlations were run between the number of intelligible verbs<sup>67</sup> and (a) verb-familiarity, (b) L2 proficiency and (c) language experience in the first intelligibility test. Table 27 displays the number (N) of verbs indicated as intelligible by the listeners, verb-familiarity scores obtained from a Likert scale, as well as listeners' proficiency level and language experience results, the minimum and maximum number of intelligible verbs, lowest and highest verb-familiarity, proficiency level and

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<sup>67</sup> Other verb forms and breakdowns were not included in this calculation.



language experience results, the mean (M)<sup>68</sup> and the standard deviation (SD) for each variable.

*Table 27*

*Intelligibility and Brazilian listeners' verb-familiarity of English verbs ending in -ed, proficiency level and language experience in the first test*

<b>Listener</b>	<b>N intelligibility</b>	<b>Verb-familiarity</b>	<b>Proficiency level</b>	<b>Language experience</b>
1	14	4,25	36	42
2	7	3,70	27	45
3	6	3,62	19	33
4	14	4,41	33	43
5	3	3,75	20	36
6	9	4,08	39	42
7	2	3,87	18	40
8	3	3,83	16	42
9	12	4,95	33	49
10	15	4,87	42	47
11	13	4,45	44	38
12	9	4,37	23	35
13	15	4,91	42	52
14	14	4,29	33	25
Minimum	2	3.62	16	25
Maximum	15	4.95	44	52
M	9.71	4.23	30.43	40.64
SD	4.79	0.45	9.88	6.97

N = 24; verb familiarity ranged from 0 to 5 in the Likert Scale; language proficiency maximum score = 60; language experience maximum score = 78.

As results displayed in Table 27 demonstrate, the number of intelligible verbs ranged from 2 to 15, whereas verb-familiarity<sup>69</sup> ranged from

<sup>68</sup> Mean, standard deviation, minimum and maximum included data for all 14 listeners.

<sup>69</sup> The verb-familiarity was obtained by adding all values given to each verb by the same listener and then dividing this value by 24, the number of verbs tested in the familiarity for each listener.

3.62 to 4.95 among the 14 listeners. According to Table 27, two listeners (6 and 12) were close to the mean in the intelligibility number of verbs, whereas the others were below (5, 7 and 8) or above (1, 4, 9, 10, 11, 13 and 14) it, two listeners (1 and 14) were very close to mean in the verb-familiarity score, whereas six of them (4, 6, 7, 8, 11 and 12) were within one standard deviation and other six listeners were below (2, 3 and 5) or above (9, 10 and 13) it. Thus, a Spearman correlation was run and yielded a strong correlation ( $\rho = .753$ ) between verb intelligibility and verb-familiarity, with a significant  $p$  value ( $p = .002$ ) in the first intelligibility test (See verbs used in the intelligibility tests in Table 22 and Appendices H, J and K), providing support for H1.

The possible relationship between listeners' language proficiency and the intelligibility of regular verbs ending in *-ed* is also addressed here and the results for verb intelligibility and listeners' language proficiency is also displayed in Table 27. According to these results, listeners' proficiency level ranged from beginner (e.g., 16 points in the OPT for listener 8) to upper-intermediate (e.g., 44 points in the OPT for listener 11), having five listeners (2, 3, 5, 7 and 12) in elementary proficiency level and seven listeners (1, 4, 6, 9, 10, 13 and 14) in intermediate proficiency level (See sections 3.3.2 and 3.4.5 to check listeners' proficiency test level and the proficiency test description, respectively, Appendix L to check the proficiency test). Moreover, as Table 27 demonstrates, four listeners (2, 4, 9 and 14) were the closest to the mean (30.43) whereas three listeners (1, 6 and 12) were within one standard deviation and other seven listeners (3, 5, 7, 8, 10, 11 and 13) were below or above the mean.

In order to check the possible listener's proficiency level relationship with intelligibility of English verbs ending in *-ed*, a Spearman correlation was run, yielding a strong ( $\rho = .830$ ) and significant ( $p < .001$ ) correlation, which indicates that listeners' proficiency level was related to verb intelligibility in the first test, as predicted by H1, and thus, supporting it.

Besides the relationship between intelligibility and (a) verb-familiarity and (b) language proficiency, RQ2 also asked if language experience would correlate with verb intelligibility. Results gathered from a profile questionnaire<sup>70</sup> the listeners answered were used to obtain the language experience results in the first test and were also displayed in Table 27.

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<sup>70</sup> Section 3.4.2 explains how the questionnaire was organized whereas section 3.4.7 explains how the data were gathered from the questionnaire and Appendix B displays the questionnaire itself.

As the results displayed in Table 27 demonstrate, the listeners' language experience ranged from 25<sup>71</sup> to 52, six out of 14 listeners were close to the mean (1, 4, 6, 7, 8 and 11), four of them (2, 5, 10 and 12) were within one standard deviation, and four of them (3, 9, 13 and 14) had scores that were below or above the mean. Thus, the Spearman correlation yielded a moderate ( $\rho = .586$ ) and statistically significant ( $p = .035$ ) correlation, thus giving support to H1.

As occurred with the results for the first test, the possible relationship between verb-intelligibility and Brazilian listeners' verb-familiarity, L2 proficiency and language experience were run for the second intelligibility test, which took place four months after the first one. Again, following the same procedure adopted with the data from the first test, only verbs considered intelligible, that is, 160 among 336 tested, were used to run the correlations whereas the results for other verb forms and breakdowns were not included in the correlations. Considering that RQ2 asked if there was a relationship between verb-intelligibility and listeners' (a) verb familiarity, (b) proficiency level and (c) language experience over time, Table 28 displays the results for the second test.

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<sup>71</sup> As listener 14 did not answer Question 9 of the questionnaire, which asked how frequently she studied grammar, reading, writing, listening, speaking and pronunciation in class, her data were not included in this analysis and, thus, the correlation between intelligibility and language proficiency in the first intelligibility test was run with data from 13 listeners, rather than 14.

Table 28

*Intelligibility and Brazilian listeners' verb-familiarity of English verbs ending in -ed, proficiency level and language experience in the second test*

<b>Listener</b>	<b>N intelligibility</b>	<b>Verb-familiarity</b>	<b>Proficiency level</b>	<b>Language experience</b>
1	14	4.33	36	47
2	5	3.91	27	45
3	5	3.50	19	25
4	12	4.00	33	35
5	2	3.62	20	24
6	12	4.16	39	38
7	5	4.33	18	37
8	3	3.12	16	36
9	15	5.00	33	49
10	18	4.62	42	47
11	20	4.83	44	39
12	11	4.41	23	36
13	19	4.83	42	52
14	19	4.62	33	39
Minimum	2	3.12	16	24
Maximum	20	5.00	44	52
M	11.43	4.23	30.43	39.50
SD	6.41	0.55	9.88	8.34

N = 24; verb familiarity ranged from 0 to 5 in the Likert Scale; language proficiency maximum score = 60; language experience maximum score = 78

Results displayed in Table 28 demonstrate that, as occurred in the first test, the number of intelligible verbs, the verb-familiarity, proficiency level and language experience results, varied among listeners in the second intelligibility test. According to the results displayed in Table 28, one listener (5) transcribed only 2 intelligible verbs, whereas another listener (11) transcribed 20 intelligible verbs among the 24 possible in the second intelligibility test. In addition, Table 28 also demonstrates that three listeners (4, 6 and 12) transcribed the number of intelligible verbs close to the

mean (4.23), two listeners (1 and 9) had the number of verbs within the standard deviation and the seven remaining (2, 3, 7, 8, 10, 13 and 14) had the number of intelligible verbs below or above the mean. Regarding the verb-familiarity for the second intelligibility test, one listener (9) reached the highest value whereas another listener (8) obtained the lowest value of 75 and one listener (6) was very close to the mean. Moreover, results displayed in Table 28 also demonstrate that the verb-familiarity rates for seven listeners (1, 2, 4, 7, 10, 12 and 14) were within one standard deviation whereas the verb-familiarity rates for other four listeners (3, 5, 11 and 13) were below or above the mean.

As explained in section 3.4.7, the Spearman correlation was run for the relationship between intelligibility and verb-familiarity in the second test, yielding a strong ( $\rho = .859$ ) correlation with a significant  $p$  value ( $p < .001$ ). Thus, these results demonstrate that there was a close relation between verb-intelligibility and listeners' verb-familiarity in the second test, supporting H1 that predicted that listeners' verb-familiarity would correlate with the intelligibility of English regular verbs in the simple past tense.

As Tables 27 and 28 demonstrate, results for the relationship between intelligibility and verb-familiarity in the first and in the second intelligibility tests of the present study followed the same tendency observed in studies involving Brazilian learners of English, such as Gonçalves (2014), who found that word familiarity was related to the intelligibility of the pair words, such as 'beat/bit', 'peak/pick', and Schwartzhaupt (2015), who suggested that American native speakers of English used other cues, such as word familiarity, to transcribe words, such as 'pill/bill', 'tab/dab', 'cut/gut', produced by Brazilians and tested in his study.

As stated in H1, Brazilian listeners' language proficiency was also considered to correlate with intelligibility of verbs ending in *-ed* in the second intelligibility as occurred in the first intelligibility test. Table 28 also displays the results for L2 proficiency<sup>72</sup> and intelligibility in the second test, which revealed that the number of intelligible verbs varied among listeners, as previously described for the intelligibility and familiarity correlation and that the proficiency level results were the same used for the first intelligibility test, as previously stated. The Spearman correlation between verb intelligibility and listeners' language proficiency was run and

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<sup>72</sup> As stated in the method, only one proficiency test was administered to the listeners, which resulted in the use of the same proficiency test results for the second round of tests.

yielded a strong correlation ( $\rho=.869$ ) with a significant  $p$  value ( $p<.001$ ), thus supporting H1.

Results for the relationship between intelligibility and proficiency level for the first intelligibility test, displayed on Table 27, as well as the results for the second intelligibility test, displayed on Table 28, followed the same tendency found in (a) Gonçalves (2014), who found that more proficient listeners with different L1 backgrounds had higher performance in the word intelligibility test; (b) Lima Junior (2014), who found that the intelligibility of Brazilian learners of English and their proficiency level increased as their age of starting learning English decreased; (c) Schwartzhaupt (2015), who found high and similar rates of word intelligibility by the two groups of listeners (e.g., high proficient Brazilian learners of English and native speakers of American English) that he attributed to Brazilian learners of English high language proficiency level; (d) Julkowska and Cebrian (2015) who found that more proficient Spanish and Polish speakers (listeners) learning English had a better performance in the transcription of British native and non-native (e.g., Polish) speakers of English, and (e) Derwing and Munro (1997) who found that intelligibility and comprehensibility by their Spanish, Polish, Japanese and Cantonese intermediate learners of English tended to be more influenced by grammatical errors than by pronunciation errors, which Derwing and Munro (1997) attributed to lower proficiency level when their results were compared to those of the more proficient Munro and Derwing's (1995) participants.

Finally, H1 also stated that listeners' language experience would correlate with verb intelligibility in the second test. According to Table 28, which displays the results for listeners' intelligibility and language experience in the second test, listeners' language experience ranged from 24 to 52, two out of 14 listeners (11 and 14) were very close to the mean (39.50), eight of them (1, 2, 4, 6, 7, 8, 10 and 12) were within one standard deviation (8.34), and, four listeners (3, 5, 9 and 13) were below or above the mean in the language experience result and outside one standard deviation in the second language test assessed by means of a questionnaire administered to the listeners. Thus, the Spearman correlation was run, yielding a moderate ( $\rho = .696$ ) and significant correlation ( $p= .006$ ). These results indicate that listeners' language experience correlated with the intelligibility of verbs ending in *-ed* in the second test, and thus support H1.

Taking into account results for the relationship between intelligibility and listeners' language experience for the first intelligibility test displayed

on Table 27 and for the second intelligibility test displayed on Table 28, results of the present study corroborate those of previous studies involving listeners and/or talkers with different L1 backgrounds, excluding BP, in which language experience was taken into account and was found to have influenced their results. For instance, for studies with listeners with an L1 different than BP, (a) Bradlow and Pisoni (1999) found that amount of exposure to English in an English speaking environment helped listeners (L1 speakers of Korean, Chinese, Russian, Japanese, Spanish, Bengali, Nepali and Dari) to better recognize hard words; (b) Munro, Derwing and Morton (2006) considered that Japanese listeners more frequent daily use of English compared to Cantonese and Mandarin L1 speakers favored intelligibility, comprehensibility and reduced accentedness in free speech of Japanese in relation to Cantonese, Polish and Spanish L1 speakers learners of English; and (c) Kennedy and Trofimovich (2008) found that Mandarin experienced English native speaker listeners understood more speech from both native and non-native (e.g., Mandarin) English speakers than Mandarin inexperienced English native speaker listeners, who understood better the native English speech.

Moreover, results of the present study regarding language experience also corroborate results of Derwing, Munro, Foote, Waugh and Fleming (2014) and Munro, Derwing and Thomson (2015). The first study followed for two years groups of Vietnamese and Khmer L1 speakers who have been living in Canada for about 19 years previous to data collection, while the second study tested Mandarin, in one group, and Russian, Ukrainian and Croatian in another group, who lived in Canada for about four months previous to data collection. Derwing et al (2014) found that improvement in the contact with the English language due to work requirements helped Vietnamese and Khmer L1 speakers improve their comprehensibility. Similarly, Munro, Derwing and Thomson's (2015) report that daily life routines, especially for Mandarin L1 speakers in their study, was associated to an improvement in the production of English words even without the presence of English pronunciation instruction.

In addition, results of the present study demonstrated the influence of language experience on intelligibility of verbs ending in *-ed* also corroborated results of Derwing, Munro and Thomson's (2007) two-year longitudinal study with Chinese (Mandarin) and Slavic (Russian and Ukrainian) L1 speaker immigrants living in Canada, who found a positive influence of language experience and contact with English outside

the classroom by listening to the radio, watching TV, having ten-minute conversations with native speakers on Slavic L1 speakers' comprehensibility and fluency development. Further discussion on the issues of contact with English in formal education as well as outside the classroom will be provided in this section, following Figures 2, 3 and 4.

In sum, results presented so far have demonstrated that there was correlation between verb intelligibility and listeners' (a) verb-familiarity, (b) proficiency level and (c) language experience in the first as well as in the second intelligibility test, thus supporting H1, which stated that verb-familiarity, language proficiency and language experience of Brazilian learners of English would correlate with the intelligibility of verbs ending in *-ed* over time. After presenting the results separately, a comparison between the results for intelligibility, verb-familiarity and language experience is displayed in Table 29 and discussed after that.



Table 29

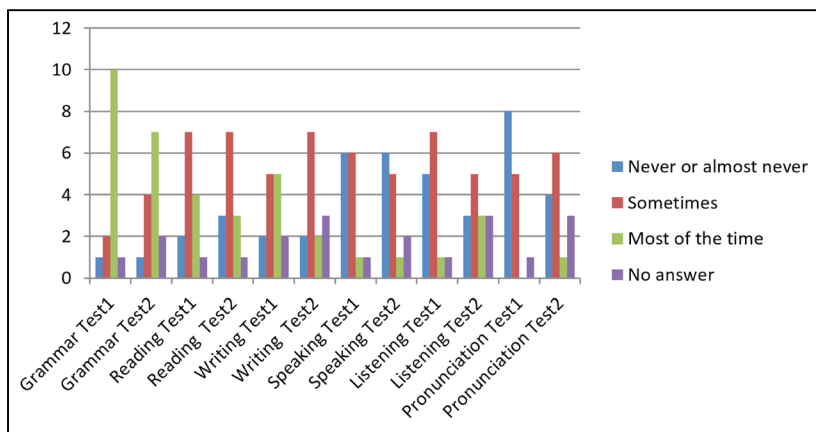
*Intelligibility and Brazilian listeners' verb-familiarity of English verbs ending in -ed, proficiency level and language experience in the first and in the second test*

<b>Listener</b>	<b>Intelligibility Test One</b>	<b>Intelligibility Test Two</b>	<b>Verb-familiarity Test One</b>	<b>Verb-familiarity Test Two</b>	<b>Proficiency Level</b>	<b>Language Experience Test One</b>	<b>Language Experience Test Two</b>
1	14	14	4,25	4.33	36	42	47
2	7	5	3,70	3.91	27	45	45
3	6	5	3,62	3.50	19	33	25
4	14	12	4,41	4.00	33	43	35
5	3	2	3,75	3.62	20	36	24
6	9	12	4,08	4.16	39	42	38
7	2	5	3,87	4.33	18	40	37
8	3	3	3,83	3.12	16	42	36
9	12	15	4,95	5.00	33	49	49
10	15	18	4,87	4.62	42	47	47
11	13	20	4,45	4.83	44	38	39
12	9	11	4,37	4.41	23	35	36
13	15	19	4,91	4.83	42	52	52
14	14	19	4,29	4.62	33	25	39
Minimum	2	2	3.62	3.12	16	25	24
Maximum	15	20	4.95	5.00	44	52	52
M	9.71	11.43	4.23	4.23	30.43	40.64	39.50
SD	4.79	6.41	0.45	0.55	9.88	6.97	8.34

As discussed in section 4.2 regarding variation on intelligibility, other verb forms and breakdowns, there seemed to be some variation in

the results of verb-intelligibility, verb-familiarity and language experience, as displayed in Table 29. Moreover, as Table 29 demonstrates, eight out of 14 listeners (6, 7, 9, 10, 11, 12, 13 and 14) increased the number of intelligible verbs from the first to the second intelligibility test, whereas two of them (1 and 8) did not improve it, and other four listeners (2, 3, 4 and 5) decreased the number of intelligible verbs from the first to the second test. Regarding verb-familiarity, Table 29 demonstrates that six among the 14 listeners (3, 4, 5, 8, 10 and 13) decreased their verb-familiarity rates from the first to the second familiarity test, whereas eight of them (1, 2, 6, 7, 9, 11, 12 and 14) increased their verb familiarity rates from the first to the second familiarity test. Moreover, according to Table 29, six listeners (3, 4, 5, 6, 7 and 8) reported having less experience with the language after four months, whereas four (1, 11, 12 and 14) reported having more experience with the language after four months and other four listeners (2, 9, 10 and 13) reported having the same language experience despite the four month-interval between the first and the second test. Thus, these variations in listeners' responses in the same questionnaire administered in both tests the tests reinforces the perspective defended by the DST in which there is variation in the learning process for the same individual and for the group of learners during the period of learning and that there is no end point in the learning process, as suggested by Cameron and Larsen-Freeman (2007), De Bot, Lowie and Verspoor (2007), Ellis (2007), Larsen-Freeman (1997, 2014), Lowie (2011, 2013) and Trofimovich, Kennedy and Foote (2015).

As previously mentioned, this section also addressed the issue of listeners' contact with English in formal education and outside the classroom which were elicited with listeners' answers to the questionnaire displayed in Appendix B that asked about the study of grammar and pronunciation and the four language skills in class, the proficiency test that they might possibly have taken previous to the data collection and the individual use of language in their daily lives at work or for fun, which might have helped listeners in the intelligibility of verbs. Figure 2 presents the results regarding contact with English language contents and skills obtained from listeners' answers to question 9 of listeners' questionnaire in both tests.



**Figure 2: Number of listeners and frequency of grammar, reading, writing, speaking, listening and pronunciation study in class (Tests One and Two)**

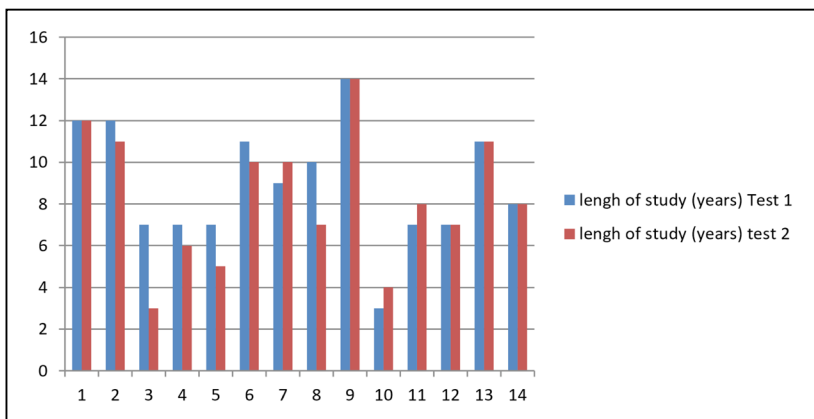
As occurred in Delatorre, Silveira and Gonçalves (submitted paper), Brazilian listeners' answers displayed in Figure 2 demonstrated that they had had much more contact with grammar, reading, and writing skills than speaking, listening and pronunciation, during their learning process in a classroom setting in Brazil. However, this result was not surprising due to the fact that the Brazilian curriculum for elementary<sup>73</sup> and high school formal education, which predominantly incorporates English as the main foreign language, tends to focus on grammar, reading and writing skills, giving less attention to listening and speaking skills and pronunciation in class<sup>74</sup>, which are more related to communication and may interfere in listeners' intelligibility of verbs ending in *-ed*, thus, possibly causing high rates of breakdowns in communication and rates of other verb form transcriptions (See Table 26, section 4.2 to review the results for intelligibility, breakdowns and other verb forms in both intelligibility tests.), as suggested by Derwing and Munro (2014), Munro and Derwing (2011) and Levis (2015). Furthermore, support is provided for Bradlow and Pisoni's (1999) study, who found that word recognition may be influenced by talkers' speech characteristics or articulation, for instance, which are features discussed

<sup>73</sup> The *Parâmetros Curriculares Nacionais (PCNs, 1997)* tend to focus more on reading skills, whereas the *Orientações Curriculares para o Ensino Médio (2006)* suggest the teaching of the four skills in class.

<sup>74</sup> It is possible that listeners' classes were influenced by both educational norms and, for this reason their classes did not focus much on oral skills and pronunciation.

when dealing with listening and speaking skills and with pronunciation in class to which these 14 listeners seemed not to be exposed when at school in formal education, which might have affected their performance in the intelligibility test of the present study. Finally, the present results agree with Thomson's (2015) claim that lack of attention to pronunciation may have an impact on grammatical and lexical access and, account for break-downs in speech production and perception and lack of fluency, which in turn, may have an impact on listeners' intelligibility because they may not understand what they listen to or not be able to establish the patterns to identify talkers' voice and speech, as suggested by Derwing and Munro (1997), affecting listeners' processing of words, as suggested by Munro and Derwing (1995), and previously discussed.

In addition to contact with language and skills, length of study might also have interfered in the results of language experience. Figure 3, which was based on listeners' answers to question 8 of the questionnaire, illustrates these results for length (years) of study.



**Figure 3: Length of English study at formal and language schools by each listener (Tests One and Two)**

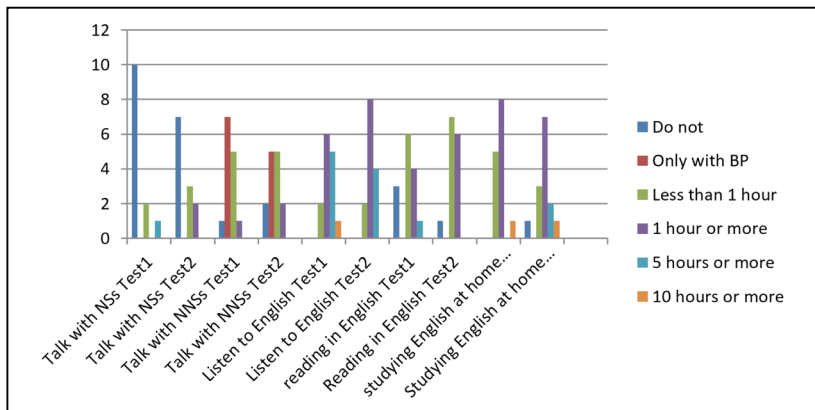
As Figures 3 demonstrates, six listeners (2, 3, 4, 5, 6 and 8) reported that their length of study decreased over time whereas five listeners (1, 9, 12, 13 and 14) reported the same length of study in both questionnaires despite the four month interval between the two questionnaire administrations and three listeners (7, 10 and 11) reported having improved their length of study from the first to the second questionnaire over this period of

four months. Moreover, Figure 3 also demonstrates that length of English study also varied among listeners, from a minimum of 3 years of study (3 in test two and 10 in test one) to a maximum of 14 years (9 in both tests), and that these listeners studied English for a different length of time, such as 12 years (1 and 2), 11 years (6 and 13) 10 years (7 and 8) or for 8 years or less (3, 4, 5, 11, 12 and 14) of study, including formal education and language school study. This variation in length of study might have implicated in different quality and amount of English study to these listeners during formal educational periods at regular schools or at language schools to complement their study of English, which might possibly suggest that this little exposure to or contact with English affected the intelligibility of verbs ending in *-ed* causing high rates of breakdowns in communication as well as of other verb forms.

Results of the present study seem to corroborate those of Bradlow and Pisoni (1999) in which the number of years studying English and the age it started did not help listeners to better recognize hard words. As occurred with Derwing, Munro, Foote, Waugh and Fleming's (2014) Vietnamese and Khmer L1 speakers, who have been living in Canada for 19 years when data were collected, time of contact with English did not guarantee high intelligibility rates; on the contrary, results of the present study as well as Derwing et al's study suggest that quality and amount of contact with English at work, in their case, helped improving intelligibility. In addition, as suggested by Bot, Lowie and Verspoor (2007) and Pisoni and Lively (1995), following the DST, and in previous studies conducted by Derwing, Munro and Thomson (2007) and Munro, Derwing and Thomson (2015), contact and exposure to English outside the classroom probably helped their participants to improve comprehensibility and fluency and consonant production, which would probably help Brazilian listeners to improve intelligibility. However, data available in the present study are not enough to make such a strong claim and, thus, more research in the field is necessary to elicit it.

Considering the Brazilian scenario, this contact with English could be achieved by encouraging learners to pay more attention to oral language produced in English by both native and non-native speakers on TV series, movies, music and news Brazilians tend to get in contact with, and to accept the idea that pronunciation instruction that includes information about variation (e.g., native and/or non-native) might also help them to deal with oral English, rather than considering that pronunciation could be limited to only imitating native speakers.

Moreover, as mentioned in sections 3.4.2 and 3.4.7, some questions asked about listeners' length of English contact in a period of 24 hours (Questions 16, 17, 18 and 21) and in a period of one week (Question 22 that asked about studying at home). The alternatives for listeners' answers (e.g., less than one hour, one hour or more, five hours or more, ten hours or more) were taken from the questions just mentioned, which are found in the listeners' questionnaire available in Appendix B. Their answers to these questions may also help to explain their difficulty in understanding and transcribing English verbs and, thus, inducing high rates of breakdowns in communication and other verb form transcriptions. A summary of their answers to these questions is presented in Figure 4.



**Figure 4: Number of listeners and length of time devoted to talking, listening, reading and studying English (Tests One and Two)<sup>75</sup>**

Regarding results for the questionnaire answer obtained from the first test, Figure 4 illustrates that the vast majority of the listeners used to perform the activities asked in Questions 16, 17, 18, 21 and 22 (e.g., talk with native or non-native speakers of English, listen to English on TV, internet or music, read in English or study English at home) for short periods of less than one hour or during one hour or more, which however did not exceed five hours. Only few participants did it for more than five hours. Moreover, according to listeners' answers to questions 16, 17 and 21 from the listeners' questionnaire,

<sup>75</sup> The answer "Do not" in the questionnaire means that listeners reported in the questionnaire that they did not talk with both native and non-native speakers of English when the data were collected.

ten out of 14 listeners reported in the first test that they did not talk with native speakers when the data were collected and seven of them only talked with BP, that is, did not talk with other non-native speakers in English, and three of them did not read in English besides class activities. Thus, these results found in the first test suggest that this length of time they reported to be exposed to in English seemed to be insufficient for them to obtain high intelligibility rates for the *-ed* verbs, inducing them to transcribe these verbs as other target verb forms and to experience breakdowns in communication (See Tables 21, 22, 25 and 26 to check these results).

Considering answers to Questions 16, 17, 18, 21 and 22 of the questionnaire administered to the listeners in the second test of the present study, which again asked about their length of contact with English by talking with native and non-native speakers, watching TV or listening to music, in a period of 24 hours, as well as the amount of time they studied at home in a one-week period (Question 22), results displayed in Figure 4 demonstrate that the majority of the listeners tend to deal with English outside the classroom and complement their language experience by talking with other non-native speakers of English, besides Brazilians, reading in English, listening to English (e.g., TV series, movies, interviews, news, music, sites) and studying at home for around one hour a day or per week. These results may suggest that listeners may have little contact with English outside classroom. On the other hand, 12 out of 14 listeners reported in the second test that they listened to English (e.g., TV series, movies, interviews, news, music or internet) for one hour or more or for five hours or more, and three of them reported that they studied English at home from five hours to more than 10 hours per week. These results of listeners' contact with listening just pointed out, together with those results regarding the more frequent study of English speaking, listening and pronunciation reported in the second questionnaire, according to the results displayed on Figure 2, may possibly have influenced listeners' language experience and, thus, intelligibility of verbs ending in *-ed* in the second intelligibility test, improving the number of intelligible verbs, and decreasing the number of other verb form transcriptions. But, on the other hand, these changes were not enough to reduce the number of breakdowns in communication, which were similar between the two tests (See Tables, 23, 24, 25 and 26 to check these results). As occurred in the first test, listeners also reported in the second test that they tended not to talk with native speakers of English, and those that did it reporting doing it for a short period of one hour.

Furthermore, listeners also answered how they dealt with subtitles when watching TV (e.g., TV series, movies, interviews or news in English) in Question 19, and how they dealt with songs and lyrics when they listened to music (Question 20). Thus, their answers to Questions 19 in the first test demonstrated that nine out of 14 listeners (64.28%) tended to watch TV with audio in English and subtitles in BP, whereas four of them (28.57%) reported using two different strategies among those mentioned in the questionnaire (See Question 19 of listeners' questionnaire on Appendix B) and only one of them (7.14%) reported watching TV with audio and subtitles in English. Moreover, listeners' answers to Question 19 in the second test indicate that nine out of 14 listeners (64.28%) used audio in English and subtitles in BP, whereas only two of them (14.28%) used audio and subtitles in English, and three of them (21.42) reported using two of these strategies or more.

Regarding answers to Question 20 in the first test, results indicate that three out of 14 (21.42%) reported listening to music with the lyrics without checking words in dictionary, six of them (42.84%) reported listening to music without lyrics, four out of 14 (28.57%) reported using two different strategies or more while listening to music (See Question 20 of listeners' questionnaire on Appendix B to check the possible strategies), and, finally, only one out of 14 (7.14) listened to music with lyrics and checked words in a dictionary. In addition, listeners' answers to Question 20 in the second test also revealed that five out of 14 listeners (35.71%) reported listening to music with the lyrics without checking the dictionary, seven of them (50%) reported listening to music without the lyrics and two (14.28%) of them reported using two of the strategies mentioned in the questionnaire (See Listeners' questionnaire in Appendix B) while listening to music.

Despite this apparent strong contact with the English oral language to deal with TV series, movies, interviews and news in English and with songs without lyrics or checking words in dictionary, results just described did not seem to facilitate the intelligibility of English regular verbs ending in *-ed*, assessed through orthographic transcription of talkers' productions, or to reduce the number of breakdowns in communication from the first to the second intelligibility test.

In addition, as is clear for teachers of English in Brazil, Brazilian learners of English always tend to report difficulties with listening activities in and outside class, which would imply that they would have difficulty



in dealing with TV series, movies, interviews and news in English and songs without lyrics and dictionary, and with intelligibility, ultimately, as occurred with Slavic participants living in Canada in Munro, Derwing and Thomson (2007) since contact and exposure to English outside the classroom by listening to the radio, watching TV, having ten-minute conversations with native speakers seemed not to have helped them to improve comprehensibility and fluency.

Other questions helped to obtain an overview of the listeners' contact with English. Question 10 asked if they had already taken any proficiency test, whereas Question 23 asked if they were teaching English and Question 26 asked if they used English at work at the moment of data collection. Their answers to these questions in the first test revealed that four out of 14 listeners (28.57%) took a proficiency test, none of them was teaching English at the moment of data collection, whereas nine of them (64.28%) reported using English at work by reading texts or talking with people that arrive at their workplace. Moreover, listeners' answers to Question 10 in the second test indicated that five of them (35.71%) took a proficiency test whereas nine of them (64.28%) did not. Regarding Questions 23 and 26 in the second test, listeners' answers indicated that only one listener (7.14%) was teaching English at the moment of data collection and eight of them (57.14%) reported that they used English at work by reading texts or getting in contact with other speakers in English. Thus, their answers to these questions in both tests suggest that this brief contact with English seemed to have contributed to (a) the lower verb intelligibility of the present study compared to the intelligibility of verbs ending in *-ed* found in Riella (2013), of content and function words found in Becker (2013) and of words beginning with stops, thus taking VOT into account, found in Schwartzhaupt (2015). In addition, listeners' little contact with English reported in their answers to these questions might also have influenced rates of breakdowns and the other verb forms observed in the present study, as found in Delatorre, Silveira and Gonçalves (submitted paper).

Altogether, results just described, obtained from the questionnaire administered in the first and in the second tests, suggest that length of English contact for the 14 listeners, either by studying it at the formal educational system that emphasizes grammar, reading and writing skills, or by dealing with it in their daily lives (e.g., watching TV, series, interviews, news, listening to music, using English at work) outside the classroom, as new forms of learning English, thus characterizing their language experience, seemed

not to be enough to influence intelligibility of verbs ending in *-ed* despite the statistically significant result in the correlation between intelligibility and language experience found in both tests. As the results showed, this limited language experience was probably insufficient to reduce the breakdowns and the other verb form transcriptions in the first and in the second intelligibility tests in order to minimize possible communication problems for Brazilian learners of English when interacting with other people with different L1 backgrounds using English. Based on the results of the present study, however, it is not possible to establish exactly how contact with English affected listeners' language experience and, intelligibility of verbs ending in *-ed* in the intelligibility tests, which may possibly reflect the difficulty in gathering language experience data, as pointed out by Trofimovich (2011), and also observed by Delatorre, Silveira and Gonçalves (submitted paper), the pilot study of this dissertation, conducted with Brazilian listeners learning English.

Besides this possible difficulty in collecting data about language experience, there may possibly be the difficulty in collecting familiarity data with Likert scales because they may be too subjective to the participants and may not reflect participants' own (lack of) familiarity with the target verb, which, in turn, may reflect their linguistic knowledge and the breakdown and other verb-forms rates (See Table 26 to check the intelligibility, other verb-forms and breakdown rates and Table 29 to check the results of intelligibility, familiarity, proficiency and language experience in both tests). Moreover, results of the proficiency test suggest that their proficiency level varied from beginner to upper-intermediate (See Table 4, section 3.3.2, to check their proficiency level), which may interfere in the occurrence of breakdowns and other verb-forms in the results of the present study. Thus, as suggested by de Bot, Lowie and Verspoor (2007), Elis (2007) and Thomson (2015), following the DST, second languages are complex and dynamic systems that take together important factors in language learning and use, which, for the present study, may be the variables listeners' familiarity, proficiency level and language experience that may interact with each other in this process and, thus affect verb intelligibility, other verb-forms and breakdowns in communication.

In sum, results displayed in section 4.3, which aimed to answer RQ2 that asked how verb intelligibility correlated with (a) verb-familiarity, (b) language proficiency and (c) language experience, demonstrated that there was a tendency for the intelligibility of verbs ending in *-ed* to correlate with listeners' verb-familiarity, language proficiency, and listeners' language

experience in both tests. However, despite these correlations between verb intelligibility and (a) verb familiarity, (b) language proficiency and (c) language experience obtained in the first and in the second tests, comparisons for intelligibility and verb-familiarity between the two tests demonstrated that there was variation among the participants and between the two tests, as proposed by the DST (e.g., Cameron & Larsen-Freeman, 2007; De Bot, Lowie & Verspoor, 2007; Ellis, 2007; Larsen-Freeman, 1997, 2014; Lowie, 2011, 2013, Trofimovich, Kennedy & Foote, 2015).

After discussing the correlation of intelligibility of verbs ending in *-ed* with (a) verb-familiarity, (b) language proficiency and (c) experience, the following section (Section 4.4) will address the possible influence of talkers' L1 on the intelligibility of these verbs by Brazilian learners of English.

#### 4.4. THE INFLUENCE OF TALKERS' L1

This section presents the results for the influence of talkers' L1 on the intelligibility of verbs ending in *-ed*. RQ3 asked how talkers' L1 would affect the intelligibility of regular verbs in the simple past tense for Brazilian listeners over time. Thus, H2 stated that Brazilian listeners would more easily recognize non-native talkers' productions of simple past tense *-ed* verbs than native English talkers' productions of these verbs over time and H3 stated that Brazilian listeners would more easily recognize BP talkers' production followed by Spanish talkers' productions and then German talkers' productions of verbs ending in *-ed* over time. Thus, this section will first consider the influence of non-native talkers' productions versus English native talkers' productions (Section 4.4.1) and second, this section will consider the influence of BP, Spanish and German L1 talkers' productions (section 4.4.2).

##### 4.4.1. The influence of English native vs. non-native talkers

As previously stated, this section will display the results for the possible talkers' L1 influence, either English or the other three languages combined (e.g. BP, Spanish, German) on the intelligibility of verbs ending in *-ed* transcribed by Brazilian listeners in the first and in the second intelligibility tests. Only the number of listeners' intelligible verbs will be taken into account in this section and considered for the analysis. Results are displayed in Table 30.

Table 30

*Intelligibility rates according to talkers' L1 (native versus non-native speakers of English) in the two tests*

Listener	Intelligibility Test One			Intelligibility Test Two		
	NNSs of English	NSs of English	Total	NNSs of English	NSs of English	Total
1	13	1	14	11	3	14
2	7	0	7	5	0	5
3	5	1	6	5	0	5
4	12	2	14	10	2	12
5	3	0	3	2	0	2
6	7	2	9	11	1	12
7	2	0	2	5	0	5
8	3	0	3	3	0	3
9	9	3	12	13	2	15
10	14	1	15	14	4	18
11	11	2	13	16	4	20
12	9	0	9	10	1	11
13	14	1	15	15	4	19
14	12	2	14	15	4	19
Total	121	15	136	135	25	160
Minimum	2	0	2	2	0	2
Maximum	14	3	15	16	4	20
M	8.64	1.07		9.64	1.79	
SD	4.21	0.99		4.79	1.71	

Regarding the results for the first intelligibility test, Table 30 demonstrates that 136 verbs out of 336 (40.47%) were intelligible to the 14 listeners, including 121 out of 252 (48.01%) produced by talkers whose L1 was not English and 15 out of 84 (17.85%) produced by talkers whose L1 was English. Moreover, Table 30 also demonstrates that the minimum number of intelligible verbs produced by talkers who were not non-native speakers of English was two and zero by talkers who were native speakers,

whereas the maximum number of intelligible verbs produced by talkers who were non-native speakers of English was 14 and three for talkers who were native speakers in the first intelligibility test.

Based on the data for the first intelligibility test displayed in Table 30, the non-parametric Wilcoxon test was run, yielding a statistically significant result ( $z=-3.29$ ;  $p=.001$ ), which demonstrates that Brazilian listeners had less difficulty in understanding and orthographically transcribing verbs produced by non-native talkers than by native talkers in the first intelligibility test, supporting H2 that predicted that Brazilian listeners would have less difficulty with verbs produced by talkers who were non-native speakers than with verbs produced by native speakers of English.

Turning to the results on the second intelligibility test displayed in Table 30, they demonstrate that 160 verbs out of 336 (47.61%) were intelligible to the Brazilian listeners in the second intelligibility test, including 135 out of 252 (53.57%) produced by talkers who were not native speakers of English and 25 out of 84 (29.76%) produced by talkers who were native speakers of English. Moreover, Table 30 also demonstrates that the minimum number of intelligible verbs for Brazilian listeners in the second intelligibility test that were produced by talkers who were not native speakers of English was 2, whereas the minimum number of intelligible verbs for Brazilian listeners that were produced by talkers who were native speakers of English was zero. In addition, results displayed in Table 30 demonstrate that the maximum number of intelligible verbs for Brazilian listeners in the second intelligibility test by talkers who were not native speakers of English was 16 whereas the maximum number of intelligible verbs for Brazilian listeners in the second intelligibility test by talkers who were native speakers of English was four.

Thus, the Wilcoxon test was run and yielded a statistically significant result ( $z=-3.30$ ;  $p=.001$ ), supporting H2 that predicted that talkers' L1 would affect Brazilian listeners intelligibility of regular verbs ending in *-ed* in the second intelligibility test, in the sense that verbs produced by talkers who were native speakers of English would be more difficult to be understood and transcribed by Brazilian listeners than verbs produced by talkers who were not native speakers of English.

Results for the first and the second intelligibility tests of the present study, displayed on Table 30, partially corroborated those of Becker (2013) since Brazilian listeners of the present study more easily recognized non-native talkers' productions than English native talkers' productions

whereas in Becker's (2013) study Brazilian listeners easily recognized both non-natives and natives productions with high percentages of intelligibility (77.2% Germans' productions, 77% of Americans', 80.1% of Mandarin's and 61.3% of Japanese'), which did not occur in the present study. In addition, Cruz and D'Ely (2015) found that Brazilian listeners' familiarity with the Cameroonian talker's accent and pronunciation problems facilitated Brazilians' analysis, thus, indicating that familiarity with talker's accent interfered in the results. Possible influence of listeners' familiarity with talkers' L1 and the talkers' L1 influence on intelligibility of verbs ending in *-ed* will be discussed in section 4.4.2.

Other studies reviewed in the present study have demonstrated that non-native speakers of English tended to easily recognize words or sentences produced by Brazilian learners of English. For instance, Cruz and Blanche (2014) pointed out that the Cameroonian listener easily recognized words produced by Brazilian learners of English, which was attributed to the fact that Cameroonian listeners tend to get in contact with English produced by speakers with different L1 backgrounds. Also, Fernandes (2009, 2010) found that the EP listeners reported having few problems in listening to Brazilian learners of English readings and free speech than Hindi L1 speakers, which was attributed to the fact that EP learners of English also learn it as an FL<sup>76</sup>. Oliveira (2014) found that the Malawian, Uruguayan and Japanese listeners tended to have little difficulty with Brazilians speaking English due to contact with Brazilians, despite the fact that they reported that there were some vocabulary or pronunciation problems. In sum, contact or experience with Brazilian English affected non-native speakers of English listeners in these studies, which might have influence results of the present study regarding Brazilian listeners' ease to recognize verbs produced by non-native speakers of English. Finally, Riella (2013) found that the L1 mixed group of listeners (G3) had high intelligibility rates (60%), compared to the present study ones, as previously mentioned, for the production of verbs ending in *-ed* by 46 Brazilians and two native speakers of English. However, Riella also found that the G3 listeners had difficulty in understanding the native speakers' (one British

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<sup>76</sup> Fernandes (2009, 2010) did not mention the influence of accent familiarity in the recognition of verbs ending in *-ed* produced by Brazilians for EP and Hindi L1 speakers but accent familiarity might have been taken into account as a factor affecting the recognition of verbs in her study, as well as in studies involving other L1s and the recognition of other words.

and one American) productions, as occurred with the results of the present study regarding the recognition of verbs ending in *-ed* produced by native speakers of English in both intelligibility tests (See Table 30 and Figure 6).

In addition, this difficulty that Brazilian listeners who participated in the present study and G3 listeners in Riella's study had with native speakers of English productions may have to do with the lack of contact with native speakers' verb productions, as well as rhythm and intonation of sentences in which verbs were inserted, as pointed out by Gomes, Brawerman-Albini, and Engelbert (2014), and discussed in section 4.2 for the talkers' speech characteristic influence on the intelligibility of verbs ending in *-ed*. Indeed Brazilians seem to have little exposure to English produced by its native speakers, as listeners reported in their answers to the questionnaire of the present study displayed in Figure 4 and discussed in section 4.3. As pointed out by Smith and Nelson (1985), these results may reflect the fact that more non-native speakers of English are interacting in English, which according to Munro and Derwing (1995), may be highly comprehensible despite being accented.

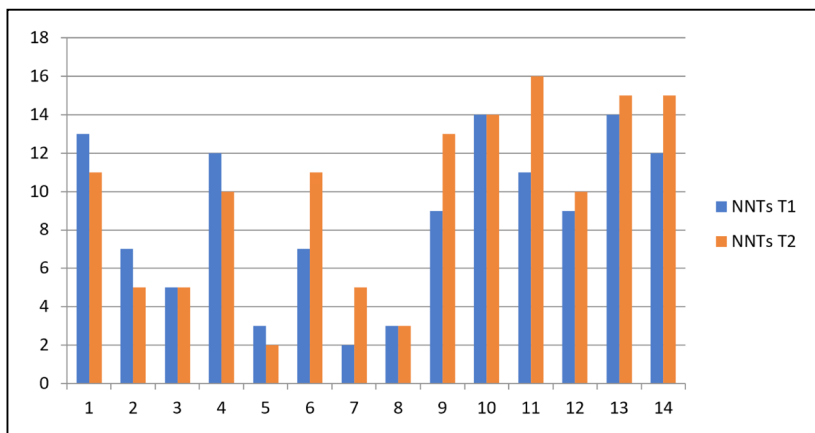
Considering that more people with different L1 backgrounds are speaking and interacting in English, results of Reis and Cruz (2010), in which BP and French L1 speakers interacted in English, and O'Neil (2015), in which Japanese L1 speakers always interacted with L1 speaker of (a) Chinese, or (b) Vietnamese or (c) Taiwanese, indicated that pronunciation problems affected the results of Reis and Cruz (2010) whereas negotiation in order to change or solve pronunciation problems was found in O'Neil (2015) study. These results indicated that more contact or experience with the English language spoken by interlocutors from different L1 backgrounds as well as some pronunciation classes on more frequent pronunciation problems for Brazilians would help Brazilian listeners who participated in the present study to better understand speech produced by either native or non-native speakers of English, or eventually to be more intelligible<sup>77</sup> to their interlocutors, in order to establish real communication, which has been advocated by many researchers in the area, such as, Alameen and Levis (2015), Catford (1950), Cruz (2004), Derwing and Munro (1997, 2014), Derwing, Munro, Foote, Waugh and Fleming (2014), Fernandes (2009, 2010), Julkowska and Cebrian (2015), Kennedy and Trofimovich

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<sup>77</sup> Listeners' productions were not tested in the present study.

(2008), Levis, (2015), Munro and Derwing (1995, 2011, 2015a, b) and Munro, Derwing and Thomson (2015) and is claimed by researchers who followed the DST, such as Cameron and Larsen-Freeman (2007).

Having discussed the results for the effect of talkers' L1 on the intelligibility of verbs ending in *-ed* in the first and the second tests, the following paragraphs will compare the results for the intelligibility of these verbs produced by the two native talkers in both tests and by the six non-native talkers in both test. Thus, results were organized according to (a) listeners' transcriptions of verbs produced by talkers who were non-native speakers of English (Figure 5) in the first and in the second test and (b) listeners' transcriptions of verbs produced by talkers who were non-native speakers of English (Figure 6) in the first and in the second test.

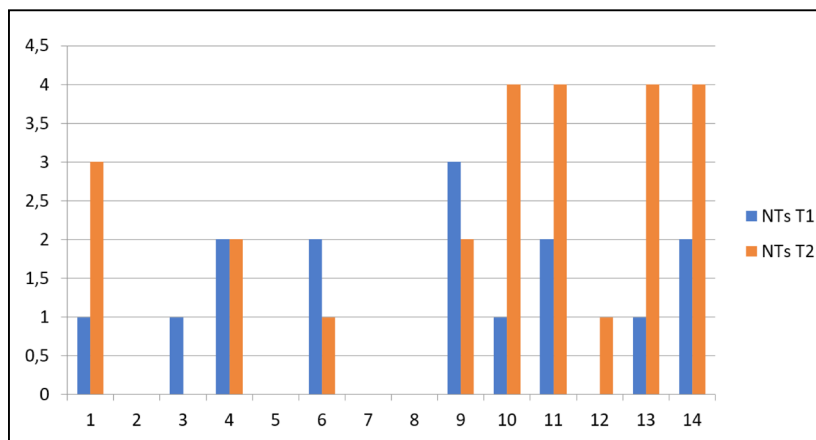


**Figure 5: Number of intelligible verbs by listeners (Y axis) and talkers who were not native speakers of English in both intelligibility tests**

According to Figure 5 the number of listeners who better performed or maintained their performance from the first to the second intelligibility test was higher than the number of listeners who worsen their performance in the second tests. Thus, listeners 6, 7, 9, 11, 12, 13 and 14 or 7 out of 14 (50%) improved their performance from the first to the second intelligibility test, whereas two of them (8 and 10, or 14.28%) maintained their performance from the first to the second intelligibility test and 5 listeners (1, 2, 3, 4 and 5, or 35.71%) obtained worse performance from the first to the second intelligibility test.



Having concluded the discussion on the L1 influence on the intelligibility of verbs produced by talkers whose first language was not English, the following paragraphs address the influence of English as an L1 on the intelligibility of regular verbs ending in *-ed* transcribed by Brazilian listeners. Results displayed in Figure 6 compare verb intelligibility of native talkers from the first and the second intelligibility test.



**Figure 6: Number of intelligible verbs by listeners (Y axis) and talkers who were native speakers of English in both intelligibility tests**

According to Figure 6, none of the verbs produced by the two native speaker talkers was intelligible to four (2, 5, 7 and 8) out of 14 (28.57%) listeners in both intelligibility tests, only one verb was intelligible to listener 3 in the first intelligibility and another verb was intelligible to listener 12 in the second intelligibility test. Moreover, Figure 6 also demonstrates that, for the eight remaining listeners, two verbs were intelligible to listener 4 in both tests, for 2 listeners (6 and 9), the number of intelligible verbs was higher in the first test than in the second test, which is not expected, and that, for five listeners (1, 10, 11, 13 and 14), the number of intelligible verbs produced by talkers who were native speakers of English was higher in the second intelligibility test than in the first one.

As occurred with the results on the correlation between intelligibility and familiarity, language proficiency and language experience, results in this four-month interval between the two intelligibility tests displayed in Figures 5 and 6 indicate that there was variation in the listeners' results for

the transcription of verbs produced by the native as well as the non-native talkers, as proposed by the DST (e.g., Cameron & Larsen-Freeman, 2007; De Bot, Lowie & Verspoor, 2007; Ellis, 2007; Larsen-Freeman, 1997, 2014; Lowie, 2011, 2013, Trofimovich, Kennedy & Foote, 2015).

An overview on the results of section 4.4.1 demonstrate that Brazilian listeners easily understood and orthographically transcribed verbs produced by talkers who were not native speakers of English than verbs produced by talkers who were native speakers of English in the first and in second intelligibility tests, thus supporting H2. As occurred in previous studies reviewed here, familiarity with English spoken by non-native speakers of English (e.g., Brazilians, Cameroonian, Mandarin, German, Japanese) seemed to have helped their participants as it seemed to have facilitated intelligibility of verbs ending in *-ed* produced by other English non-native speakers. Moreover, this difficulty in listening, understanding and transcribing *-ed* ending verbs may have to do with the lack of contact with English produced by native and non-native speakers, as they reported in their answers to the questionnaire, the possible difficulty Brazilians always report to have in listening activities as well as the possible lack of effective pronunciation teaching and use of new forms of English learning possibly affected the results.

After discussing the influence of native versus non-native speakers of English influence on the intelligibility of verbs ending in *-ed* for Brazilian listeners, the possible influence of talkers' L1, BP, Spanish and German, will be addressed in section 4.4.2.

#### **4.4.2. The influence of English non-native talkers**

This section will address the possible influence of BP, Spanish and German as talkers' L1 on the intelligibility of verbs ending in *-ed* in the first intelligibility test and in the second intelligibility test. RQ3 asked how talkers' L1 would affect the intelligibility of regular verbs in the simple past tense for Brazilian listeners over time and H3 stated that Brazilian listeners would more easily recognize BP talkers' production followed by Spanish talkers' productions and then German talkers' productions of verbs ending in *-ed* over time.

Table 31 displays these results for the influence of non-native talkers' L1 (e.g., BP, Spanish or German) on the intelligibility of verbs ending in *-ed* in the first and in the second intelligibility tests.

Table 31

*L1 of non-native speakers of English influence on the intelligibility of verbs ending in -ed by Brazilian listeners in the first and in the second intelligibility test*

Listener	Intelligibility Test One				Intelligibility Test Two			
	BP	Spanish	German	Total	BP	Spanish	German	Total
1	6	4	3	13	3	6	2	11
2	3	3	1	7	3	2	0	5
3	3	1	1	5	1	4	0	5
4	5	3	4	12	5	2	3	10
5	2	1	0	3	2	0	0	2
6	4	1	2	7	5	3	3	11
7	2	0	0	2	2	2	1	5
8	1	2	0	3	2	1	0	3
9	4	3	2	9	6	5	2	13
10	6	3	5	14	3	5	6	14
11	5	4	2	11	5	6	5	16
12	4	2	3	9	5	4	1	10
13	6	5	3	14	5	5	5	15
14	4	4	4	12	5	6	4	15
Total	55	36	30	121	52	51	32	135
Minimum	1	0	0	2	1	0	0	2
Maximum	6	5	5	14	6	6	6	16
M	3.93	2.57	2.14	8.64	3.71	3.64	2.29	9.64
SD	1.59	1.45	1.61	4.21	1.59	1.98	2.09	4.79

According to Table 31, verbs produced by BP talkers were more intelligible than verbs produced by Spanish talkers, which in turn were more intelligible than verbs produced by German talkers to 14 Brazilian listeners in the first intelligibility test. In addition, results displayed in Table 31 also demonstrate that the minimum number of intelligible verbs for Brazilian listeners was one for verbs produced by other Brazilians and zero for talkers whose L1 were Spanish and German, whereas the maximum number of intelligible verbs for these listeners was six for verbs produced by Brazilians and five for verbs produced by Spanish and German L1 talkers.

These results may indicate a trend towards the influence of talkers' L1 in which talkers whose languages are more similar to the listeners'

language tend to be better or easily understood or more intelligible to these listeners in the first intelligibility test. Anon-parametric Friedman test was run, yielding a statistically significant result ( $\chi^2(2, N = 14) = 14.02, p < .001$ ) and, thus, corroborating H3 that predicted that the talkers' L1 would affect Brazilian listeners' intelligibility of verbs in the sense that it would be easier for them to understand and transcribe verbs that were produced by talkers whose L1 was more similar to BP, such as BP and Spanish L1 talkers speaking English, than verbs that were produced by talkers whose language was more dissimilar to BP, such as German. Wilcoxon tests were also run and yielded a statistical significant difference ( $z = -2.870; p = .004$ ) for the intelligibility of verbs produced by BP and Spanish talkers and for the intelligibility of verbs produced by BP and German talkers ( $z = -3.228; p = .001$ ) in the first intelligibility test. These results suggest that verbs produced by talkers whose L1 was more similar to BP, such as Spanish, were more intelligible to Brazilian listeners than verbs produced by talkers whose L1 was more dissimilar to BP, such as German.

Results for the first intelligibility test of the present study followed the same tendency observed in previous studies involving listeners from different L1 backgrounds, such as BP (e.g., Cruz & Pereira, 2006), Mandarin (e.g., Bent & Bradlow, 2003; Li & Mok, 2015), Japanese (e.g., Munro, Derwing & Morton, 2006) and Polish (Julkowska & Cebrian, 2015) and found an interlanguage speech intelligibility benefit ISIB for verbs ending in *-ed* produced by BP and Spanish speakers.

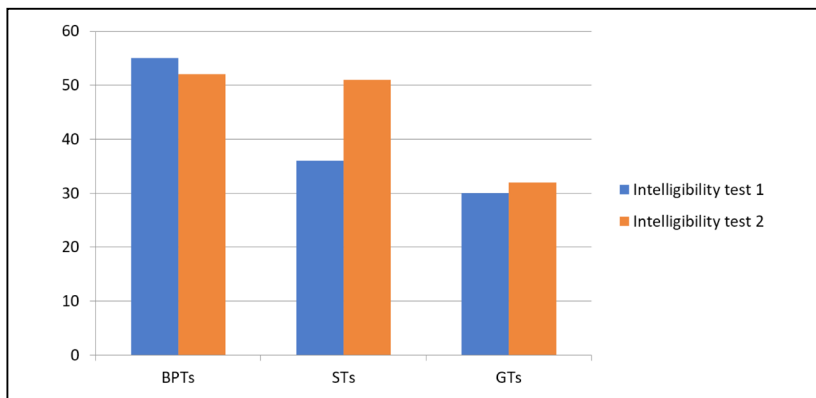
Regarding results for the intelligibility of English verbs ending in *-ed* produced by BP, Spanish and German L1 talkers for the second intelligibility test transcribed by Brazilian listeners, Table 31 demonstrates that the number of intelligible verbs produced by talkers whose L1s were BP and Spanish was very similar to Brazilian listeners in the second intelligibility test, but, the number of intelligible verbs produced by talkers whose L1 was German was smaller in the same test. Table 31 also demonstrates that the minimum number of intelligible verbs was one for verbs produced by Brazilians and zero for verbs produced by Spanish and German talkers, whereas the maximum number of intelligible verbs was the same, six, for the three language talkers. Taking into account the data presented in Table 31, the non-parametric Friedman test was run, yielding a statistically significant difference ( $\chi^2(2, N = 14) = 9.54, p = .008$ ), which supports H3 that predicted that verbs produced by talkers whose L1s were more similar to listeners' L1 would be more intelligible to Brazilian listeners. Wilcoxon

tests were run again and yielded a non-significant difference ( $z = -.160$ ;  $p > .05$ ) was obtained for the intelligibility of verbs produced by BP and Spanish talkers, but a statistical significant difference was obtained for the intelligibility of verbs produced by BP and German talkers ( $z = -2.334$ ;  $p = .020$ ) in the second intelligibility test. These results confirm that verbs that were produced by talkers whose L1 was more similar to BP, such as Spanish, improved from the first to the second test. In addition, results of this test also suggest that verbs produced by talkers whose L1 was more dissimilar to BP, such as German continued to be less intelligible to Brazilian listeners in the second test. As occurred with the results for the first intelligibility test, results of the second intelligibility test also followed the tendency in favor of the interlanguage speech intelligibility benefit, in which BP and Spanish L1 speakers tended to be more easily recognized than German speakers, as suggested by Cruz and Pereira (2006) for BP as L1, Bent and Bradlow (2003) and Li and Mok (2015) for Mandarin as L1, Munro, Derwing and Morton (2006) for Japanese as L1, and Julkowska and Cebrian (2015) for Polish as L1.

Comparing the results for the intelligibility of verbs ending in *-ed* produced by talkers who were non-native speakers of English in the first and in the second intelligibility tests, Table 31 demonstrates that, for four listeners (1, 2, 4 and 5) out of 14 (25.57%), the number of intelligible verbs decreased from the first to the second intelligibility test, whereas for other three listeners (3, 8 and 10) out of 14 (21.42%) the number of intelligible verbs was maintained from the first to the second intelligibility test and, finally, for the other seven listeners (6, 7, 9, 11, 12, 13 and 14) out of 14 (50%), the number of intelligible verbs increased from the first to second intelligibility tests. In additions, results displayed in Table 31 also demonstrate that the minimum number of intelligible verbs was two in both intelligibility tests, and that the maximum number of intelligible verbs varied from 14 in the first intelligibility test to 16 in the second intelligibility test.

These results suggest that there was variation on the intelligibility of verbs ending in *-ed* in this four-month interval between the two tests, as suggested by the DST (e.g., Cameron & Larsen-Freeman, 2007; De Bot, Lowie & Verspoor, 2007; Ellis, 2007; Larsen-Freeman, 1997, 2014; Lowie, 2011, 2013, Trofimovich, Kennedy & Foote, 2015), which claims that the acquisition process is not homogeneous and linear, as pointed out by Larsen-Freeman (2014).

Moreover, as this section compares results on the intelligibility of verbs ending in *-ed* produced by talkers who were non-native speakers of English, the following comparison addresses the intelligibility of these verbs produced by the six non-native talkers, that is, two talkers from the three languages involved in the present study. Figure 7 displays these results comparing the results of both BP, both Spanish and both German talkers.

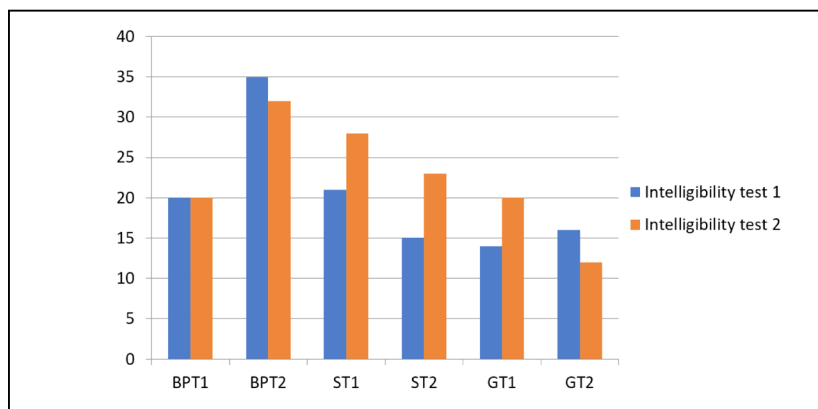


**Figure 7: Comparison of the number of intelligible verbs by Brazilian listeners that were produced by talkers who were native speakers of BP, Spanish and German in both intelligibility tests**

Turning to the data displayed in Table 31 in order to better understand Figure 7, it becomes possible to visualize that the number of intelligible verbs for Brazilian listeners that were produced by other Brazilians decreased from 55 to 52 from the first to the second intelligibility test whereas the number of intelligible verbs produced by talkers who were native speakers of Spanish and German increased from 36 to 51 and from 30 to 32 for Spanish and Germans, respectively, from the first to the second intelligibility test.

According to the results displayed in Tables 31 and Figure 7, Wilcoxon tests were run for the comparison for the intelligibility of verbs ending in *-ed* produced by (a) the two Brazilian talkers, yielding a non-statistically significant result ( $z = -.486$ ;  $p > .05$ ); (b) the two German talkers, yielding another non-statistically significant result ( $z = -.318$ ;  $p > .05$ ), and (c) and, finally by the two Spanish talkers, yielding, in this case, a statistically significant difference ( $z = -.255$ ;  $p = .011$ ). These results may have to do with talkers' verb productions described in section 4.2, displayed in

Table 24, and in this section in Table 31 and Figures 7 and 8, which resulted from the listeners' intelligibility of individual talkers' productions, which are displayed in Figure 8.



**Figure 8: Number of intelligible verbs by Brazilian listeners produced by talkers whose L1s were BP, Spanish and German in both intelligibility tests**

Recalling results presented in section 4.2, in Tables 22, 24, 25 and 31 and in Figure 8 in this section, it is clear that the number of intelligible verbs varied among talkers from the first to the second intelligibility test. For instance, the number of intelligible verbs produced by BPT1 was the same (20) in the first and in the second intelligibility test whereas the number of intelligible verbs produced by ST1, ST2 and GT1 increased from 21, 15 and 14, respectively, in the first intelligibility to 28, 23 and 20 in the second intelligibility test and, the number of intelligible verbs produced by BPT2 and GT2 decreased from 35 and 16 to 32 and 12, respectively. Moreover, these results demonstrate that this increase in intelligibility was especially true for talkers who were native speakers of Spanish, as detected by the statistical test ( $z = -2.55$ ;  $p = .011$ ). However, these differences were not statistically significant for the verbs produced by BP talkers ( $z = -.486$ ;  $p > .05$ ) and German talkers ( $z = -.318$ ;  $p > .05$ ) when comparing the results for the first and the second intelligibility test. In addition, results displayed in section 4.2 also demonstrate that verbs produced by talkers who were native speakers of BP and Spanish were more intelligible to Brazilian listeners than verbs produced by all talkers involved in this study (e.g., BP, Spanish, German and English L1 speakers) in both intelligibility tests, including few of them that were not

intelligible to any listener (See Tables 21 and 23). Altogether, these results demonstrate that talkers' L1 influences the intelligibility of verbs ending in *-ed* for Brazilian listeners and that verbs produced by talkers whose L1 is a Romance language, as BP, tend to be more intelligible to these listeners than verbs produced by talkers whose L1 is an Anglo-Saxon language.

As occurred in the previous sections, results of this section also demonstrated that listeners' intelligibility varied and did not improve as a whole from the first to the second intelligibility test when intelligibility of all talkers together was compared, which suggest that time between the two tests was not sufficient to occur an increase on intelligibility and that acquisition varies among learners and across time, as suggested by the DST (e.g., Cameron & Larsen-Freeman, 2007; De Bot, Lowie & Verspoor, 2007; Ellis, 2007; Larsen-Freeman, 1997, 2014; Lowie, 2011, 2013, Trofimovich, Kennedy & Foote, 2015). However, as recommended in other studies, pronunciation teaching possibly including different types of production, as well as more frequent use of English outside the classroom, could help listeners to improve intelligibility of English words, including verbs ending in *-ed*, and, communication in English, consequently (Alameen & Levis, 2015; Catford, 1950; Cruz, 2004; Derwing & Munro, 1997, 2014; Derwing, Munro, Foote, Waugh & Fleming, 2014; Fernandes, 2009, 2010; Julkowska & Cebrian, 2015; Kennedy & Trofimovich, 2008; Levis, 2015; Munro & Derwing, 1995, 2011, 2015a, b; Munro, Derwing & Thomson, 2015; Trofimovich, Kennedy & Foote, 2015).

After presenting the influence of talkers' L1 on the intelligibility of verbs ending in *-ed* by Brazilian listeners, section 4.5 will address the influence of the three allomorphs that precede the *-ed* on the intelligibility of regular verbs in the simple past tense transcribed by Brazilian listeners.

#### 4.5. THE INFLUENCE OF THE THREE *-ED* ALLOMORPHS

This section will address what was established in RQ4, which asked how type of allomorph would affect the intelligibility of the English regular verbs for Brazilian learners over time. Thus, H4 stated that verbs with the allomorph /d/ would be more intelligible than verbs with the allomorphs /t/ which in turn would be more intelligible than the allomorph /d/ over time. As occurred in the previous sections, the present section will address first the results from the first intelligibility test followed by the results from the second intelligibility test and the comparison between the results from the two and a summary.



Thus, in order to analyze the intelligibility of verbs ending in *-ed* according to the three allomorphs, each of the 14 listeners listened and orthographically transcribed 24 verbs, that is, eight for each of the three *-ed* allomorphs /t, d, ɪd/, in the first and in the second intelligibility tests (See section 3.4 to check the material and procedures for data collection). Table 32 displays the results for the first and second intelligibility tests organized according to the *-ed* allomorph.

*Table 32*

*Number of intelligible verbs for Brazilian listeners according to the three -ed allomorphs in the first and in the second intelligibility test*

Listener	Intelligibility Test One			Intelligibility Test Two		
	Allom /t/	Allom /d/	Allom /ɪd/	Allom /t/	Allom /d/	Allom /ɪd/
1	6	2	6	6	3	5
2	3	1	3	1	3	1
3	3	1	2	1	2	2
4	7	2	5	5	3	4
5	2	0	1	1	1	0
6	3	2	4	4	4	4
7	1	0	1	1	2	2
8	2	0	1	1	2	0
9	6	1	5	4	5	6
10	6	5	4	6	7	5
11	5	3	5	7	6	7
12	4	2	3	4	3	4
13	5	4	6	6	6	7
14	4	4	6	7	5	7
Total	57	27	52	54	52	54
Minimum	1	0	1	1	1	0
Maximum	7	5	6	7	7	7
M	4.07	1.93	3.71	3.86	3.71	3.86
SD	1.81	1.59	1.89	2.41	1.81	2.50

Allom = Allomorph

As results displayed in Table 32 demonstrate, Brazilian listeners had less difficulty in listening and transcribing verbs in with the allomorph /t/, followed by verbs with the allomorph /Id/ and, and then, followed by verbs with the allomorph /d/. According to the results displayed in Table 32, (a) 57 verbs with the allomorph /t/ out of 112 possible (50.89%) were considered intelligible by Brazilian listeners; (b) 52 verbs with allomorph /Id/ out of 112 (46.42%) were considered intelligible by these listeners and, (c) 27 verbs with allomorph /d/ out of 112 possible (24.10%) were considered intelligible by Brazilians in the first intelligibility test. In addition, Table 32 also demonstrates that the allomorph /d/, which had the lowest minimum (zero), also had the lowest maximum (five), that the allomorphs /t/ and /Id/ had the same minimum (one) and that the maximum for the allomorph /Id/ was six, and seven for the allomorph /t/.

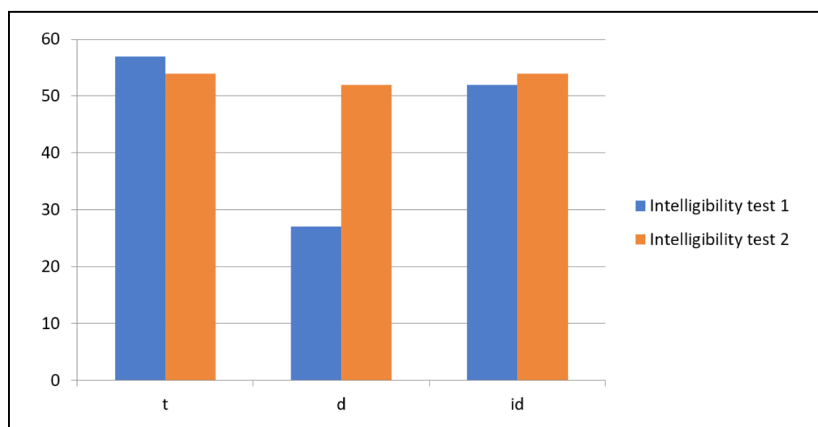
Taking into account the data for the first intelligibility test displayed in Table 32, the Friedman test was run and yielded a statistical significant result ( $X^2(2, N = 14) = 19.17, p < .001$ ), but, even so, results did not support H4, since the results did not follow the predicted tendency regarding the influence of the three *-ed* allomorphs found in Frese (2006), that is, that verbs with the allomorph /Id/ would be more intelligible than verbs with the allomorph /t/, which in turn would be more intelligible than verbs with the allomorph /d/. Wilcoxon tests demonstrate that the difference between verbs with the allomorphs /t/ and /d/ ( $z = -3.225; p = .001$ ) and /Id/ and /d/ ( $z = -3.119; p = .002$ ) was statistically significant in the first test whereas the difference between verbs with the allomorphs /t/ and /Id/ ( $z = -1.115; p > .05$ ) was not statistically significant in the same test. However, results from the first intelligibility test followed the same tendency observed in Delatorre, Silveira and Gonçalves (submitted paper) for the intelligibility of regular verbs ending in *-ed*, despite the fact that in their study the results were not statistically significant.

Considering the results for the second intelligibility test, Table 32 demonstrates that 54 out of 112 verbs (48.21%) in which allomorphs /t/ and /Id/ occurred were intelligible to Brazilian listeners whereas 52 out of 112 verbs (46.42%) in which the allomorph/d/ occurred were intelligible to Brazilian listeners. In other words, Brazilian listeners had almost the same difficulty with verbs in which any of the three allomorphs occurred, suggesting that type of allomorph does not seem to interfere in the intelligibility of verbs ending in *-ed* in the second intelligibility test. Thus, the Friedman test was run and yielded a statistically non-significant result ( $X^2(2, N = 14)$

= 0.18,  $p > .05$ ), which evidenced the lack of difference in the intelligibility of verbs in which the *-ed* was produced as one of the three allomorphs in the second intelligibility test. In other words, type of allomorph did not seem to have interfered on the intelligibility of regular verbs ending in *-ed* in the second intelligibility test. These results did not support H4, based on Frese (2006), which predicted that there would be differences in the intelligibility of verbs regarding the three possible allomorphs.

Contrary to the results obtained in the first intelligibility test, results obtained in the second intelligibility test do not corroborate those found in the pilot study (Delatorre, Silveira & Gonçalves, submitted paper) in which verbs with the allomorph /t/ were more intelligible to Brazilian listeners than verbs with the allomorph /Id/which, in turn, were more intelligible than verbs with the allomorph /d/.

Comparing the results obtained for the first and the second test combined, Figure 9 demonstrates that the number of intelligible verbs with the allomorphs /t/ and /Id/ was similar in both tests. However, it also demonstrates that there was an improvement on the intelligibility of verbs with the allomorph /d/.



**Figure 9: Number of intelligible verbs grouped according to three allomorphs /t/, /d/ and /id/ in both intelligibility tests**

Considering results displayed in Table 32 and in Figure 9, the number of intelligible verbs with the /d/ allomorph increased from 27 to 52 verbs, as attested by the Wilcoxon test ( $z = -3.35$ ;  $p = .001$ ), whereas the intelligibility of verbs with the allomorph /Id/ increased from 52 to 54, but was

not statistically significant, as attested by the Wilcoxon test ( $z = -.462$ ;  $p > .05$ ), and the intelligibility of verbs in with the /t/ allomorph decreased from 57 to 54 and the intelligibility was not statistically significant ( $z = -.572$ ;  $p = .05$ ). In addition, Table 32 demonstrated that there was some variation among the three allomorphs for the 14 Brazilian listeners in each test and for the same listener when both tests are compared, as proposed by the DST, which suggests that there is variation in the learning process (e.g., Cameron & Larsen-Freeman, 2007; De Bot, Lowie & Verspoor, 2007; Ellis, 2007; Larsen-Freeman, 1997, 2014; Lowie, 2011, 2013, Trofimovich, Kennedy & Foote, 2015).

These controversial results for the intelligibility of verbs ending in *-ed* in the first and in the second tests reinforce the controversial results obtained for the production of these verbs by Brazilian learners of English (e.g., Alves, 2004; Delatorre, 2006a; Delatorre & Baptista, 2014; Frese, 2006; Gomes, 2009; Mariano, 2009), which found that the preceding *-ed* contexts induce different rates of epenthesis and target-like verb productions. Moreover, verb-familiarity improvement from the first to second intelligibility test, as demonstrated in Table 29, as well as the possible higher room for improvement for the intelligibility of the allomorph /d/ (See Figure 9) attested when verbs with the /d/ allomorph produced by BPT2, ST1, ST2, ET1 and ET2 in the first and the second intelligibility tests are compared (See Tables 22 and 24 in section 4.2), are factors that might have affected results of the present study.

In addition, these results suggest that there may be other factors affecting the overall results on the intelligibility of verbs ending in *-ed*, such as orthography, which interfered in the production of these verbs (Alves, 2007; Delatorre, 2006a, 2010a), since it may affect listeners' ability to listen, and then transcribe the verbs. In addition, maybe listeners' own pronunciation of verbs ending in *-ed*, which was not tested in this study, which tends to be epenthesis and completely different from the majority of the talkers' productions used in this study, might also have affected their recognition, processing and transcription of these verbs, since listeners' characteristics, as pointed out by Bradlow and Pisoni (1999) and Cruz (2004), as well as accent familiarity and prototypical production of the target words, as pointed out by Derwing and Munro (1995), which, however, did not tend to be epenthesis in the present study (See Tables 22 and 24) as Brazilian learners would expect, possibly had interfered in Brazilian listeners' recognition of regular verbs in the simple past.

Moreover, the lack of pronunciation teaching about regular verbs in the simple past might also have affected the results of the present study since it could have affected listeners' awareness on listening, understanding and transcribing the target verbs. According to Alameen and Levis (2015), Bradlow and Pisoni (1999), Cruz and D'Ely (2015), Derwing and Munro (1997, 2014), Derwing, Munro, Foote, Waugh and Fleming (2014), Derwing, Munro and Thomson (2007), Julkowska and Cebrian (2015), Kennedy and Trofimovich (2008), Levis (2015), Munro and Derwing (1995, 2015b), Munro, Derwing and Morton (2006), Munro, Derwing and Thomson (2015), Trofimovich, Kennedy and Foote (2015), pronunciation teaching could focus on the different L1 talkers' speech characteristics, either at segmental or at suprasegmental level, in order to help listeners to better understand their interlocutors' speech, which could be done in class with the teacher assistance or at home as homework or as entertainment since English learners tend to watch TV series and movies, especially, and listening to music in English, nowadays. In addition, this positive influence of pronunciation instruction, besides different forms of contact with English spoken by talkers from different L1 backgrounds, is also emphasized by authors that follow the DST, such as Cameron and Larsen-Freeman (2007), who consider that language learners must have contact with language variation, experience the language they are learning, obtain feedback from their teachers and colleagues in order to develop their IL as a dynamic system.

This section considered the influence of the three allomorphs /t/, /d/ and /ɪd/ on the intelligibility of verbs ending in *-ed*. Results of this section suggest that the allomorphs seem not to have an influence on the intelligibility of regular verbs in the simple past since the results regarding the influence of the allomorphs were inconsistent and, thus did not follow a tendency toward anyone of the three allomorphs to induce more or less verb intelligibility. Other factors, such as verb orthography, listeners' own pronunciation of regular verbs in the simple past tense and the lack of pronunciation instruction, possibly influenced the results.

#### 4.6. SUMMARY OF THE CHAPTER

This chapter presented the results and discussion for the present study, which demonstrated that the 336 verbs analyzed by all listeners in each of the two intelligibility tests tended to more frequently cause breakdowns in communication by lack of verb or sentence transcription

and verb replacement, be considered completely intelligible, since listeners transcribed them exactly in the way they had been produced, and, less frequently, be replaced by other verb forms which were not exactly how they had been produced. Listeners' (lack of) familiarity with talkers' accent and speech characteristics and their difficulty in identifying talkers' voice and prototypical verb productions, as well as their own linguistic background and language experience and test conditions possibly influenced these results. In addition, results of the present study also demonstrated that listeners' verb-familiarity, language proficiency and language experience correlated with verb intelligibility in both tests, supporting H1. Despite these correlations, the discussion of the results raised important questions regarding familiarity and language experience, which sometimes may not reflect the listeners' real verb familiarity, since Likert scales may be too subjective to them and language experience collected through questionnaire administration may not reflect listeners' real experience with the language (e.g., question that asked about listening to songs with or without lyrics in which they tended to answer without lyrics but did not necessarily mean that they could understand the songs without the lyrics, which would have interfered in the intelligibility). Moreover, results of the presented study seemed also to have been influenced by talkers' L1, native versus non-native speakers of English, supporting H2; interlanguage speech benefit with BP and Spanish talkers' productions being more intelligible to Brazilian listeners than German talkers', supporting H3. However, the three verb allomorphs did not seem to have influenced these results, since the results were inconsistent across the two tests. Indeed, only results of the first intelligibility test followed the same tendency observed in the pilot study and none of them followed the predicted tendency stated in H4, thus, not supporting it. Finally, the comparison between the results for the first and the second intelligibility tests demonstrated that there was variation in the learning process in the results for each listener, among them and from the first to the second test, as suggested by the DST.

Having finished the discussion on the results found in the present study, the following chapter will focus on the conclusions of the present study.

## CHAPTER 5. CONCLUSION

### 5.1. INTRODUCTION

This study investigated the intelligibility of English verbs ending in *-ed* for Brazilian learners of English as listeners, which aimed to answer four research questions. The first research question was an exploratory one and aimed to investigate how Brazilian listeners would recognize regular verbs they had listened to in the simple past tense over time. The second research question asked if there was a relationship between verb intelligibility and verb-familiarity, proficiency level and language experience over time, whereas research question three asked if talker's L1 would influence verb intelligibility over time and research question four asked if verb allomorph would affect verb intelligibility over time.

Having reviewed the research questions that guided this study, the following sections aim to point out some conclusions from the present study, some possible pedagogical implications and suggestions for further research.

### 5.2. FINAL REMARKS

Taking into account research questions one, two and three, results indicated that Brazilian listeners had difficulty in recognizing regular verbs in the simple past tense inserted in short sentences, since they had low rates of accurate verb orthographic transcriptions, high rates of breakdowns and lower rates of other verb forms. These results which may be attributed to listeners' lack of knowledge of talkers' specific speech characteristics (e.g. speech rate and articulation) and accent, as well as listeners' linguistic background and language experience, little contact with listening and speaking skills and pronunciation in class as well as little exposure to English outside the classroom, and by their own accent and pronunciation of verbs ending in *-ed*, causing them difficulty to identify a prototype and establish a pattern for the target verb form in the recognition and processing of talkers' speech during the learning process. Similarity between talkers' L1 and listeners' also seemed to be an important factor affecting the intelligibility of verbs ending in *-ed*, given that non-native speakers of English productions were more intelligible to Brazilian listeners than native speakers' productions and BP speakers' and Spanish speakers' productions seemed to be more

intelligible to Brazilian listeners than Germans', indicating an interlanguage speech intelligibility benefit. Listeners' verb-familiarity, proficiency level and language experience also seemed to have affected the results, since they positively correlated with both intelligibility test results despite the fact that accessing familiarity with Likert scales and language experience with questionnaires may be too subjective to the listeners, thus, inducing them to give inaccurate answers.

On the other hand, type of allomorph did not seem to have affected verb intelligibility because verb intelligibility was similar among them in both tests, which might have been caused by listeners' lack of knowledge on talkers' speech characteristics and accent, listeners' linguistic background and language experience, little contact with listening and speaking skills and pronunciation in class as well as little exposure to English outside the classroom, and by their own accent and pronunciation of verbs ending in *-ed*, as previously discussed.

In addition, comparisons for the results of intelligibility, familiarity, language experience and the influence of talkers' L1 (e.g., English, BP, Spanish, German) demonstrated that there was variation in the acquisition processes for each learner in both moments of data collection and among the listeners, suggesting that the acquisition process is not linear.

However, pronunciation instruction to make Brazilian learners of English listeners more aware about Brazilians' pronunciation problems or differences as well as exposure to English spoken by speakers with different L1 backgrounds, either native or non-native speakers of English, showing their possible different pronunciation problems, would help Brazilian listeners to improve intelligibility of English words, to possibly decrease the rates of transcriptions with other verb forms and, consequently, breakdowns in communication due to mispronunciations and misunderstandings.

### 5.3. PEDAGOGICAL IMPLICATIONS

As pedagogical implications, the present study suggests that to teach pronunciation to Brazilian learners of English in class is an important strategy to improve their own pronunciation as well as their awareness on how other speakers of English, either native or other non-native speakers of English, pronounce words. This kind of knowledge, in turn, would facilitate Brazilians' performance on listening activities, perception of sounds, and recognition of words. However, to learn pronunciation and get in contact



with other speakers of English is not only a task devoted to the teachers' job. On the contrary, Brazilian learners of English could also be stimulated to learn alone and use other, new or more contemporary forms of learning, including searching for learning resources on internet, TV shows, series, interviews, news, in order to get more contact with English spoken by its native and/or non-native speakers and improve awareness of the different pronunciations in order to enhance production, perception and intelligibility.

One interesting aspect raised from the data obtained from listeners' answers to the questionnaire is the treatment devoted to listening and speaking skills and pronunciation in the school curriculum, which demonstrate that little importance tends to be given to these aspects of language acquisition that may help to develop listeners' intelligibility in a nonlinear language acquisition process.

#### 5.4. LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FURTHER RESEARCH

Limitations of the present study and suggestions for further research go together in this study. For instance, the present study tested only four languages (e.g., BP, Spanish, German and English) and, as a suggestion, other Romance languages, such as French and Italian, and Mandarin and Japanese L1 speakers learning English should be investigated. This study also tested only two talkers from each language and, as a suggestion for further research, it could involve native speakers of English from different countries or from different areas from the countries tested (US and Australia).

Moreover, the present study only had two moments of data collection since the third one could not be administrated due to loss of participants from the first to the second test, which could be avoided or reduced if the initial number of participants was higher. Thus, another suggestion is to conduct longer longitudinal studies with three or more data collection sessions that could be conducted by a group of researchers and/or graduate students. Another limitation of the study and, a consequent suggestion for further research, is to replicate the study with other listeners, either Brazilians or speakers of English with different L1 backgrounds. As previously mentioned, to collect language experience data with the questionnaire may not provide correct answers, a suggestion for further research is to collect these data with an interview to have a better idea on how listeners deal the

use or learning of English with TV or music, for instance. A final limitation of the study is lack of verb production by participants who were the listeners in order to clearly know how they produce the regular verbs in the simple past tense and, thus, try to establish a possible correlation between production and intelligibility for the same participants.

The present study provided interesting results in the field of phonetics and phonology regarding factors (e.g., listeners' verb familiarity, proficiency level and language experience) that may correlate with intelligibility of regular verbs in the simple past tense for Brazilian learners of English or may influence it (e.g., talkers' L1, BP, Spanish, German or English). However, this study also had some limitations regarding the talkers' L1, other listeners' L1s besides BP, initial and final number of listeners, which indicate the necessity to carry out further research in this field. According to these results and possible limitations, pedagogical implications were also stated in order to provide some insights to the teachers in and outside the class, such as to provide or suggest students to get in contact with English spoken by different speakers from different L1s and improve their intelligibility of their interlocutors' speech.

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**APPENDIX A – Consent form for talkers,  
listeners and listeners’ teachers**

Universidade Federal de Santa Catarina  
Centro de Comunicação e Expressão  
Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários  
Aluna: Fernanda Delatorre Nível: Doutorado  
Professora Orientadora: Dra. Rosane Silveira

**TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO –  
Falantes (em português)**

Prezado participante,

Você está convidado a participar do projeto de tese da doutoranda Fernanda Delatorre “*Recognizing English words: A longitudinal study with Brazilian listeners*”, vinculado ao projeto de pesquisa “*Características da Interfonologia e suas Implicações para a Inteligibilidade e o Ensino de Línguas*”, coordenado pela Prof<sup>ta</sup>. Dra. Rosane Silveira, o qual visa estudar características específicas da pronúncia da Língua Inglesa pelos aprendizes brasileiros e contribuir ao ensino de Língua Inglesa e de Fonética e Fonologia em geral, uma vez que os dados coletados podem servir para a elaboração e melhoria de materiais didáticos, adequando-os às necessidades dos alunos brasileiros aprendizes do idioma.

Se aceitar participar da pesquisa, você (i) responderá a um questionário e (ii) lerá algumas sentenças que serão gravadas em áudio somente. Todos esses dados integrarão o corpus da pesquisa. Esta pesquisa será concluída em julho de 2016 e o estudo tornar-se-á público.

Os riscos ou desconfortos associados à sua participação são mínimos, limitando-se a possível cansaço mental ao efetuar as gravações. Para minimizar essa situação, você poderá optar por fazer pequenas pausas durante o procedimento de coleta. As informações fornecidas e o material coletado serão absolutamente confidenciais e não haverá identificação nominal dos participantes, nem divulgação de quaisquer informações que possam revelar sua identidade. O participante pode, a qualquer momento, deixar de participar da pesquisa, informando o pesquisador de sua decisão, a fim de que ele não utilize mais os dados do desistente. Além do mais,

asseguramos que esta pesquisa está submetida aos critérios da Resolução 466/12 e suas complementares.

A participação nesta pesquisa é voluntária e não acarreta, de forma alguma, em prejuízos ou em privilégios. Se houver quaisquer dúvidas referentes ao seu desenvolvimento, o pesquisador está à disposição para esclarecimentos através dos contatos dispostos abaixo.

Se você estiver de acordo em participar desta pesquisa, assine no espaço abaixo.

Eu, \_\_\_\_\_, RG no \_\_\_\_\_ ou Passaporte no \_\_\_\_\_ concordo em participar deste estudo e autorizo o pesquisador a utilizar os dados por mim fornecidos.

\_\_\_\_\_  
Assinatura da doutoranda

\_\_\_\_\_  
Assinatura da orientadora

Florianópolis, \_\_\_\_ / \_\_\_\_ / \_\_\_\_\_

Contatos: Fernanda Delatorre: e-mail (número de telefone celular)

Rosane Silveira: e-mail (número de telefone celular)



Federal University of Santa Catarina  
Center for Communication and Expression  
Graduate Program English: Linguistic and Literary Studies  
PhD candidate: Fernanda Delatorre Level: Doctoral  
Advisor: Rosane Silveira, PhD

### **TALKERS' CONSENT FORM (English version)**

Dear participant,

You have been invited to participate in the doctoral research of Fernanda Delatorre which is called “*Recognizing English words: A longitudinal study with Brazilian listeners*”. It is included in her advisor’s Rosane Silveira research project called “Interphonological Characteristics and their Implications to Intelligibility and the Language Teaching” which is meant to contribute to the study of English pronunciation by Brazilian learners of English, to the English language and Phonetics and Phonology teaching as well as to the development of teaching materials, which are more adequate to the Brazilian teaching and learning of English.

If you accept to participate in this research, you will (i) answer a profile questionnaire and (2) read some sentences that will be audio-recorded. All these data will be part of the research corpus. This research will be concluded by July 2016 and its results will become public.

Your participation in this research has little or almost no risk, which would be limited to being a little bit tired at the audio-recording moment. To minimize this effect, you can stop the recording as many times as possible during the data collection (sentence reading) session. All the information and data gathered are absolutely confidential. The participant nominal identification and/or personal information that can identify him are not going to be provided to anyone absolutely. You, as the participant, can stop participating in this research at any time you decided to do it, which you must inform to the researcher who is not going to use your data in the research. Moreover, this research is in agreement with the Brazilian law 466/12 and its complements.

Your participation in this research is volunteer and its does not give any advantage or disadvantage to those who participate in. If you have any doubt about the research development, you may contact the researcher by e-mail or phone, which are available below.

If you agree in participating in this research, please fill in the blanked space below.

I \_\_\_\_\_  
ID number \_\_\_\_\_ or Passport number \_\_\_\_\_  
agree in participating in this research and allow the researcher to use in  
this research the data I will provide.

\_\_\_\_\_  
PhD student signature

\_\_\_\_\_  
Advisor signature

Florianópolis, \_\_\_\_ / \_\_\_\_ / \_\_\_\_\_

Contacts: Fernanda Delatorre: e-mail (cell-phone number)  
Rosane Silveira: e-mail (cell-phone number)

Universidade Federal de Santa Catarina  
Centro de Comunicação e Expressão  
Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários  
Aluna: Fernanda Delatorre Nível: Doutorado  
Professora Orientadora: Dra. Rosane Silveira

## **TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO (Ouvintes)**

Prezado participante,

Você está convidado a participar do projeto de tese da doutoranda Fernanda Delatorre “*Recognizing English words: A longitudinal study with Brazilian listeners*”, vinculado ao projeto de pesquisa “*Características da Interfonologia e suas Implicações para a Inteligibilidade e o Ensino de Línguas*”, coordenado pela Profa. Dra. Rosane Silveira, o qual visa estudar características específicas da pronúncia da Língua Inglesa pelos aprendizes brasileiros e contribuir ao ensino de Língua Inglesa e de Fonética e Fonologia em geral, uma vez que os dados coletados podem servir para a elaboração e melhoria de materiais didáticos, adequando-os às necessidades dos alunos brasileiros aprendizes do idioma.

Se aceitar participar da pesquisa, você participará de três sessões de coleta de dados. Na primeira delas, você participará de cinco etapas de coleta, sendo elas (i) uma sessão de treinamento com testes de inteligibilidade e familiaridade semelhantes aos aplicados no teste definitivo, (ii) um teste de inteligibilidade no qual ouvirá algumas sentenças previamente gravadas por falantes diversos e transcreverá ortograficamente o que entender destas mesmas sentenças, (iii) um teste de familiaridade com as palavras alvo, (iv) um questionário e (v) um teste de proficiência. Na segunda e terceira sessões de coleta de dados, você participará das etapas (ii), (iii) e (iv). Todos estes dados integrarão o corpus da pesquisa conduzida pela doutoranda. Esta pesquisa será concluída em julho de 2016 e, ao final dela, (i) os ouvintes receberão instrução explícita sobre a pronúncia das palavras alvo e *feedback* sobre o seu desempenho geral na pesquisa, e (ii) o estudo tornar-se-á público.

Os riscos ou desconfortos associados à sua participação são mínimos, limitando-se a possível cansaço mental ao ouvir e transcrever as gravações, indicar a familiaridade com as palavras alvo, responder

ao questionário, além de um pouco de ansiedade ao fazer o teste de proficiência. Para minimizar essa situação, você poderá solicitar pequenas pausas durante o procedimento de coleta, especialmente nas etapas (iii) a (v) que são individuais, já que as etapas (i) e (ii) são coletivas. As informações fornecidas e o material coletado serão absolutamente confidenciais e não haverá identificação nominal dos participantes, nem divulgação de quaisquer informações que podem revelar sua identidade. O participante pode, a qualquer momento, deixar de participar da pesquisa, informando o pesquisador de sua decisão, a fim de que ele não utilize mais os dados do desistente. Além do mais, asseguramos que esta pesquisa está submetida aos critérios da Resolução 466/12 e suas complementares.

A participação nesta pesquisa é voluntária e não acarreta, de forma alguma, em prejuízos ou em privilégios. Se houver quaisquer dúvidas referentes ao seu desenvolvimento, o pesquisador está à disposição para esclarecimentos através dos contatos dispostos abaixo.

Se você estiver de acordo em participar desta pesquisa, assine no espaço indicado na próxima página.

Eu, \_\_\_\_\_, RG no \_\_\_\_\_ ou Passaporte no \_\_\_\_\_ concordo em participar deste estudo e autorizo o pesquisador a utilizar os dados por mim fornecidos.

\_\_\_\_\_  
Assinatura da doutoranda

\_\_\_\_\_  
Assinatura da orientadora

Florianópolis, \_\_\_\_ / \_\_\_\_ / \_\_\_\_\_

Contatos: Fernanda Delatorre: e-mail (número de telefone celular)

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Universidade Federal de Santa Catarina  
Centro de Comunicação e Expressão  
Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários  
Aluna: Fernanda Delatorre Nível: Doutorado  
Professora Orientadora: Dra. Rosane Silveira

## **TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO (Professores)**

Prezado participante,

Você está convidado a participar do projeto de tese da doutoranda Fernanda Delatorre “*Recognizing English words: A longitudinal study with Brazilian listeners*”, vinculado ao projeto de pesquisa “*Características da Interfonologia e suas Implicações para a Inteligibilidade e o Ensino de Línguas*”, coordenado pela Profa. Dra. Rosane Silveira, o qual visa estudar características específicas da pronúncia da Língua Inglesa pelos aprendizes brasileiros e contribuir ao ensino de Língua Inglesa e de Fonética e Fonologia em geral, uma vez que os dados coletados podem servir para a elaboração e melhoria de materiais didáticos, adequando-os às necessidades dos alunos brasileiros aprendizes do idioma.

Se aceitar participar da pesquisa, você responderá a um questionário. Todos os dados integrarão o corpus da pesquisa. Esta pesquisa será concluída em julho de 2016. Ao final dela, o estudo tornar-se-á público. Os riscos ou desconfortos associados à sua participação são mínimos, limitando-se a possível cansaço mental e um pouco de ansiedade ao responder ao questionário. Para minimizar essa situação, você poderá optar por fazer pequenas pausas durante o procedimento de coleta. As informações fornecidas serão absolutamente confidenciais e não haverá identificação nominal dos participantes, nem divulgação de quaisquer informações que podem revelar sua identidade. O participante pode, a qualquer momento, deixar de participar da pesquisa, informando o pesquisador de sua decisão, a fim de que ele não utilize mais os dados do desistente. Além do mais, asseguramos que esta pesquisa está submetida aos critérios da Resolução 466/12 e suas complementares.

A participação nesta pesquisa não acarreta, de forma alguma, em prejuízos ou em privilégios. Se houver quaisquer dúvidas referentes ao seu

desenvolvimento, o pesquisador está à disposição para esclarecimentos através dos contatos dispostos abaixo.

Se você estiver de acordo em participar desta pesquisa, assine no espaço abaixo.

Eu, \_\_\_\_\_, RG no \_\_\_\_\_ ou Passaporte no \_\_\_\_\_ concordo em participar deste estudo e autorizo o pesquisador a utilizar os dados por mim fornecidos.

\_\_\_\_\_  
Assinatura da doutoranda

\_\_\_\_\_  
Assinatura da orientadora

Florianópolis, \_\_\_\_ / \_\_\_\_ / \_\_\_\_\_

Contatos: Fernanda Delatorre: e-mail (número de telefone celular)

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## APPENDIX B – Talkers’, listeners’ and listener teachers’ questionnaires

Universidade Federal de Santa Catarina  
Centro de Comunicação e Expressão  
Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários  
Aluna: Fernanda Delatorre Nível: Doutorado  
Professora Orientadora: Dra. Rosane Silveira

### Talkers’ questionnaire

*Thank you for collaborating with this research. Please make sure you complete the questionnaire. If you have any questions, please ask the research for clarification.*

1. What is your name? \_\_\_\_\_
  2. Your e-mail: \_\_\_\_\_
  3. ( ) male ( ) female
  4. How old are you? \_\_\_\_\_
  5. Where are you from? \_\_\_\_\_
  6. What is your first language? \_\_\_\_\_
  7. How long have you been living in Brazil? \_\_\_\_\_
  8. Check the right option regarding your education:
    - a) I finished my master’s or PhD.
    - b) I finished college.
    - c) I finished high school.
    - d) I finished grade school.
- Other: \_\_\_\_\_

9. Where and how long have you studied English? You can choose more than one option.

	1 year	2 years	3 years	4 years or more
Pre-school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Elementary school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Junior high	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Private course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	_____			

10. What have you studied? You can choose more than one option.

	Most of the time	Sometimes	Never or hardly ever
Grammar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speaking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Listening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pronunciation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. If you are NOT a native speaker of English, have you ever been to an English speaking country? Yes  No

12. If yes,

- a) Which country? \_\_\_\_\_
- b) How long did you stay there? \_\_\_\_\_
- c) How old were you when you went there? \_\_\_\_\_
- d) Did you work there? \_\_\_\_\_
- e) If yes, for how long did you work there? \_\_\_\_\_
- f) Did you study there? \_\_\_\_\_
- g) If yes, for how long did you study there? \_\_\_\_\_



13. If you ARE a native speaker of English, have you ever been to another country besides Brazil? Yes  No
14. If yes,
- a) Which country? \_\_\_\_\_
  - b) How long did you stay there? \_\_\_\_\_
  - c) How old were you when you went there? \_\_\_\_\_
  - d) Did you work there? \_\_\_\_\_
  - e) If yes, for how long did you work there? \_\_\_\_\_
  - f) Did you study there? \_\_\_\_\_
  - g) If yes, for how long did you study there? \_\_\_\_\_
15. Do you speak a language other than Portuguese, English or your first language? Yes  No
16. If yes:
- a) What is this language? \_\_\_\_\_
  - b) Are you fluent in this language? Yes  No
  - c) Do you speak this language often? Yes  No

Florianópolis, \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_.

Thank you!

Fernanda Delatorre

Universidade Federal de Santa Catarina  
Centro de Comunicação e Expressão  
Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários  
Aluna: Fernanda Delatorre Nível: Doutorado  
Professora Orientadora: Dra. Rosane Silveira

### **Questionário dos ouvintes brasileiros**

*Obrigada por colaborar com esta pesquisa. Certifique-se de que respondeu todas as perguntas. Caso tenha alguma dúvida, por gentileza, peça ao pesquisador para esclarecê-la.*

Data: \_\_\_/\_\_\_/\_\_\_\_\_. Fase: \_\_\_\_\_

1. Qual o seu nome \_\_\_\_\_
2. Seu e-mail \_\_\_\_\_
3. ( ) masculino ( ) feminino
4. Qual a sua idade atual? \_\_\_\_\_
5. Em que cidade você nasceu? \_\_\_\_\_
6. Em que cidade você morou a maior parte do tempo Brasil? \_\_\_\_\_  
\_\_\_\_\_
7. Indique o curso que você faz e a fase que você está \_\_\_\_\_  
\_\_\_\_\_

8. Aonde e por quanto tempo você estudou inglês antes de entrar para a universidade? Pode assinalar mais de uma opção.

	1 ano	2 anos	3 anos	4 anos ou mais
Pré-escola	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ensino fundamental I (1° ao 5° ano)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ensino fundamental II (6° ao 9° ano)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ensino médio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Escola de idiomas ou extracurricular da UFSC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eu não estudei inglês antes de iniciar a graduação	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outro (explique)				

9. O que você estudou nesta(s) escola(s)?

	A maior parte do tempo	Às vezes	Nunca ou quase nunca
Gramática	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leitura	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Escrita	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fala ou produção oral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ouvir	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pronúncia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Você já fez algum teste de proficiência como TOEFL, EILST, Cambridge? Sim  Não

11. Se sim,

a) Especifique o teste \_\_\_\_\_

b) Qual foi sua pontuação? \_\_\_\_\_

12. Você já visitou um país onde a língua inglesa é falada oficialmente? Sim  Não
13. Se sim,
- a) Qual país? \_\_\_\_\_
  - b) Por quanto tempo você esteve lá \_\_\_\_\_
  - c) Que idade você tinha quando você esteve lá? \_\_\_\_\_
  - d) Você trabalhou lá? \_\_\_\_\_
  - e) Se sim, por quanto tempo você trabalhou lá? \_\_\_\_\_
  - f) Você estudou lá? \_\_\_\_\_
  - g) Se sim, por quanto tempo você estudou lá? \_\_\_\_\_
14. Durante o período que você esteve no país de língua inglesa, no período de 24 horas, por quanto tempo você **FALAVA** inglês com falante nativo?
- a) 10 horas ou mais
  - b) 5 horas ou mais
  - c) 1 hora ou mais
  - d) menos de 1 hora
  - e) Eu não costumava falar com falantes nativos de inglês
  - f) Outro \_\_\_\_\_
15. Durante o período que você esteve no país de língua inglesa, no período de 24 horas, por quanto tempo você **FALAVA** inglês com falante não-nativo?
- a) 10 horas ou mais
  - b) 5 horas ou mais
  - c) 1 hora ou mais
  - d) menos de 1 hora

- e) Eu não costumava falar inglês com outros falantes não nativos de inglês
- f) Outro \_\_\_\_\_
16. Atualmente, no período de 24 horas, por quanto tempo você **FALA** em inglês com falantes nativos do inglês?
- a) 10 horas ou mais
- b) 5 horas ou mais
- c) 1 hora ou mais
- d) menos de 1 hora
- e) Eu não costumo conversar com falantes nativos de inglês
- f) Outro \_\_\_\_\_
17. Atualmente, no período de 24 horas, por quanto tempo você **FALA** inglês com outros falantes não nativos de inglês além de seus colegas de aula brasileiros?
- a) 10 horas ou mais
- b) 5 horas ou mais
- c) 1 hora ou mais
- d) menos de 1 hora
- e) Eu não costumo falar inglês com outros falantes não nativos de inglês
- f) Eu só falo inglês com meus colegas brasileiros
- g) Outro \_\_\_\_\_
18. No período de 24 horas, quanto tempo você costuma **OUVIR** inglês no rádio, na TV, na internet ou em outro meio como celular?
- a) 10 horas ou mais
- b) 5 horas ou mais
- c) 1 hora ou mais

- d) menos de 1 hora
  - e) Eu não ouço nada em inglês além da sala de aula
  - f) Outro \_\_\_\_\_
19. Se você **ASSISTE** à séries de TV em inglês ou à entrevistas em inglês, como você faz isso?
- a) com áudio em inglês e sem legendas
  - b) com áudio em inglês e com legendas em inglês
  - c) com áudio em inglês e com legendas em português
  - d) com áudio em português e com legendas em inglês
  - e) com áudio em português e sem legendas
  - f) Eu não assisto a nada em inglês
20. Se você **OUVE** música em inglês, como você faz isso?
- a) em inglês - ouvindo sem a letra da música
  - b) em inglês – ouvindo com a letra da música
  - c) em inglês – ouvindo com a letra da música e checando no dicionário as palavras que não sabe
  - d) em inglês – traduzindo a letra toda da música para o português
  - e) Eu não ouço a nada em inglês
21. No período de 24 horas, por quanto tempo você costuma **LER** textos em inglês?
- a) 10 horas ou mais
  - b) 5 horas ou mais
  - c) 1 hora ou mais
  - d) menos de 1 hora
  - e) Eu não leio nada em inglês além da sala de aula
  - f) Outro \_\_\_\_\_

22. No período de uma semana, além das horas em sala de aula, por quanto tempo você **ESTUDA ou REVISA** inglês em casa?

- a) 10 horas ou mais
- b) 5 horas ou mais
- c) 1 hora ou mais
- d) menos de 1 hora
- e) Eu não costumo estudar ou revisar inglês em casa
- f) Outro \_\_\_\_\_

23. Você dá aulas de inglês? Sim  Não

24. Se sim:

- a) A quanto tempo? \_\_\_\_\_
- b) Aonde? Escola de idiomas  Escola pública  Curso de graduação  Particular
- c) Você se comunica em inglês com seus alunos nas aulas?  
Sim  Não
- d) Se você se comunica em inglês com seus alunos, você: só apresenta os enunciados em inglês mas conduz as atividades em português  apresenta todo o conteúdo e conduz toda a aula em inglês

25. Se você dá aulas de inglês, o que você costuma ensinar e com que frequência?

	<b>A maior parte do tempo</b>	<b>Às vezes</b>	<b>Nunca ou quase nunca</b>
Gramática	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leitura	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Escrita	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fala ou produção oral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ouvir	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pronúncia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26. Se você NÃO for professor de inglês, você usa inglês no seu trabalho ou estudo? Sim  Não
27. Se você NÃO é professor de inglês, especifique como você faz isso ou como você usa o inglês no seu trabalho ou estudo.
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
28. Você fala outra língua além de português e inglês? Sim  Não
29. Se sim:
- a) Qual(is) língua(s)? \_\_\_\_\_
- b) Você é fluente nesta(s) língua(s)? Sim  Não
- c) Você fala esta(s) língua(s) frequentemente? Sim  Não
30. Sobre o teste de audição que você fez anteriormente:
- a) Qual foi a parte mais difícil de entender das frases ouvidas?
- b) Começo (sujeito)  Meio (verbos)  Fim (complementos)
- c) Você teve mais dificuldades em ouvir algum grupo específico de palavras? Nomes próprios  pronomes  palavras no plural  verbos regulares  verbos irregulares  artigos  preposições  outros (especifique) \_\_\_\_\_
- a) Quanto por cento das sentenças que você ouviu você acha que você entendeu completamente?
- b) De 0% a 20%  De 21% a 40%  De 41% a 60%   
De 61% a 80%  De 81% a 100%
- c) Você achou que o tempo estimado para escrever as sentenças foi suficiente? Sim  Não
- d) Você acha que seria necessário mais ou menos tempo para escrever as sentenças? Mais  Menos



e) Você tem ideia das línguas maternas dos falantes do teste de transcrição de sentenças? Sim  Não

Se sim, poderia indicar alguma?

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31. Sobre o teste de familiaridade (marcar um X) que você fez anteriormente, você achou que o teste foi:

Muito fácil  Fácil  Razoável  Difícil  Muito difícil

Florianópolis, \_\_\_\_\_ de \_\_\_\_\_ de 201\_\_\_\_.

Obrigada!

Fernanda Delatorre

Universidade Federal de Santa Catarina  
Centro de Comunicação e Expressão  
Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários  
Aluna: Fernanda Delatorre Nível: Doutorado  
Professora Orientadora: Dra. Rosane Silveira

### Listener teachers' questionnaire

*Thank you for collaborating with this research. Please make sure you complete the questionnaire. If you have any questions, please ask the research for clarification.*

1. What is your name? \_\_\_\_\_
2. Your e-mail: \_\_\_\_\_
3. ( ) male ( ) female
4. How old are you? \_\_\_\_\_
5. Where were you born? \_\_\_\_\_
6. Where have you lived most of your life in Brazil? \_\_\_\_\_
7. Check the right option regarding your education. You can choose more than one option.
  - a) I finished my PhD.
  - b) I finished my master's.
  - c) I finished college in any area.
  - d) I graduated in language – English or English/Portuguese
  - e) Other: \_\_\_\_\_
8. How long have you been teaching English? \_\_\_\_\_

9. Where and how long have you studied English?

	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years or more</b>
Pre-school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Elementary school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Junior high	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Private course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
University	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. What have you studied?

	<b>Most of the time</b>	<b>Sometimes</b>	<b>Never or hardly ever</b>
Grammar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speaking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Listening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pronunciation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. What have you been teaching and for long?

	<b>Most of the time</b>	<b>Sometimes</b>	<b>Never or hardly ever</b>
Grammar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reading	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speaking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Listening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pronunciation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Do you teach or deal with pronunciation in classroom? Yes   
No

13. If yes, how do you do it?

- a) Prepare special material
- b) Follow book activities
- c) Call your students' attention to it
- d) Only alternatives a and b
- e) Only alternatives a and c
- f) Only alternatives b and c
- g) All alternatives a, b and c

14. Have you ever been to an English speaking country? Yes   
No

15. If yes,

- a) Which country? \_\_\_\_\_
- b) How long did you stay there? \_\_\_\_\_
- c) How old were you when you went there? \_\_\_\_\_
- d) Did you work there? \_\_\_\_\_
- e) If yes, for how long did you work there? \_\_\_\_\_
- f) Did you study there? \_\_\_\_\_
- g) If yes, for how long did you study there? \_\_\_\_\_

16. Do you speak a language other than Portuguese and English?  
Yes  No

17. If yes:

a) What is this language? \_\_\_\_\_

b) Are you fluent in this language? \_\_\_\_\_

c) Do you speak this language often? \_\_\_\_\_

Florianópolis, \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_.

Thank you!

Fernanda Delatorre



**APPENDIX C – List of sentences and respective verbs used in the three intelligibility tests**

**List of sentences with regular and irregular verbs used in the first intelligibility test**

<b>Allomorph /t/</b>	<b>Allomorph /d/</b>	<b>Allomorph /Id/</b>	<b>Irregular verbs</b>
They skipped some exercises	The stadium cheered him	He needed a job	Kids slept for 10 hours
Suzy kissed her father	She played piano	I visited my family	She bought a new car
They watched a movie	The pilot saved all passengers.	Models avoided eating	They came by bus
She looked for a new job	Children screamed a lot	They voted in the elections	The family had breakfast together
Mary washed her dress	The teacher spelled his name	Tom guided visitors.	He drove for 18 hours
The audience laughed out loud	The driver caused an accident.	They waited for a train	They took a test
He missed some classes	They judged a robber	He recorded a video	She made a cake
Bob stopped drinking	Students trained for the test	Helen painted her bedroom	He wrote a letter

**List of sentences with regular and irregular verbs used in the second intelligibility test**

<b>Allomorph /t/</b>	<b>Allomorph /d/</b>	<b>Allomorph /ɪd/</b>	<b>Irregular verbs</b>
She asked my name	James called his parents.	They rented a car.	They fought at school.
They worked hard.	Ann and Bob planned a trip.	The family attended a concert.	Paul sang for three hours
Students danced all night.	Jack proved his innocence	His speech sounded fine to us.	Lisa drew a bird
Helen dressed well	He failed in the Math test	Police counted one million people	They drank a lot
The man clapped his hands	Susan tried her best	They adopted a child	Kids saw a black dog
They crossed a famous street	Boys shared a house	The teacher added a new student	They woke up late on Sunday
The chief jumped a wall	Students joined a group	John printed his paper	Anna taught English for years
George brushed his teeth.	He changed his mind	This reminded me of his songs	Journalists gave us bad news.



**List of sentences with regular and irregular verbs used in the third intelligibility test**

<b>Allomorph /t/</b>	<b>Allomorph /d/</b>	<b>Allomorph /Id/</b>	<b>Irregular verbs</b>
The priest blessed her children.	Martha loved Peter.	Teachers graded students.	Anna cut some vegetables.
Jeff fixed Mary's car.	The couple earned some money.	Bruce posted on Facebook.	Jane hurt her finger.
Parents forced him to lie.	Bill closed a window.	The government provided less money.	The car cost fifty thousand dollars.
The secretary typed some letters.	They lived in London.	She started reading the book.	His family left Brazil.
Stella talked for one hour.	They stayed in the line.	The invitation included all teachers.	Kids ate a lot of chocolate.
She wished she had a car.	Taxi drivers learned some English.	They rested on the weekend.	Kate brought cake to the party.
Peter parked his car here.	David plugged in his computer.	Stevie concluded his book.	Adolescents spent hours on internet.
Jim helped many people.	Students filled in a questionnaire.	They invited a hundred people.	Birds flew in the sky.



**APPENDIX D – Randomized sentence order for sentence reading task in talkers’ audio-recording session**

**For intelligibility tests**

- 01: She bought a new car.
- 02: They voted in the elections.
- 03: Students trained for the test.
- 04: Mary washed her dress.
- 05: They came by bus.
- 06: The stadium cheered him.
- 07: Tom guided visitors.
- 08: Bob stopped smoking.
- 09: She played piano.
- 10: He drove for 18 hours.
- 11: They watched a movie.
- 12: Helen painted her bedroom.
- 13: The audience laughed out loud.
- 14: He needed a job.
- 15: She made a cake.
- 16: The pilot saved all passengers.
- 17: I visited my family.
- 18: They took a trip.
- 19: She looked for a new job.
- 20: They judged a robber.
- 21: They skipped some exercises.
- 22: Models avoided eating.
- 23: He wrote a letter.
- 24: The driver caused an accident.
- 25: The family had  
breakfast together.
- 26: Suzy kissed her father.
- 27: The teacher spelled his name.
- 28: He recorded a video.
- 29: Kids slept for 10 hours.
- 30: Children screamed a lot.
- 31: He missed some classes.
- 32: They waited for the train.
- 33: Jack proved his innocence.
- 34: The family attended a concert.
- 35: She asked my name.
- 36: Lisa drew a bird.
- 37: Students danced all night.
- 38: Susan tried her best.
- 39: Kids saw a black dog.
- 40: They rented a car.
- 41: They crossed a famous street.
- 42: John printed his paper.
- 43: Boys shared a house.
- 44: They woke up late on Sunday.
- 45: They adopted a child.
- 46: George brushed his teeth.
- 47: Anna taught English for years.
- 48: Ann and Bob planned a trip.
- 49: They drank a lot.
- 50: His speech sounded fine to us.
- 51: The man clapped his hands.
- 52: Students joined a group.
- 53: They fought at school.
- 54: They worked hard.
- 55: The teacher added  
a new student.
- 56: He failed in the Math test.
- 57: This reminded me of his songs.
- 58: Journalists gave us bad news.
- 59: The chief jumped a wall.
- 60: He changed his mind.

- 61: Paul sang for three hours.  
 62: Police counted one million people.  
 63: James called his parents.  
 64: Helen dressed well.  
 65: She wished she had a car.  
 66: His family left Brazil  
 67: Martha loved Peter  
 68: She started reading the book.  
 69: Students filled in a questionnaire.  
 70: Adolescents spent hours on internet.  
 71: Peter parked his car here.  
 72: They invited a hundred people.  
 73: Anna cut some vegetables.  
 74: The couple earned some money.  
 75: The government provided less money.  
 76: The secretary typed some letters.  
 77: The invitation included all teachers.  
 78: The car cost fifty thousand dollars.  
 79: Stella talked for one hour.  
 80: Taxi drivers learned some English.  
 81: Kids ate a lot of chocolate.  
 82: Jeff fixed Mary's car.  
 83: Stevie concluded his book.  
 84: Bill closed a window.  
 85: Parents forced him to lie.  
 86: They stayed in the line.  
 87: Bruce posted on Facebook.  
 88: Birds flew in the sky.  
 89: Jim helped many people.

- 90: Kate brought cake to the party.  
 91: They lived in London.  
 92: Teachers graded students.  
 93: The priest blessed her children.  
 94: Jane hurt her finger.  
 95: They rested on the weekend.  
 96: David plugged in his computer.

### **For familiarization session**

- 01: We spend time dancing  
 02: They print books  
 03: Babies cry a lot  
 04: Children cross a street  
 05: Men also cook well  
 06: People make mistakes  
 07: My parents travel every year  
 08: Teachers grade students

**APPENDIX E – List of verbs in alphabetical order used in all tests****A**

Add, added, added  
Adopt, adopted, adopted  
Attend, attended, attended  
Ask, asked, asked  
Avoid, avoided, avoided

**B**

Bless, blessed, blessed  
Bring, brought, brought  
Brush, brushed, brushed  
Buy, bought, bought

**C**

Call, called, called  
Cause, caused, caused  
Change, changed, changed  
Cheer, cheered, cheered  
Clap, clapped, clapped  
Close, closed, closed  
Come, came, come  
Conclude, concluded, concluded  
Cook, cooked, cooked  
Cost, cost, cost  
Count, counted, counted  
Cross, crossed, crossed  
Cry, cried, cried  
Cut, cut, cut

**D**

Dance, danced, danced  
Draw, drew, drawn  
Dress, dressed, dressed  
Drink, drank, drunk  
Drive, drove, driven

**E**

Earn, earned, earned  
Eat, ate, eaten

**F**

Fail, failed, failed  
Fight, fought, fought  
Fill, filled, filled  
Fix, fixed, fixed  
Fly, flew, flown  
Force, forced, forced

**G**

Give, gave, given  
Guide, guided, guided  
Grade, graded, graded

**H**

Have, had, had  
Help, helped, helped  
Hurt, hurt, hurt

**I**

Include, included, included  
Invite, invited, invited

**J**

Join, joined, joined  
Judge, judged, judged  
Jump, jumped, jumped

**K**

Kiss, kissed, kissed

**L**

Laugh, laughed, laughed  
Learn, learned, learned  
Leave, left, left  
Like, liked, liked  
Live, lived, lived  
Look, looked, looked  
Love, loved, loved

**M**

Make, made, made  
Miss, missed, missed

**N**

Need, needed, needed

**P**

Paint, painted, painted  
Park, parked, parked  
Plan, planned, planned  
Play, played, played  
Plug, plugged, plugged  
Post, posted, posted  
Print, printed, printed  
Prove, proved, proved  
Provide, provided, provided

**R**

Record, recorded, recorded  
Remind, reminded, reminded  
Rent, rented, rented  
Rest, rested, rested

**S**

Save, saved, saved  
Scream, screamed, screamed  
See, saw, seen  
Share, shared, shared  
Sing, sang, sung  
Skip, skipped, skipped  
Sleep, slept, slept  
Spell, spelled, spelled  
Spend, spent, spent  
Sound, sounded, sounded  
Start, started, started  
Stay, stayed, stayed  
Stop, stopped, stopped

**T**

Take, took, taken  
Talk, talked, talked  
Teach, taught, taught  
Train, trained, trained  
Travel, traveled, traveled

Try, tried, tried  
Type, typed, typed

**V**

Visit, visited, visited  
Vote, voted, voted

**W**

Wait, waited, waited  
Wake up, woke up, waken up  
Wash, washed, washed  
Watch, watched, watched  
Wish, wished, wished  
Work, worked, worked  
Write, wrote, written

**APPENDIX F – All verbs produced by all  
talkers transcribed according to the IPA**

**Verbs organized according to the context preceding ed produced by the  
eight participants**

VERB	BRT1	BRT2	ST1	ST2	GT1	GT2	ET1	ET2
Stopped /pt/	[stɒpt]	[stɒpt]	[stɒpt]	[stɒpt]	[stɒp]	[stɒp]	[stɒp]	[stɒp]
Skipped /pt/	[skɪpt]	[skɪpt]	[skɪpt]	[spɪkt]	[skɪpt]	[skɪpt]	[skɪpt]	[skɪp]
Clapped /pt/	[klæpt]	[klæpt]	[klept]	[klep]	[klæpt]	[klæpt]	[klæpt]	[klæpt]
Tipped /pt/	[taɪpt]	[taɪpe]	[taɪpt]	[taɪpt]	[taɪp]	[taɪpt]	[taɪp]	[taɪp]
Helped /lpt/	[helpt]	[helpt]	[helpt]	[helpt]	[helpt]	[helpt]	[helpt]	[helpt]
Jumped /mp/	[dʒʌmpɪ]	[dʒʌmpɪ <sup>h</sup> ]	[dʒʌmpɪ]	[ʒʌmped]	[dʒʌmpɪ]	[dʒʌmpɪ]	[dʒʌmpɪ]	[dʒʌmpɪ]
Looked /kt/	[lʊkt]	[lʊkt <sup>h</sup> ]	[lʊkt <sup>h</sup> ]	[lʊket]	[lʊkt]	[lʊkt]	[lʊk]	[lʊk]
Talked /kt/	[tɔkt]	[tɔkt]	[tɔkt]	[tʊktɪ <sup>h</sup> ]	[tʊkt]	[tɔkt]	[tɔkt]	[tɔk]
Asked /skt/	[æsk]	[æskɪ <sup>h</sup> ]	[ɔskt]	[ɔskedɪ]	[ɔskt]	[ɔsk]	[æsk]	[æsk]
Worked /akt/	[wɔkt]	[wɔkt <sup>h</sup> ]	[wɔkt]	[wʊked]	[wɔkt]	[wɔkt <sup>h</sup> ]	[wɔt]	[wɔkt]
Parked /ɪkt/	[pɔkt]	[pɔket]	[pɔkt]	[pɔket]	[pɔt]	[pɔkt]	[pɔkt]	[pɔt]
Laughed /ft/	[left]	[left]	[lɔft <sup>h</sup> ]	[laʊed]	[lɔft]	[lʊd]	[lɔft]	[left]
Kissed /st/	[kɪst]	[kɪst]	[kɪst]	[kɪsed]	[kɪst]	[kɪst]	[kɪst]	[kɪs]
Missed /st/	[mɪst]	[mɪst]	[mɪst]	[mɪsed]	[mɪs]	[mɪs]	[mɪs]	[mɪs]

(continued)

(continued)

VERB	BRT1	BRT2	ST1	ST2	GT1	GT2	ET1	ET2
Crossed /st/	[kɹɔst]	[kɹɔst]	[kɹɔst]	[kɹɔust]	[kɹɔst]	[kɹɔst]	[kɹɔs]	[kɹɔst]
Dressed /st/	[dɹɛst]	[dɹɛst]	[dɹɛst]	[dɹɛset]	[dɹɛst]	[dɹɛst]	[dɹɛs]	[dɹɛst]
Blessed /st/	[blɛst]	[blɛst]	[blɛst]	[blɛsed]	[blɛs]	[blɛst]	[blɛst]	[blɛs]
Danced /nst/	[dænst]	[dænst]	[dænst]	[dænst]	[dænst]	[dænst]	[dænst]	[dænst]
Forced /ɪst/	[fɔɪst]	[fɔɪst]	[fɔs]	[fɔɪset]	[fɔɪst]	[fɔɪst]	[fɔɪst]	[fɔɪst]
Fixed /kɪst/	[fɪkst]	[fɪkst]	[fɪkst]	[fɪksəs]	[fɪkst]	[fɪks]	[fɪks]	[fɪks]
Washed /ʃt/	[wɔʃt]	[wɔʃt]	[wɔʃt]	[wɔset]	[wɔʃt]	[wɔʃt]	[wɔʃt]	[wɔʃ]
Brushed /ʃt/	[brɪʃt]	[brɪʃt]	[brɪʃt]	[brɔset]	[brɪʃt]	[brɪʃt]	[brɪʃt]	[brɪʃ]
Wished /ʃt/	[wɪʃt]	[wɪʃt]	[wɪʃt]	[wɪʃet]	[wɪʃt]	[vɪʃ]	[wɪʃ]	[wɪʃ]
Watched /tʃt/	[wɔʃtʃɔd]	[wɔʃtʃɔd]	[wɔʃtʃɔd]	[wɔʃtʃɔt]	[wɔʃtʃt]	[wɔʃtʃt]	[wɔʃtʃ]	[wɔʃtʃt]
Plugged /gd/	[plʌgd]	[plʌgd <sup>h</sup> ]	[plʌgd]	[plʌʒedɪd]	[plʌk]	[plʌk]	[plʌgd]	[plʌgd]
Saved /vd/	[seɪvd]	[seɪvd]	[seɪvd]	[seɪv]	[seɪf]	[seɪvd]	[seɪvd]	[seɪvd]
Proved /vd/	[pruɒvd]	[pruɒvd <sup>h</sup> ]	[pruɒvd]	[pruəveɪdɪd]	[pruɒvd]	[pruɒt <sup>h</sup> ]	[pruɒvd]	[pruɒvd]
Loved /vd/	[lʌvd]	[lʌvd]	[lʌvd]	[lʌvɪt]	[lʌvd]	[lʌft]	[lʌvd]	[lʌv]

(continued)



(continued)

VERB	BRT1	BRT2	ST1	ST2	GT1	GT2	ET1	ET2
Lived /vd/	[lɪvd]	[lɪvd <sup>h</sup> ]	[lɪvd]	[lɪvɪd]	[lɪft]	[lɪft]	[lɪvd]	[lɪvd]
Caused /zd/	[kɔzd]	[kɔzd]	[kɔst]	[kɔuzəd]	[kɔz]	[kɔzd]	[kɔst]	[kɔz]
Closed /zd/	[klouzɪd]	[klouzɪd]	[klouzɪd]	[klaʊst]	[klouzɪd]	[klouzɪd]	[klouzɪd]	[klouzɪd]
Judged /dʒd/	[dʒʌdʒɪd]	[dʒʌdʒɪd]	[dʒʌdʒɪd]	[dʒʉdʒɪd]	[dʒʌdʒɪd]	[ʒʌdʒɪd]	[dʒʌdʒɪd]	[dʒʌdʒɪd]
Changed /ndʒd/	[tʃeɪndʒɪd]	[tʃeɪndʒɪd]	[tʃeɪndʒɪd]	[tʃeɪndʒɪtʃ]	[tʃeɪnʒɪd]	[ʃeɪnʒɪd]	[tʃeɪnʒɪd]	[tʃeɪndʒɪd]
Screamed /md/	[skraɪmd]	[skraɪmd]	[skraɪmd]	[skraɪmɪd]	[skraɪmd]	[skraɪmɪd]	[skraɪmɪd]	[skraɪmɪd]
Planned /nd/	[plænd]	[plænd]	[plænd]	[pleɪmɪd]	[plæn]	[plænd]	[plænd]	[plænd]
Trained /nd/	[treɪnd]	[treɪnd]	[treɪnd]	[treɪmɪd]	[treɪnd]	[treɪd]	[treɪnd]	[treɪnd]
Joined /nd/	[dʒɔɪnd]	[dʒɔɪnd]	[dʒɔɪnd]	[dʒɔɪmɪd]	[dʒɔɪnd]	[dʒɔɪnd]	[dʒɔɪnd]	[dʒɔɪnd]
Earned /nd/	[ɔɪnd]	[ɔɪnd]	[ɔɪnd]	[ɔɪmɪd]	[ɔɪn]	[ɔɪnd]	[ɔɪnd]	[ɔɪnd]
Learned /nd/	[ləɪnd]	[ləɪnd]	[ləɪnd]	[ləɪmɪd]	[ləɪn]	[ləɪnd]	[ləɪnd]	[ləɪnd]
Spelled /ʌd/	[spetɪd]	[spetɪd]	[spetɪd]	[speɪleɪt <sup>h</sup> ]	[spetɪd]	[spetɪd]	[spetɪd]	[spetɪt]
Failed /ʌd/	[feɪtɪd]	[feɪtɪd]	[feɪtɪd]	[feɪlɪd]	[feɪtɪd]	[feɪtɪd]	[feɪtɪd]	[feɪtɪd]
Called /ʌd/	[kɔtɪd]	[kɔtɪd]	[kɔʊtɪd]	[kɔɪlɪt <sup>h</sup> ]	[kɔd]	[kɔtɪd]	[kɔtɪd]	[kɔtɪd]

(continued)

(continued)

VERB	BRT1	BRT2	ST1	ST2	GT1	GT2	ET1	ET2
Filled /Ad/	[fɪd]	[fɪd]	[fɪd]	[fɪlɪtʰ]	[fɪd]	[fɪd]	[fɪd]	[fɪd]
Cheered /ɪd/	[tʃɪd]	[tʃɪd]	[tʃɪd]	[tʃeɪt]	[tʃɪd]	[tʃɪd]	[tʃɪd]	[tʃɪd]
Shared /ɪd/	[ʃæd]	[ʃæd]	[ʃæd]	[ʃæɪd]	[ʃæd]	[ʃæd]	[ʃæ]	[ʃæd]
Played /ɛd/	[pleɪd]	[pleɪd]	[pleɪdʰ]	[pleɪd]	[pleɪd]	[pleɪd]	[pleɪ]	[pleɪd]
Stayed /ɛd/	[steɪd]	[steɪd]	[steɪd]	[steɪd]	[steɪd]	[steɪd]	[steɪd]	[steɪd]
Tried /aɪd/	[traɪd]	[traɪd]	[traɪd]	[traɪt]	[traɪd]	[traɪd]	[traɪd]	[traɪd]
Voted /ɪd/	[voʊd]	[voʊdɔd]	[voʊd]	[voʊtɪd]	[voʊtɔd]	[voʊtɔd]	[vɔd]	[voʊd]
Waited /tɪd/	[weɪd]	[weɪd]	[weɪd]	[weɪtɪd]	[weɪtɪd]	[weɪtɪd]	[weɪtɪd]	[weɪtɪd]
Rented /ɪd/	[ɹɛnd]	[ɹɛntɪd]	[ɹɛntɪd]	[ɹɛntɪtɪd]	[ɹɛntɪd]	[ɹɛntɪtɪt]	[ɹɛntɪr]	[ɹɛntɪd]
Counted /tɪd/	[kaʊntɪd]	[kaʊntɔd]	[kaʊntɪd]	[kaʊntɪd]	[kaʊntɪd]	[kaʊntɪd]	[kaʊntɪd]	[kaʊntɪd]
Painted /tɪd/	[peɪntɪd]	[peɪntɪd]	[peɪntɔd]	[peɪntɪd]	[peɪntɪd]	[peɪntɪd]	[peɪntɪd]	[peɪntɪd]
Printed /tɪd/	[pɹɪntɪd]	[pɹɪntɪd]	[pɹɪntɪd]	[pɹɪntɪd]	[pɹɪntɪd]	[pɹɪntɪt]	[pɹɪntɪr]	[pɹɪntɪd]
Started /tɪd/	[stɑdɪd]	[stɑdɪd]	[stɑtɪd]	[stɑtɪr]	[stɑdɪd]	[stɑtɪd]	[stɑdɪd]	[stɑdɪd]
Posted /tɪd/	[poʊstɪd]	[poʊstɔd]	[poʊstɪd]	[poʊstɪd]	[poʊst]	[poʊstɪd]	[poʊstɪr]	[poʊstɪr]

(continued)

(continued)

VERB	BRT1	BRT2	ST1	ST2	GT1	GT2	ET1	ET2
Rested /tɪd/	[rɛstɪd]	[rɛstɪd]	[rɛstɪd]	[rɛstɪd]	[rɛstɪd]	[rɛstɪd]	[rɛstɪr]	[rɛstɪr]
Visited /vɪzɪt/	[vɪzɪt]	[vɪzɪtəð]	[vɪzɪtɪd]	[vɪzɪtɪt]	[vɪzɪtɪd]	[vɪzɪtɪd]	[vɪzɪtɪd]	[vɪzəɪnd]
Adopted /tɒd/	[əðəptɪd]	[əðəptɪd]	[əðəptɪd]	[əðəptɪd]	[əðəptɪd]	[əðəptɪd]	[əðəptɪd]	[əðəptɪr]
Invited /tɪd/	[ɪnvaɪdɪr ə]	[ɪnvaɪrɪd]	[ɪnvaɪtɪd]	[ɪnvaɪtɪd]	[ɪnvaɪtɪd]	[ɪnvaɪtɪd]	[ɪnvaɪrɪd]	[ɪnvaɪrɪd]
Added /dɪd/	[ædɪd]	[ædɪd]	[ədɪd]	[ədɪd]	[ædɪd]	[ædɪt]	[ədɪr]	[ædɪr]
Guided /dɪd/	[kaɪəð]	[gaɪdəð]	[gaɪdɪd]	[gaɪrɪd]	[gaɪdɪd]	[gaɪdəð]	[gaɪrɪd]	[gaɪrɪd]
Needed /dɪd/	[nɪrər ə]	[nɪrɪd]	[nɪdɪd]	[nɪrɪd]	[nɪrər]	[nɪd]	[nɪrər]	[nɪrəɪnd]
Graded /dɪd/	[gɹeɪrɪd]	[gɹeɪdɪd]	[gɹeɪrɪd]	[gɹeɪdɪrɪd]	[gɹeɪrɪd]	[gɹeɪdɪd]	[gɹeɪdɪrɪd]	[gɹeɪrɪd]
Sounded /dɪd/	[saʊndɪd]	[saʊndɪd]	[saʊndɪd]	[saʊndɪd]	[saʊndɪd]	[saʊndɪd]	[saʊndɪd]	[saʊndɪd]
Attended /dɪd/	[ətɛndɪd]	[ətɛndɪd]	[ətɛndɪd]	[ətɛndɪd]	[ətɛndɪd]	[ətɛndɪd]	[ətɛndɪd]	[ətɛndɪr]
Avoided /dɪd/	[əvəɪrɪd]	[əvəɪdɪd]	[əvəɪdɪd]	[əvəɪdɪd]	[əvəɪdɪd]	[əvəɪdɪd]	[əvəɪdɪrɪd]	[əvəɪrɪd]
Provided /dɪd/	[prɪəvəɪdɪd]	[prɪəvəɪdɪd]	[prɪəvəɪdɪd]	[prɪəvəɪdɪd]	[prɪəvəɪdɪd]	[prɪəvəɪdɪd]	[prɪəvəɪrɪd]	[prɪəvəɪrɪd]
Reminded /dɪd/	[rɪmaɪndɪd]	[rɪmaɪndɪd]	[rɪmaɪndɪd]	[rɪmaɪndɪd]	[rɪmaɪndɪd]	[rɪmaɪndɪd]	[rɪmaɪndɪd]	[rɪmaɪndɪd]
Included /dɪd/	[ɪŋklɒrɪd]	[ɪŋklɒdɪd]	[ɪŋklɒdɪd]	[ɪŋklɒdɪd]	[ɪŋklɒdɪd]	[ɪŋklɒd]	[ɪŋklɒrɪd]	[ɪŋklɒrɪd]

(continued)

(continued)

VERB	BRT1	BRT2	ST1	ST2	GT1	GT2	ET1	ET2
Concluded /did/	[kəŋklorɪd]	[kəŋklorɪd]	[kəŋklorɪd]	[kəŋklorɪd]	[kəŋklorɪd]	[kəŋklorɪd]	[kəŋklorɪd]	[kəŋklorɪd]
Recorded /did/	[rɪkɔːrdɪr]	[rɪkɔːrdɪd]	[rɪkɔːrdɪd]	[rɪkɔːrdɪd]	[rɪkɔːrdɪd]	[rɪkɔːrd]	[rɪkɔːrd]	[rɪkɔːrɪr]
Bought	[bɔː]	[bɔt]	[bɔtʰ]	[bɔuθ]	[bɔt]	[bɔt]	[bɔr]	[bɔr]
Came	[keɪm]	[keɪm]	[keɪmə]	[kɛm]	[keɪm]	[keɪm]	[keɪm]	[kɛm]
Drove	[druv]	[druv]	[druv]	[druv]	[druv]	[drɒv]	[druv]	[druv]
Made	[meɪr]	[meɪd]	[meɪd]	[meɪd]	[meɪr]	[meɪd]	[meɪr]	[meɪr]
Took	[tɒk]	[tɒk]	[tɒkʰ]	[tɒk]	[tɒk]	[tɒk]	[tɒk]	[tɒk]
Wrote	[raɪd]	[raɪd]	[raɪt]	[raɪtʰ]	[raɪd]	[raɪt]	[raɪd]	[raɪr]
Had	[hɛd]	[hɛd]	[hɛd]	[hɛd]	[hɛd]	[hɛd]	[hɛd]	[hɛd]
Slept	[slɛpt]	[slɛpt]	[slɛpt]	[slɪpt]	[slɛpt]	[slɛpt]	[slɛp]	[slɛp]
Drew	[dru]	[dru]	[dru]	[dru]	[dru]	[dru]	[dru]	[dru]
Saw	[sɔ]	[sɔ]	[sɔ]	[sɔu]	[sɔ]	[sɔ]	[sɔ]	[sɔ]
Woke up	[wɒkʌp]	[wɒkʌp]	[wɒkʌp]	[wɒkʌp]	[wɒkʌp]	[wɒkʌp]	[wɛkʌp]	[wɒkʌp]
Taught	[tɔt]	[tɔt]	[tɔt]	[tɔtʰ]	[tɔt]	[tɔd]	[tɔt]	[tɔr]

(continued)

(continued)

VERB	BRT1	BRT2	ST1	ST2	GT1	GT2	ET1	ET2
Drank	[dɹæŋk]	[dɹæŋk]	[dɹæŋk]	[dɹæŋk]	[dɹæŋk]	[dɹæŋk]	[dɹæŋk]	[dɹæŋk]
Fought	[fɔt]	[fɔt]	[fɔt]	[fouθ]	[fɔt]	[fɔt]	[fɔt]	[fɔt]
Gave	[geɪv]	[geɪv]	[geɪv]	[geɪv]	[geɪv]	[geɪv]	[geɪv]	[geɪv]
Sang	[sæŋg]	[sæŋg]	[sæŋg]	[sæŋg]	[sæŋg]	[sæŋg]	[sæŋg]	[sæŋg]
Left	[lɛft]	[lɛft]	[lɛft]	[lɛft <sup>h</sup> ]	[lɛft]	[lɛft]	[lɛft]	[lɛft]
Spent	[spɛnt]	[spɛnd]	[spɛnt]	[spɛnt]	[spɛn aɔɪz]	[spɛnt]	[spɛn]	[spɛnt]
Cut	[kʌt]	[kʌt]	[kʌt]	[kjʊt]	[kʌt]	[kʌt]	[kʌt]	[kʌt]
Cost	[kɔst]	[kɔst]	[kɔst]	[koost]	[kɔst]	[kɔst]	[kɔs]	[kɔs]
Ate	[eɪt]	[eɪt]	[eɪt]	[eɪt <sup>h</sup> ]	[eɪt]	[eɪt]	[eɪt]	[eɪt]
Flew	[flu]	[flu]	[flu]	[fli]	[flu]	[flu]	[flu]	[flu]
Brought	[brɔt]	[brɔt <sup>h</sup> ]	[brɔt]	[brɔθ]	[brɔt]	[brɔt]	[brɔt]	[brɔt]
Hurt	[hɜt]	[hɜt]	[hɜt]	[hɜt]	[hɜt]	[hɜt]	[hɜt]	[hɜt]

(continued)

(continued)

<b>VERB</b>	<b>BRT1</b>	<b>BRT2</b>	<b>ST1</b>	<b>ST2</b>	<b>GT1</b>	<b>GT2</b>	<b>ET1</b>	<b>ET2</b>
Accurate productions	62 (86.11)	66 (91.66)	68 (94.44)	19 (26.38)	57 (79.16)	49 (68.05)	55 (76.38)	53 (73.61)
Epenthesis production	01 (1.38)	03 (4.16)	02 (2.77)	29 (40.27)	00 (0.00)	00 (0.00)	00 (0.00)	00 (0.00)
Stem productions	05 (6.94)	01 (1.38)	01 (1.38)	03 (4.16)	09 (12.50)	10 (13.88)	12 (16.66)	19 (26.38)
Other non-target productions	04 (5.55)	02 (2.77)	01 (1.38)	21 (29.16)	06 (8.33)	13 (18.05)	05 (6.94)	00 (0.00)
Total non-target productions	10 (13.88)	06 (8.33)	04 (5.55)	53 (73.61)	15 (20.83)	23 (31.94)	17 (23.61)	19 (26.38)

## **APPENDIX G – List of sentence-talker randomized order for intelligibility tests in all tests**

### **First intelligibility test**

1. BPT2: She bought a new car.
2. ST2: They voted in the elections.
3. ET2: Students trained for the test.
4. GT2: Mary washed her dress.
5. ST1: They came by bus.
6. BPT1: The stadium cheered him.
7. GT1: Tom guided visitors.
8. ET1: Bob stopped smoking.
9. BPT2: She played piano.
10. GT2: He drove for 18 hours.
11. ST1: They watched a movie.
12. ET2: Helen painted her bedroom.
13. GT1: The audience laughed out loud.
14. BPT1: He needed a job.
15. ET1: She made a cake.
16. ST1: The pilot saved all passengers.
17. BPT2: I visited my family.
18. GT1: They took a trip.
19. ST2: She looked for a new job.
20. ET1: They judged a robber.
21. BPT1: They skipped some exercises.
22. ST1: Models avoided eating.
23. ET2: He wrote a letter.
24. GT1: The driver caused an accident.
25. ST2: The family had breakfast together.
26. BPT2: Suzy kissed her father.
27. GT2: The teacher spelled his name.
28. ET1: He recorded a video.
29. BPT1: Kids slept for 10 hours.
30. ST2: Children screamed a lot.
31. ET2: He missed some classes.
32. GT2: They waited for the train.

**Second word recognition test**

1. GT1: Jack proved his innocence.
2. ET1: The family attended a concert.
3. BPT2: She asked my name.
4. ST1: Lisa drew a bird.
5. ET2: Students danced all night.
6. ST2: Susan tried her best.
7. GT2: Kids saw a black dog.
8. BPT1: They rented a car.
9. ST1: They crossed a famous street.
10. GT1: John printed his paper.
11. BPT2: Boys shared a house.
12. ET2: They woke up late on Sunday.
13. ST2: They adopted a child.
14. BPT1: George brushed his teeth.
15. ET1: Anna taught English for years.
16. GT2: Ann and Bob planned a trip.
17. BPT2: They drank a lot.
18. ET2: His speech sounded fine to us.
19. GT1: The man clapped his hands
20. ST1: Students joined a group.
21. BPT1: They fought at school.
22. ST2: They worked hard.
23. GT2: The teacher added a new student.
24. ET1: He failed in the Math test.
25. ST1: This reminded me of his songs.
26. GT1: Journalists gave us bad news.
27. ET1: The chief jumped a wall.
28. BPT1: He changed his mind.
29. ST2: Paul sang for three hours.
30. BPT2: Police counted one million people.
31. ET2: James called his parents.
32. GT2: Helen dressed well.



### Third word recognition test

1. ET1: She wished she had a car.
2. BPT1: His family left Brazil
3. GT2: Martha loved Peter
4. ST2: She started reading the book.
5. BPT2: Students filled in a questionnaire.
6. ET2: Adolescents spent hours on internet.
7. ST1: Peter parked his car here.
8. GT1: They invited a hundred people.
9. ST2: Anna cut some vegetables.
10. ET1: The couple earned some money.
11. BPT2: The government provided less money.
12. GT2: The secretary typed some letters.
13. ET2: The invitation included all teachers.
14. ST1: The car cost fifty thousand dollars.
15. GT1: Stella talked for one hour.
16. BPT1: Taxi drivers learned some English.
17. GT2: Kids ate a lot of chocolate.
18. BPT2: Jeff fixed Mary's car.
19. ET1: Stevie concluded his book.
20. ST2: Bill closed a window.
21. BPT1: Parents forced him to lie.
22. ET2: They stayed in the line.
23. ST1: Bruce posted on Facebook.
24. GT1: Birds flew in the sky.
25. ST2 Jim helped many people.
26. ET1: Kate brought cake to the party.
27. GT1: They lived in London.
28. BPT1: Teachers graded students.
29. ET2: The priest blessed her children.
30. BPT2: Jane hurt her finger.
31. GT2: They rested on the weekend.
32. ST1: David plugged in his computer.



**APPENDIX H – The three intelligibility test  
summary by talker, sentence and verb**

**Summary of first intelligibility test by talker, sentence and verb**

<b>Talker</b>	<b>Sentence number</b>	<b>Verb</b>	<b>Allomorph/type of verb</b>
BPT1	06	Cheered	/d/
	14	Needed	/id/
	21	Skipped	/t/
	29	Slept	irregular
BPT2	01	Bought	Irregular
	09	Played	/d/
	17	Visited	/id/
	26	Kissed	/t/
ST1	05	Came	Irregular
	11	Watched	/t/
	16	Saved	/d/
	22	Avoided	/id/
ST2	02	Voted	/id/
	19	Looked	/t/
	25	Had	Irregular
	30	Screamed	/d/
GT1	07	Guided	/id/
	13	Laughed	/t/
	18	Took	Irregular
	24	Caused	/d/
GT2	04	Washed	/t/
	10	Drove	Irregular
	27	Spelled	/d/
	32	Waited	/id/
ET1	08	Stopped	/t/
	15	Made	Irregular
	20	Judged	/d/
	28	Recorded	/id/
ET2	03	Trained	/d/
	12	Painted	/id/
	23	Wrote	Irregular
	31	Missed	/t/

**Summary of second intelligibility test by talker, sentence and verb**

<b>Talker</b>	<b>Sentence number</b>	<b>Verb</b>	<b>Allomorph/type of verb</b>
BPT1	08	Rented	/id/
	14	Brushed	/t/
	21	Fought	Irregular
	28	changed	/d/
BPT2	03	Asked	/t/
	11	Shared	/d/
	17	Drank	Irregular
	30	Counted	/id/
ST1	04	Drew	Irregular
	09	Crossed	/t/
	20	Joined	/d/
	25	Reminded	/id/
ST2	06	Tried	/d/
	13	Adopted	/id/
	22	Worked	/t/
	29	Sang	Irregular
GT1	01	Proved	/d/
	10	Printed	/id/
	19	Clapped	/t/
	26	Gave	irregular
GT2	07	Saw	Irregular
	16	Planned	/d/
	23	Added	/id/
	32	Dressed	/t/
ET1	02	Attended	/id/
	15	Taught	Irregular
	24	Failed	/d/
	27	Jumped	/t/
ET2	05	Danced	/t/
	12	Woke up	Irregular
	18	Sounded	/id/
	31	Called	/d/

**Summary of third intelligibility test by talker, sentence and verb**

<b>Talker</b>	<b>Sentence number</b>	<b>Verb</b>	<b>Allomorph/type of verb</b>
BPT1	02	Left	Irregular
	16	Graded	/id/
	21	Learned	/d/
	28	Forced	/t/
BPT2	05	Filled in	/d/
	11	Provided	/id/
	18	Fixed	/t/
	30	hurt	Irregular
ST1	07	Parked	/t/
	14	Cost	Irregular
	23	Posted	/id/
	32	Plugged	/d/
ST2	04	Started	/id/
	09	Cut	Irregular
	20	Closed	/d/
	25	Helped	/t/
GT1	08	Invited	/id/
	15	Talked	/t/
	24	Flew	Irregular
	27	Lived	/d/
GT2	03	Loved	/d/
	12	Typed	/t/
	17	Ate	Irregular
	31	Rested	/id/
ET1	01	Wished	/t/
	10	Earned	/d/
	19	Concluded	/id/
	26	Brought	Irregular
ET2	06	Spent	Irregular
	13	Included	/id/
	22	Stayed	/d/
	29	Blessed	/t/



**APPENDIX I – Answer sheet for each of the three intelligibility tests**

Universidade Federal de Santa Catarina  
Centro de Comunicação e Expressão  
Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários  
Aluna: Fernanda Delatorre Nível: Doutorado  
Professora Orientadora: Dra. Rosane Silveira

*Obrigada por colaborar com esta pesquisa. Certifique-se de que respondeu todas as perguntas. Caso tenha alguma dúvida, por gentileza, peça ao pesquisador para esclarecê-la.*

Name: \_\_\_\_\_

Fase: \_\_\_\_\_

Test number \_\_\_\_\_ Date: \_\_\_ / \_\_\_ / \_\_\_\_.

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31 \_\_\_\_\_

32 \_\_\_\_\_



## APPENDIX J – Listeners’ transcriptions on talkers’ production for intelligibility tests

### First intelligibility test

*Table 1: Data from participant ONE – session one*

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɔt]	Bought	Intelligible (1)
2	Voted	ST2	[voutɪd]	Voted	Intelligible (1)
3	Trained	ET2	[tɹeɪnd]	Train	Other verb forms (2)
4	Washed	GT2	[wɔʃt]	Washed	Intelligible (1)
5	Came	ST1	[keɪmə]	Blank space	Break-down (3)
6	Cheered	BPT1	[tʃiəd]	Cheered	Intelligible (1)
7	Guided	GT1	[gaɪdɪd]	guted	Intelligible (1)
8	Stopped	ET1	[stɒp]	Stop	Intelligible (1)
9	Played	BPT2	[pleɪd]	Played	Intelligible (1)
10	Drove	GT2	[dɹoʊv]	Drove	Intelligible (1)
11	Watched	ST1	[wɔtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Blank space	Break-down (3)
13	Laughed	GT1	[lɔft]	Laugh out	Other verb forms (2)
14	Needed	BPT1	[nɪrɛ ə]	Needed	Intelligible (1)
15	Made	ET1	[meɪr ə]	Blank space	Break-down (3)
16	Saved	ST1	[seɪvd]	Sit	Break-down (3)
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)
18	Took	GT1	[tʊk]	Took	Intelligible (1)
19	Looked	ST2	[lʊket]	Looked	Intelligible (1)
20	Judged	ET1	[dʒʌdʒd]	Blank sentence	Break-down (3)
21	Skipped	BPT1	[skɪpt]	Skipped	Intelligible (1)
22	Avoided	ST1	[əvɔɪdɪd]	Avoided	Intelligible (1)

(continued)

(Table 1 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
23	Wrote	ET2	[ʒour ə]	Wrote	Intelligible (1)
24	Caused	GT1	[kəʊz]	Caused	Other verb forms (2)
25	Had	ST2	[həd]	Had	Intelligible (1)
26	Kissed	BPT2	[kɪst]	Kissed	Intelligible (1)
27	Spelled	GT2	[spɛɫd]	Spell	Other verb forms (2)
28	Recorded	ET1	[ɪŋkɔːɪd]	Blank sentence	Break-down (3)
29	Slept	BPT1	[slept]	Slept	Intelligible (1)
30	Screamed	ST2	[skɪɪmɪd]	Blank space	Break-down (3)
31	Missed	ET2	[mɪs]	Missed	Other verb forms (2)
32	Waited	GT2	[weɪtɪd]	Waited	Intelligible (1)

Table 2: Data from participant TWO – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɒt]	Bot	Intelligible (1)
2	Voted	ST2	[voutɪd]	Blank space	Break-down (3)
3	Trained	ET2	[tɹeɪnd]	Wrong sentence	Break-down (3)
4	Washed	GT2	[wɔʃt]	Wrong sentence	Break-down (3)
5	Came	ST1	[keɪmə]	gone	Break-down (3)
6	Cheered	BPT1	[tʃiːd]	Wrong sentence	Break-down (3)
7	Guided	GT1	[gaɪdɪd]	gaid	Other verb forms (2)
8	Stopped	ET1	[stɒp]	Wrong sentence	Break-down (3)
9	Played	BPT2	[pleɪd]	Played	Intelligible (1)
10	Drove	GT2	[dɹoʊv]	doph	Break-down (3)
11	Watched	ST1	[wɒtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Wrong sentence	Break-down (3)

(continued)

(Table 2 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
13	Laughed	GT1	[lɔft]	Wrong sentence	Break-down (3)
14	Needed	BPT1	[nirər ə]	Need	Other verb forms (2)
15	Made	ET1	[meɪr ə]	medicate	Break-down (3)
16	Saved	ST1	[seɪvd]	saint	Break-down (3)
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)
18	Took	GT1	[tʊk]	Blank space	Break-down (3)
19	Looked	ST2	[lʊkət]	Looked	Intelligible (1)
20	Judged	ET1	[dʒʌdʒd]	Blank space	Break-down (3)
21	Skipped	BPT1	[skɪpt]	Skip to	Other verb forms (2)
22	Avoided	ST1	[əvɔɪdɪd]	Avoided	Intelligible (1)
23	Wrote	ET2	[ɹʊər ə]	Wrong sentence	Break-down (3)
24	Caused	GT1	[kɔz]	Blank space	Break-down (3)
25	Had	ST2	[həd]	Had	Intelligible (1)
26	Kissed	BPT2	[kɪst]	quist	Intelligible (1)
27	Spelled	GT2	[speɪd]	Blank space	Break-down (3)
28	Recorded	ET1	[ɹɪkɔɹɪd]	recorder	Break-down (3)
29	Slept	BPT1	[slept]	snap	Break-down (3)
30	Screamed	ST2	[skiɪmɪd]	Screaming	Other verb forms (2)
31	Missed	ET2	[mɪs]	Mass	Break-down (3)
32	Waited	GT2	[weɪtɪd]	Waited	Intelligible (1)

Table 3: Data from participant THREE – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɔt]	got	Break-down (3)
2	Voted	ST2	[vootɪd]	Blank space	Break-down (3)
3	Trained	ET2	[tɹeɪnd]	Blank space	Break-down (3)
4	Washed	GT2	[wɔʃt]	Wach	Other verb forms (2)
5	Came	ST1	[keɪmə]	Blank space	Break-down (3)
6	Cheered	BPT1	[tʃiəd]	Blank sentence	Break-down (3)
7	Guided	GT1	[gaidɪd]	Blank sentence	Break-down (3)
8	Stopped	ET1	[stɒp]	Wrong sentence	Break-down (3)
9	Played	BPT2	[pleɪd]	Played	Intelligible (1)
10	Drove	GT2	[dɹoʊv]	Wrong sentence	Break-down (3)
11	Watched	ST1	[wɔtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Blank sentence	Break-down (3)
13	Laughed	GT1	[lɔft]	Love of London	Break-down (3)
14	Needed	BPT1	[niəd ə]	Need	Other verb forms (2)
15	Made	ET1	[meɪ ə]	Mare	Break-down (3)
16	Saved	ST1	[seɪvd]	Blank space	Break-down (3)
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)
18	Took	GT1	[tʊk]	Take	Other verb forms (2)
19	Looked	ST2	[lʊket]	Blank space	Break-down (3)
20	Judged	ET1	[dʒʌdʒd]	Jole	Break-down (3)
21	Skipped	BPT1	[skɪpt]	Skipes	Other verb forms (2)
22	Avoided	ST1	[əvɔɪdɪd]	Avoid	Other verb forms (2)
23	Wrote	ET2	[ɹoʊ ə]	Blank sentence	Break-down (3)
24	Caused	GT1	[kɔz]	Costs	Break-down (3)
25	Had	ST2	[həd]	Blank space	Break-down (3)
26	Kissed	BPT2	[kɪst]	Kist	Intelligible (1)

(continued)

(Table 3 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
27	Spelled	GT2	[speɪd]	Bad is name	Break-down (3)
28	Recorded	ET1	[ɪŋkɔːrɪd]	Blank space	Break-down (3)
29	Slept	BPT1	[slept]	sleeps	Other verb forms (2)
30	Screamed	ST2	[skɪɪmɪd]	Skens	Break-down (3)
31	Missed	ET2	[mɪs]	Mes	Intelligible (1)
32	Waited	GT2	[weɪtɪd]	Waited	Intelligible (1)

Table 4: Data from participant FOUR – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɒt]	Bought	Intelligible (1)
2	Voted	ST2	[vɔʊtɪd]	Bought	Break-down (3)
3	Trained	ET2	[tɹeɪnd]	train	Other verb forms (2)
4	Washed	GT2	[wɒʃt]	Washed	Intelligible (1)
5	Came	ST1	[keɪmə]	Came	Intelligible (1)
6	Cheered	BPT1	[tʃɪrɪd]	cherd	Intelligible (1)
7	Guided	GT1	[gɑɪdɪd]	Guide	Other verb forms (2)
8	Stopped	ET1	[stɒp]	Starts	Break-down (3)
9	Played	BPT2	[pleɪd]	Play the piano	Other verb forms (2)
10	Drove	GT2	[dɹɔʊv]	Drop	Break-down (3)
11	Watched	ST1	[wɒtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Painted	Intelligible (1)
13	Laughed	GT1	[lɔft]	Laught	Intelligible (1)
14	Needed	BPT1	[nɪrər ə]	Needed	Intelligible (1)
15	Made	ET1	[meɪr ə]	Made	Intelligible (1)
16	Saved	ST1	[seɪvd]	Sit	Break-down (3)
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)

(continued)

(Table 4 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
18	Took	GT1	[tɒk]	Took	Intelligible (1)
19	Looked	ST2	[lʊkɛt]	Looked	Intelligible (1)
20	Judged	ET1	[dʒʌdʒd]	Judge the	Other verb forms (2)
21	Skipped	BPT1	[skɪpt]	Skkiped	Intelligible (1)
22	Avoided	ST1	[əvɔɪdɪd]	Avoided	Intelligible (1)
23	Wrote	ET2	[ɹʊr ə]	Wrote	Intelligible (1)
24	Caused	GT1	[kɔz]	cause	Intelligible (1)
25	Had	ST2	[hɛd]	Have	Other verb forms (2)
26	Kissed	BPT2	[kɪst]	Kissed	Intelligible (1)
27	Spelled	GT2	[spɛɪd]	is	Break-down (3)
28	Recorded	ET1	[ɹɪkɔrɪd]	Recording	Other verb forms (2)
29	Slept	BPT1	[slɛpt]	Slept	Intelligible (1)
30	Screamed	ST2	[skɹɪmɪd]	Screaming	Other verb forms (2)
31	Missed	ET2	[mɪs]	Miss	Intelligible (1)
32	Waited	GT2	[weɪtɪd]	Waited	Intelligible (1)

Table 5: Data from participant FIVE – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɒt]	Bot	Intelligible (1)
2	Voted	ST2	[vɔʊtɪd]	Wrong sentence	Break-down (3)
3	Trained	ET2	[tɹeɪnd]	Strange	Break-down (3)
4	Washed	GT2	[wɔʃt]	yar	Break-down (3)
5	Came	ST1	[keɪmə]	Begin	Break-down (3)
6	Cheered	BPT1	[tʃiɪd]	tcheeting	Break-down (3)
7	Guided	GT1	[gɑɪdɪd]	Wrong sentence	Break-down (3)
8	Stopped	ET1	[stɒp]	Wrong sentence	Break-down (3)

(continued)

(Table 5 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
9	Played	BPT2	[pleɪd]	Play	Other verb forms (2)
10	Drove	GT2	[dɪʊv]	Wrong sentence	Break-down (3)
11	Watched	ST1	[wɒtʃəd]	Watch	Other verb forms (2)
12	Painted	ET2	[peɪntɪd]	Wrong sentence	Break-down (3)
13	Laughed	GT1	[lɔft]	Is often alone	Break-down (3)
14	Needed	BPT1	[nɪrər ə]	Blank space	Break-down (3)
15	Made	ET1	[meɪr ə]	Marry	Break-down (3)
16	Saved	ST1	[servd]	Wrong sentence	Break-down (3)
17	Visited	BPT2	[vɪzɪtəd]	Visited	Intelligible (1)
18	Took	GT1	[tʊk]	Good	Break-down (3)
19	Looked	ST2	[lʊket]	Looked	Intelligible (1)
20	Judged	ET1	[dʒʌdʒd]	Job	Break-down (3)
21	Skipped	BPT1	[skɪpt]	Skiped	Intelligible (1)
22	Avoided	ST1	[əvɔɪdɪd]	Avoid	Other verb forms (2)
23	Wrote	ET2	[ɹʊr ə]	Over	Break-down (3)
24	Caused	GT1	[kɔz]	Coast	Break-down (3)
25	Had	ST2	[hed]	Blank space	Break-down (3)
26	Kissed	BPT2	[kɪst]	Kiss	Other verb forms (2)
27	Spelled	GT2	[speɪd]	Bet is	Break-down (3)
28	Recorded	ET1	[ɪŋkɔɪd]	Wrong sentence	Break-down (3)
29	Slept	BPT1	[slept]	Now	Break-down (3)
30	Screamed	ST2	[skɪmɪd]	Scream	Other verb forms (2)
31	Missed	ET2	[mɪs]	Wrong sentence	Break-down (3)
32	Waited	GT2	[weɪtɪd]	Wrong sentence	Break-down (3)

Table 6: Data from participant SIX – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɒt]	Bought	Intelligible (1)
2	Voted	ST2	[vootɪd]	Bought	Break-down (3)
3	Trained	ET2	[tɹeɪnd]	Blank sentence	Break-down (3)
4	Washed	GT2	[wɔʃt]	Wash	Other verb forms (2)
5	Came	ST1	[keɪmə]	Came	Intelligible (1)
6	Cheered	BPT1	[tʃiəd]	Blank space	Break-down (3)
7	Guided	GT1	[gaɪdɪd]	Kind	Break-down (3)
8	Stopped	ET1	[stɒp]	Stops	Other verb forms (2)
9	Played	BPT2	[pleɪd]	Played	Intelligible (1)
10	Drove	GT2	[dɹoʊv]	Thought	Break-down (3)
11	Watched	ST1	[wɔʃtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Painted	Intelligible (1)
13	Laughed	GT1	[lɔft]	Wrong sentence	Break-down (3)
14	Needed	BPT1	[nɪrər ə]	Needed	Intelligible (1)
15	Made	ET1	[meɪr ə]	Medicated	Break-down (3)
16	Saved	ST1	[seɪvd]	Blank space	Break-down (3)
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)
18	Took	GT1	[tʊk]	Took	Intelligible (1)
19	Looked	ST2	[lʊket]	Looking	Other verb forms (2)
20	Judged	ET1	[dʒʌdʒd]	Blank sentence	Break-down (3)
21	Skipped	BPT1	[skɪpt]	Skip	Other verb forms (2)
22	Avoided	ST1	[əvɔɪdɪd]	Avoid	Other verb forms (2)
23	Wrote	ET2	[ɹoʊr ə]	Wrote	Intelligible (1)
24	Caused	GT1	[kɔz]	Cause	Intelligible (1)
25	Had	ST2	[həd]	Have	Other verb forms (2)
26	Kissed	BPT2	[kɪst]	Kissed	Intelligible (1)

(continued)



(Table 6 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
27	Spelled	GT2	[speɪd]	Paint	Break-down (3)
28	Recorded	ET1	[ɪŋkɔɪd]	Record	Other verb forms (2)
29	Slept	BPT1	[slept]	Slept	Intelligible (1)
30	Screamed	ST2	[skɪɪmɪd]	Screaming	Other verb forms (2)
31	Missed	ET2	[mɪs]	Miss	Intelligible (1)
32	Waited	GT2	[weɪtɪd]	Waited	Intelligible (1)

Table 7: Data from participant SEVEN – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɒt]	Bought	Intelligible (1)
2	Voted	ST2	[voʊtɪd]	Blank space	Break-down (3)
3	Trained	ET2	[tɹeɪnd]	Blank space	Break-down (3)
4	Washed	GT2	[wɔʃt]	Blank sentence	Break-down (3)
5	Came	ST1	[keɪmɔ]	Blank sentence	Break-down (3)
6	Cheered	BPT1	[tʃiɪd]	Blank space	Break-down (3)
7	Guided	GT1	[gɑɪdɪd]	Blank space	Break-down (3)
8	Stopped	ET1	[stɒp]	Stops	Other verb forms (2)
9	Played	BPT2	[pleɪd]	Play	Other verb forms (2)
10	Drove	GT2	[dɹoʊv]	Blank sentence	Break-down (3)
11	Watched	ST1	[wɔtʃəd]	Watch	Other verb forms (2)
12	Painted	ET2	[peɪntɪd]	Blank space	Break-down (3)
13	Laughed	GT1	[lɔft]	Wrong sentence	Break-down (3)
14	Needed	BPT1	[nɪrɔ ə]	Need the	Other verb forms (2)
15	Made	ET1	[meɪ ə]	Made	Intelligible (1)
16	Saved	ST1	[sɜvɪd]	Sit	Break-down (3)

(continued)

(Table 7 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)
18	Took	GT1	[tʊk]	Wrong sentence	Break-down (3)
19	Looked	ST2	[lʊkət]	Liked	Break-down (3)
20	Judged	ET1	[dʒʌdʒd]	Blank sentence	Break-down (3)
21	Skipped	BPT1	[skɪpt]	Blank space	Break-down (3)
22	Avoided	ST1	[əvɔɪdɪd]	Blank space	Break-down (3)
23	Wrote	ET2	[ɹʊr ə]	Wrong sentence	Break-down (3)
24	Caused	GT1	[kɔz]	Blank space	Break-down (3)
25	Had	ST2	[həd]	Have	Other verb forms (2)
26	Kissed	BPT2	[kɪst]	quist	Intelligible (1)
27	Spelled	GT2	[spɛtɪd]	Blank space	Break-down (3)
28	Recorded	ET1	[ɹɪkɔɪd]	Blank space	Break-down (3)
29	Slept	BPT1	[slɛpt]	Wrong sentence	Break-down (3)
30	Screamed	ST2	[skɹiːmɪd]	Screaming	Other verb forms (2)
31	Missed	ET2	[mɪs]	Blank space	Break-down (3)
32	Waited	GT2	[weɪtɪd]	Blank space	Break-down (3)

Table 8: Data from participant EIGHT – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɒt]	Bought	Intelligible (1)
2	Voted	ST2	[vɔʊtɪd]	have	Break-down (3)
3	Trained	ET2	[tɹeɪnd]	Study	Break-down (3)
4	Washed	GT2	[wɔʃt]	Wash	Other verb forms (2)
5	Came	ST1	[keɪmə]	Became	Break-down (3)
6	Cheered	BPT1	[tʃɪəd]	Blank sentence	Break-down (3)

(continued)

(Table 8 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
7	Guided	GT1	[gaidɪd]	Blank space	Break-down (3)
8	Stopped	ET1	[stɒp]	Talks	Break-down (3)
9	Played	BPT2	[pleɪd]	Player	Break-down (3)
10	Drove	GT2	[dɹoʊv]	Wrong sentence	Break-down (3)
11	Watched	ST1	[wɒtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Blank space	Break-down (3)
13	Laughed	GT1	[lɔft]	Lot a laund	Break-down (3)
14	Needed	BPT1	[nɪrər ə]	Need the	Other verb forms (2)
15	Made	ET1	[meɪr ə]	mary	Intelligible (1)
16	Saved	ST1	[seɪvd]	Blank space	Break-down (3)
17	Visited	BPT2	[vɪzɪtəd]	Visited	Intelligible (1)
18	Took	GT1	[tʊk]	Take to the trip	Other verb forms (2)
19	Looked	ST2	[lʊket]	Looked	Intelligible (1)
20	Judged	ET1	[dʒʌdʒd]	Blank sentence	Break-down (3)
21	Skipped	BPT1	[skɪpt]	Keep	Break-down (3)
22	Avoided	ST1	[əvɔɪdɪd]	Avoid	Other verb forms (2)
23	Wrote	ET2	[ɹoʊr ə]	Blank sentence	Break-down (3)
24	Caused	GT1	[kɔz]	Wrong sentence	Break-down (3)
25	Had	ST2	[həd]	Have	Other verb forms (2)
26	Kissed	BPT2	[kɪst]	Kiss	Other verb forms (2)
27	Spelled	GT2	[speɪd]	Blank sentence	Break-down (3)
28	Recorded	ET1	[ɪŋkɔɪd]	Blank sentence	Break-down (3)
29	Slept	BPT1	[slept]	Nest	Break-down (3)
30	Screamed	ST2	[skɪɪmɪd]	Screams	Other verb forms (2)
31	Missed	ET2	[mɪs]	Blank sentence	Break-down (3)
32	Waited	GT2	[weɪtɪd]	Waltad	Break-down (3)

Table 9: Data from participant NINE – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɒt]	Bought	Intelligible (1)
2	Voted	ST2	[voutɪd]	Bought	Break-down (3)
3	Trained	ET2	[tʁeɪnd]	Train	Other verb forms (2)
4	Washed	GT2	[wɔʃt]	Blank space	Break-down (3)
5	Came	ST1	[keɪmə]	Came	Intelligible (1)
6	Cheered	BPT1	[tʃɪrd]	Blank space	Break-down (3)
7	Guided	GT1	[gaɪdɪd]	Blank sentence	Break-down (3)
8	Stopped	ET1	[stɒp]	Got stop	Intelligible (1)
9	Played	BPT2	[pleɪd]	Play	Other verb forms (2)
10	Drove	GT2	[dɹoʊv]	Blank space	Break-down (3)
11	Watched	ST1	[wɔtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Blank sentence	Break-down (3)
13	Laughed	GT1	[lɔft]	Laugh out	Other verb forms (2)
14	Needed	BPT1	[niɹər ə]	Needed	Intelligible (1)
15	Made	ET1	[meɪr ə]	Make	Other verb forms (2)
16	Saved	ST1	[seɪvd]	Sit	Break-down (3)
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)
18	Took	GT1	[tʊk]	took	Intelligible (1)
19	Looked	ST2	[lʊket]	Looked	Intelligible (1)
20	Judged	ET1	[dʒʌdʒd]	Blank space	Break-down (3)
21	Skipped	BPT1	[skɪpt]	Skipped	Intelligible (1)
22	Avoided	ST1	[əvɔɪdɪd]	Avoided	Intelligible (1)
23	Wrote	ET2	[ɹoʊr ə]	Wrote	Intelligible (1)
24	Caused	GT1	[kɔz]	Cause	Intelligible (1)
25	Had	ST2	[hed]	Had	Intelligible (1)
26	Kissed	BPT2	[kɪst]	Kissed	Intelligible (1)

(continued)

(Table 9 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
27	Spelled	GT2	[speɪd]	Spell	Other verb forms (2)
28	Recorded	ET1	[ɪkɔːrd]	Recorded	Intelligible (1)
29	Slept	BPT1	[slept]	Blank space	Break-down (3)
30	Screamed	ST2	[skɪɪmɪd]	Scream	Other verb forms (2)
31	Missed	ET2	[mɪs]	Miss	Intelligible (1)
32	Waited	GT2	[weɪtɪd]	Waited	Intelligible (1)

Table 10: Data from participant TEN – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɒt]	Bot*	Intelligible (1)
2	Voted	ST2	[vɔʊtɪd]	Got	Break-down (3)
3	Trained	ET2	[tɹeɪnd]	train	Other verb forms (2)
4	Washed	GT2	[wɔʃt]	Washed	Intelligible (1)
5	Came	ST1	[keɪmə]	Came	Intelligible (1)
6	Cheered	BPT1	[tʃɪɪd]	Cheered	Intelligible (1)
7	Guided	GT1	[ɡaɪdɪd]	Guided	Intelligible (1)
8	Stopped	ET1	[stɒp]	Stop	Intelligible (1)
9	Played	BPT2	[pleɪd]	Played	Intelligible (1)
10	Drove	GT2	[draʊv]	Blank space	Break-down (3)
11	Watched	ST1	[wɒtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Pay	Break-down (3)
13	Laughed	GT1	[lɔft]	Laughed	Intelligible (1)
14	Needed	BPT1	[nɪrə ə]	Needed	Intelligible (1)
15	Made	ET1	[meɪ ə]	Married	Break-down (3)
16	Saved	ST1	[seɪvd]	Saved	Intelligible (1)
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)

(continued)

(Table 10 continued)

<b>Sentence number</b>	<b>Target verb</b>	<b>Talker</b>	<b>Verb produced (talker)</b>	<b>Verb transcribed (listener)</b>	<b>Intelligibility level</b>
18	Took	GT1	[tʊk]	Took	Intelligible (1)
19	Looked	ST2	[lʊkɛt]	Blank space	Break-down (3)
20	Judged	ET1	[dʒʌdʒd]	Wrong space	Break-down (3)
21	Skipped	BPT1	[skɪpt]	Skipped	Intelligible (1)
22	Avoided	ST1	[əvɔɪdɪd]	Avoid	Other verb forms (2)
23	Wrote	ET2	[ɹɔʊə ə]	Wrote	Intelligible (1)
24	Caused	GT1	[kɔz]	Cost	Break-down (3)
25	Had	ST2	[hɛd]	Had	Intelligible (1)
26	Kissed	BPT2	[kɪst]	Kissed	Intelligible (1)
27	Spelled	GT2	[spɛɪd]	Spelled	Intelligible (1)
28	Recorded	ET1	[ɹɪkɔɹɪd]	Blank sentence	Break-down (3)
29	Slept	BPT1	[slɛpt]	Slept	Intelligible (1)
30	Screamed	ST2	[skɹɪmɪd]	Screamed	Intelligible (1)
31	Missed	ET2	[mɪs]	Missed	Other verb forms (2)
32	Waited	GT2	[weɪtɪd]	Waited	Intelligible (1)

Table 11: Data from participant ELEVEN – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɒt]	Bought	Intelligible (1)
2	Voted	ST2	[vɔʊtɪd]	Voted	Intelligible (1)
3	Trained	ET2	[tʁeɪnd]	Train	Other verb forms (2)
4	Washed	GT2	[wɔʃt]	Wore	Break-down (3)
5	Came	ST1	[keɪmə]	Came	Intelligible (1)
6	Cheered	BPT1	[tʃɪəd]	Stayed	Break-down (3)
7	Guided	GT1	[gɑɪdɪd]	Got	Break-down (3)
8	Stopped	ET1	[stɒp]	Stops	Other verb forms (2)
9	Played	BPT2	[pleɪd]	Played	Intelligible (1)
10	Drove	GT2	[dɹoʊv]	drove	Intelligible (1)
11	Watched	ST1	[wɔtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Cleaned	Break-down (3)
13	Laughed	GT1	[lɔft]	Laughed	Intelligible (1)
14	Needed	BPT1	[nɪrə ə]	Needed	Intelligible (1)
15	Made	ET1	[meɪ ə]	Madicated	Break-down (3)
16	Saved	ST1	[seɪvd]	Saved	Intelligible (1)
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)
18	Took	GT1	[tʊk]	Took	Intelligible (1)
19	Looked	ST2	[lʊket]	Looked	Intelligible (1)
20	Judged	ET1	[dʒʌdʒd]	Juged	Intelligible (1)
21	Skipped	BPT1	[skɪpt]	Skipped	Intelligible (1)
22	Avoided	ST1	[əvɔɪdɪd]	Avoid	Other verb forms (2)
23	Wrote	ET2	[ɹoʊ ə]	Wrote	Intelligible (1)
24	Caused	GT1	[kɔz]	Caused	Other verb forms (2)
25	Had	ST2	[hed]	Had	Intelligible (1)
26	Kissed	BPT2	[kɪst]	Kissed	Intelligible (1)

(continued)

(Table 11 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
27	Spelled	GT2	[speɪd]	Take	Break-down (3)
28	Recorded	ET1	[ɹɪkɔːrɪd]	Recorded	Intelligible (1)
29	Slept	BPT1	[slept]	Sleps	Other verb forms (2)
30	Screamed	ST2	[skriːmɪd]	Scream	Other verb forms (2)
31	Missed	ET2	[mɪs]	missed	Other verb forms (2)
32	Waited	GT2	[weɪtɪd]	Waited	Intelligible (1)

Table 12: Data from participant TWELVE – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɔt]	Bought	Intelligible (1)
2	Voted	ST2	[vɔʊtɪd]	Vote	Other verb forms (2)
3	Trained	ET2	[tɹeɪnd]	Train	Other verb forms (2)
4	Washed	GT2	[wɔʃt]	Wash	Other verb forms (2)
5	Came	ST1	[keɪmə]	Came	Intelligible (1)
6	Cheered	BPT1	[tʃɪd]	Stand	Break-down (3)
7	Guided	GT1	[ɡaɪdɪd]	Guide	Other verb forms (2)
8	Stopped	ET1	[stɒp]	Stops	Other verb forms (2)
9	Played	BPT2	[pleɪd]	Played	Intelligible (1)
10	Drove	GT2	[dɹɔʊv]	Blank space	Break-down (3)
11	Watched	ST1	[wɔʃtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Wrong sentence	Break-down (3)
13	Laughed	GT1	[lɔft]	Laught	Intelligible (1)
14	Needed	BPT1	[nɪrə ə]	Needed	Intelligible (1)
15	Made	ET1	[meɪr ə]	Is marry	Break-down (3)
16	Saved	ST1	[seɪvd]	Seating	Break-down (3)
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)

(continued)



(Table 12 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
18	Took	GT1	[tʊk]	Took	Intelligible (1)
19	Looked	ST2	[lʊket]	Looked	Intelligible (1)
20	Judged	ET1	[dʒʌdʒd]	Judge	Other verb forms (2)
21	Skipped	BPT1	[skɪpt]	Skip	Other verb forms (2)
22	Avoided	ST1	[əvɔɪdɪd]	Avoid	Other verb forms (2)
23	Wrote	ET2	[ɹʊr ə]	Wrote	Intelligible (1)
24	Caused	GT1	[kɔz]	Cause	Intelligible (1)
25	Had	ST2	[həd]	Had	Intelligible (1)
26	Kissed	BPT2	[kɪst]	Kissed	Intelligible (1)
27	Spelled	GT2	[spɛɪd]	Blank space	Break-down (3)
28	Recorded	ET1	[ɹɪkɔɪd]	Record	Other verb forms (2)
29	Slept	BPT1	[slɛpt]	Blank space	Break-down (3)
30	Screamed	ST2	[skɹiɪmɪd]	Scream	Other verb forms (2)
31	Missed	ET2	[mɪs]	Misses	Other verb forms (2)
32	Waited	GT2	[weɪtɪd]	Waited	Intelligible (1)

Table 13: Data from participant THIRTEEN – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɔt]	Bought	Intelligible (1)
2	Voted	ST2	[vɔutɪd]	Got	Break-down (3)
3	Trained	ET2	[tɹeɪnd]	Train	Other verb forms (2)
4	Washed	GT2	[wɔʃt]	Blank sentence	Break-down (3)
5	Came	ST1	[keɪmə]	Came	Intelligible (1)
6	Cheered	BPT1	[tʃiɪd]	Cheered	Intelligible (1)
7	Guided	GT1	[gɑɪdɪd]	Guided	Intelligible (1)
8	Stopped	ET1	[stɔp]	Stops	Other verb forms (2)

(continued)

(Table 13 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
9	Played	BPT2	[pleɪd]	Played	Intelligible (1)
10	Drove	GT2	[dɹoʊv]	Drop	Break-down (3)
11	Watched	ST1	[wɒtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Paid	Break-down (3)
13	Laughed	GT1	[lɔft]	Laughed	intelligible (1)
14	Needed	BPT1	[nɪrər ə]	Needed	Intelligible (1)
15	Made	ET1	[meɪr ə]	Married	Break-down (3)
16	Saved	ST1	[seɪvd]	Saved	Intelligible (1)
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)
18	Took	GT1	[tʊk]	Took	Intelligible (1)
19	Looked	ST2	[lʊket]	Looked	Intelligible (1)
20	Judged	ET1	[dʒʌdʒd]	Blank space	Break-down (3)
21	Skipped	BPT1	[skɪpt]	Skipped	Intelligible (1)
22	Avoided	ST1	[əvɔɪdɪd]	Avoided	Intelligible (1)
23	Wrote	ET2	[ɹaʊr ə]	Wrote	Intelligible (1)
24	Caused	GT1	[kɔz]	Caused	Other verb forms (2)
25	Had	ST2	[hed]	Had	Intelligible (1)
26	Kissed	BPT2	[kɪst]	Kissed	Intelligible (1)
27	Spelled	GT2	[speɪd]	Blank space	Break-down (3)
28	Recorded	ET1	[ɹɪkɔrɪd]	Recorded	Intelligible (1)
29	Slept	BPT1	[slept]	Slept	Intelligible (1)
30	Screamed	ST2	[skɹɪmɪd]	Screamed	Intelligible (1)
31	Missed	ET2	[mɪs]	Misses	Other verb forms (2)
32	Waited	GT2	[weɪtɪd]	Waited	Intelligible (1)

Table 14: Data from participant FOURTEEN – session one

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Bought	BPT2	[bɒt]	Bought	Intelligible (1)
2	Voted	ST2	[voutɪd]	Voted	Intelligible (1)
3	Trained	ET2	[tɹeɪnd]	Train	Other verb forms (2)
4	Washed	GT2	[wɔʃt]	Thanked	Break-down (3)
5	Came	ST1	[keɪmə]	Came	Intelligible (1)
6	Cheered	BPT1	[tʃi:ɪd]	Blank sentence	Break-down (3)
7	Guided	GT1	[gaɪdɪd]	Guide	Other verb forms (2)
8	Stopped	ET1	[stɒp]	Stop	Intelligible (1)
9	Played	BPT2	[pleɪd]	Played	Intelligible (1)
10	Drove	GT2	[dɹoʊv]	Drove	Intelligible (1)
11	Watched	ST1	[wɔtʃəd]	Watched	Intelligible (1)
12	Painted	ET2	[peɪntɪd]	Payed	Break-down (3)
13	Laughed	GT1	[lɔft]	Laughed	Intelligible (1)
14	Needed	BPT1	[nɪrər ə]	Needed	Intelligible (1)
15	Made	ET1	[meɪr ə]	Marrie	Break-down (3)
16	Saved	ST1	[seɪvd]	Seat	Break-down (3)
17	Visited	BPT2	[vɪzətəd]	Visited	Intelligible (1)
18	Took	GT1	[tʊk]	Took	Intelligible (1)
19	Looked	ST2	[lʊket]	Worked	Break-down (3)
20	Judged	ET1	[dʒʌdʒd]	Blank space	Break-down (3)
21	Skipped	BPT1	[skɪpt]	Skip	Other verb forms (2)
22	Avoided	ST1	[əvɔɪdɪd]	Avoided	Intelligible (1)
23	Wrote	ET2	[ɹaʊr ə]	Wrote	Intelligible (1)
24	Caused	GT1	[kɔz]	Cause	Intelligible (1)
25	Had	ST2	[həd]	Had	Intelligible (1)
26	Kissed	BPT2	[kɪst]	Kissed	Intelligible (1)

(continued)

(Table 14 continued)

<b>Sentence number</b>	<b>Target verb</b>	<b>Talker</b>	<b>Verb produced (talker)</b>	<b>Verb transcribed (listener)</b>	<b>Intelligibility level</b>
27	Spelled	GT2	[spɛɪd]	Spelled	Intelligible (1)
28	Recorded	ET1	[ɪŋkɔɹɪd]	Recorded	Intelligible (1)
29	Slept	BPT1	[slɛpt]	Slept	Intelligible (1)
30	Screamed	ST2	[skɹɪmɪd]	Screamed	Intelligible (1)
31	Missed	ET2	[mɪs]	Misses	Other verb forms (2)
32	Waited	GT2	[weɪtɪd]	Waited	Intelligible (1)

## Second intelligibility test

*Table 1: Data from participant ONE – session two*

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹʊvd]	prove	Other verb forms (2)
2	Attended	ET1	[ətendɪd]	Attended	Intelligible (1)
3	Asked	BPT2	[æskt <sup>h</sup> ]	Asked	Intelligible (1)
4	Drew	ST1	[dɹu]	Drew	Intelligible (1)
5	Danced	ET2	[dænst]	Stayed	Break-down (3)
6	Tried	ST2	[tɹaɪet]	Tried	Intelligible (1)
7	Saw	GT2	[sɔ]	Saw	Intelligible (1)
8	Rented	BPT1	[ɹɛnd]	Rented	Other verb forms (2)
9	Crossed	ST1	[kɹɔst]	Crossed	Intelligible (1)
10	Printed	GT1	[pɹɪntɪd]	Printed	Intelligible (1)
11	Shared	BPT2	[ʃærd]	Share	Other verb forms (2)
12	Woke up	ET2	[woukʌp]	Got play	Break-down (3)
13	Adopted	ST2	[ədɔptɪd]	Adopted	Intelligible (1)
14	Brushed	BPT1	[bɹɪʃt]	Brushed	Intelligible (1)
15	Taught	ET1	[tɔt]	Taught	Intelligible (1)
16	Planned	GT2	[plɛnt]	Planted	Break-down (3)
17	Drank	BPT2	[dɹɛŋk]	Drank	Intelligible (1)
18	Sounded	ET2	[saundɪd]	Blank space	Break-down (3)
19	Clapped	GT1	[klæpt]	Cut	Break-down (3)
20	Joined	ST1	[dʒɔɪnd]	Joined	Intelligible (1)
21	Fought	BPT1	[fɔt]	Fought	Intelligible (1)
22	Worked	ST2	[wouked]	Worked	Intelligible (1)
23	Added	GT2	[ædɪt]	Interview	Break-down (3)

(continued)

(Table 1 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
24	Failed	ET1	[fɛɪd]	Blank sentence	Break-down (3)
25	Reminded	ST1	[ɹɪmaɪndɪd]	Reminded	Intelligible (1)
26	Gave	GT1	[geɪv]	Gaves	Other verb forms (2)
27	Jumped	ET1	[dʒʌmpɪt]	Jumped	Intelligible (1)
28	Changed	BPT1	[tʃeɪndʒe]	Changed	Other verb forms (2)
29	Sang	ST2	[sɑŋg]	Is out	Break-down (3)
30	Counted	BPT2	[kaʊntəd]	Counted	Intelligible (1)
31	Called	ET2	[kɔɪd]	Called	Intelligible (1)
32	Dressed	GT2	[dɹɛst]	Dressed	Intelligible (1)

Table 2: Data from participant TWO – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹʊvd]	Pute	Break-down (3)
2	Attended	ET1	[ətendɪd]	Attending	Other verb forms (2)
3	Asked	BPT2	[æskt <sup>h</sup> ]	Asked	Intelligible (1)
4	Drew	ST1	[dɹu]	True	Break-down (3)
5	Danced	ET2	[dænst]	Staing	Break-down (3)
6	Tried	ST2	[tɹaɪet]	Traied	Intelligible (1)
7	Saw	GT2	[sɔ]	Wrong sentence	Break-down (3)
8	Rented	BPT1	[ɹɛnd]	Rain	Break-down (3)
9	Crossed	ST1	[kɹɔst]	Crossit	Break-down (3)
10	Printed	GT1	[pɹɪntɪd]	Blank space	Break-down (3)
11	Shared	BPT2	[ʃærd]	Shared	Intelligible (1)
12	Woke up	ET2	[woukʌp]	Walked play	Break-down (3)

(continued)

(Table 2 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
13	Adopted	ST2	[ədɔptɪd]	a topped	Break-down (3)
14	Brushed	BPT1	[bɪʌʃt]	prosh	Break-down (3)
15	Taught	ET1	[tɔt]	Talk	Break-down (3)
16	Planned	GT2	[plɛnt]	Blank sentence	Break-down (3)
17	Drank	BPT2	[dɪɛŋk]	Drink	Other verb forms (2)
18	Sounded	ET2	[saundɪd]	Wrong sentence	Break-down (3)
19	Clapped	GT1	[klæpt]	Blank space	Break-down (3)
20	Joined	ST1	[dʒɔɪnd]	Joind	Intelligible (1)
21	Fought	BPT1	[fɔt]	Wrong sentence	Break-down (3)
22	Worked	ST2	[wouked]	Walked	Break-down (3)
23	Added	GT2	[ædɪt]	End	Break-down (3)
24	Failed	ET1	[fɛɪd]	Wrong sentence	Break-down (3)
25	Reminded	ST1	[ɪmɑɪndɪd]	Remained	Break-down (3)
26	Gave	GT1	[geɪv]	Scape	Break-down (3)
27	Jumped	ET1	[dʒʌmpɪ]	Jump the	Other verb forms (2)
28	Changed	BPT1	[tʃeɪndʒɛ]	Chainged	Other verb forms (2)
29	Sang	ST2	[sɑŋg]	Son	Break-down (3)
30	Counted	BPT2	[kauntəd]	Counted	Intelligible (1)
31	Called	ET2	[kɔɪd]	Blank space	Break-down (3)
32	Dressed	GT2	[dɪɛst]	Painted	Break-down (3)

Table 3: Data from participant THREE – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹuɒvd]	prove	Other verb forms (2)
2	Attended	ET1	[ətendɪd]	Standing	Break-down (3)
3	Asked	BPT2	[æsktʰ]	Hasn't	Break-down (3)
4	Drew	ST1	[dɹu]	Blank space	Break-down (3)
5	Danced	ET2	[dænst]	Dance	Other verb forms (2)
6	Tried	ST2	[tɹaɪet]	Tried	Intelligible (1)
7	Saw	GT2	[sɔ]	Saw	Intelligible (1)
8	Rented	BPT1	[ɹɛnd]	Went	Break-down (3)
9	Crossed	ST1	[kɹɔst]	Crost	Intelligible (1)
10	Printed	GT1	[pɹɪntɪd]	Painted	Break-down (3)
11	Shared	BPT2	[ʃærd]	Shairt	Break-down (3)
12	Woke up	ET2	[woukʌp]	Cap	Break-down (3)
13	Adopted	ST2	[ədɒptɪd]	Adopted	Intelligible (1)
14	Brushed	BPT1	[bɹʌʃt]	Crosted	Break-down (3)
15	Taught	ET1	[tɔt]	I'm a talk	Break-down (3)
16	Planned	GT2	[plɛnt]	Blank sentence	Break-down (3)
17	Drank	BPT2	[dɹɛŋk]	Drink	Other verb forms (2)
18	Sounded	ET2	[saundɪd]	Sons	Break-down (3)
19	Clapped	GT1	[klæpt]	Blank space	Break-down (3)
20	Joined	ST1	[dʒɔɪnd]	Joined	Intelligible (1)
21	Fought	BPT1	[fɔt]	Four	Break-down (3)
22	Worked	ST2	[wouked]	Walked	Break-down (3)
23	Added	GT2	[ædrɪt]	Blank space	Break-down (3)
24	Failed	ET1	[fɛɫd]	Felt	Break-down (3)
25	Reminded	ST1	[ɹɪmaɪndɪd]	Romantics	Break-down (3)

(continued)



(Table 3 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
26	Gave	GT1	[geɪv]	Wrong sentence	Break-down (3)
27	Jumped	ET1	[dʒʌmpɪt]	Wrong sentence	Break-down (3)
28	Changed	BPT1	[tʃeɪndʒe]	Changed	Other verb forms (2)
29	Sang	ST2	[sɑŋg]	Wrong sentence	Break-down (3)
30	Counted	BPT2	[kaʊntəd]	Counted	Intelligible (1)
31	Called	ET2	[kɔːld]	Calls	Other verb forms (2)
32	Dressed	GT2	[dɪɛst]	Is	Break-down (3)

Table 4: Data from participant FOUR – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹɔvd]	Proof	Break-down (3)
2	Attended	ET1	[ətendɪd]	Attended	Intelligible (1)
3	Asked	BPT2	[æskt <sup>h</sup> ]	Asked	Intelligible (1)
4	Drew	ST1	[dru]	Tru	Break-down (3)
5	Danced	ET2	[dænst]	Dance	Other verb forms (2)
6	Tried	ST2	[tɹaɪet]	Wrong sentence	Break-down (3)
7	Saw	GT2	[sɔ]	son	Break-down (3)
8	Rented	BPT1	[ɹænd]	Rent	Intelligible (1)
9	Crossed	ST1	[kɹɔst]	Crossed	Intelligible (1)
10	Printed	GT1	[pɹɪntɪd]	Printed	Intelligible (1)
11	Shared	BPT2	[ʃærd]	Shared	Intelligible (1)
12	Woke up	ET2	[woukʌp]	Woke up	Intelligible (1)
13	Adopted	ST2	[ədɒptɪd]	Are taked	Break-down (3)

(continued)

(Table 4 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
14	Brushed	BPT1	[bɪʌʃt]	Brush	Other verb forms (2)
15	Taught	ET1	[tɔt]	Tat	Break-down (3)
16	Planned	GT2	[plɛnt]	Planted	Break-down (3)
17	Drank	BPT2	[dɹɛŋk]	Drank	Intelligible (1)
18	Sounded	ET2	[saʊndɪd]	Satisfire	Break-down (3)
19	Clapped	GT1	[klæpt]	Clpat	Intelligible (1)
20	Joined	ST1	[dʒɔɪnd]	Joint	Break-down (3)
21	Fought	BPT1	[fɔt]	forward	Break-down (3)
22	Worked	ST2	[wouked]	Worked	Intelligible (1)
23	Added	GT2	[ædɪt]	End	Break-down (3)
24	Failed	ET1	[fɛɫd]	Wrong sentence	Break-down (3) *
25	Reminded	ST1	[ɪmɑɪndɪd]	Reminding	Other verb forms (2)
26	Gave	GT1	[geɪv]	Gave	Intelligible (1)
27	Jumped	ET1	[dʒʌmpɪt]	Drop	Break-down (3)
28	Changed	BPT1	[tʃeɪndʒe]	Change	Intelligible (1)
29	Sang	ST2	[sɑŋg]	Sang	Intelligible (1)
30	Counted	BPT2	[kaʊntəd]	Counted	Intelligible (1)
31	Called	ET2	[kɔɫd]	Called	Intelligible (1)
32	Dressed	GT2	[dɹɛst]	Dressed	Intelligible (1)

Table 5: Data from participant FIVE – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹʊvd]	prove	Other verb forms (2)
2	Attended	ET1	[ətɛndɪd]	Blank space	Break-down (3)
3	Asked	BPT2	[æskt <sup>h</sup> ]	Asked	Intelligible (1)
4	Drew	ST1	[dɹu]	True	Break-down (3)
5	Danced	ET2	[dænst]	Wrong sentence	Break-down (3)
6	Tried	ST2	[tɹaɪɛt]	Is try	Other verb forms (2)
7	Saw	GT2	[sɔ]	so	Intelligible (1)
8	Rented	BPT1	[ɹɛnd]	And	Break-down (3)
9	Crossed	ST1	[kɹɔst]	cross	Other verb forms (2)
10	Printed	GT1	[pɹɪntɪd]	Painted	Break-down (3)
11	Shared	BPT2	[ʃærd]	Share	Other verb forms (2)
12	Woke up	ET2	[woukʌp]	Wake up	Other verb forms (2)
13	Adopted	ST2	[ədɔptɪd]	A top it a	Break-down (3)
14	Brushed	BPT1	[bɹʌʃt]	Prech	Break-down (3)
15	Taught	ET1	[tɔt]	Blank space	Break-down (3)
16	Planned	GT2	[plɛnt]	Wrong sentence	Break-down (3)
17	Drank	BPT2	[dɹɛŋk]	Drink	Other verb forms (2)
18	Sounded	ET2	[saundɪd]	Wrong sentence	Break-down (3)
19	Clapped	GT1	[klæpt]	Clan	Break-down (3)
20	Joined	ST1	[dʒɔɪnd]	Enjoy	Break-down (3)
21	Fought	BPT1	[fɔt]	Part	Break-down (3)
22	Worked	ST2	[wouked]	Walked	Break-down (3)
23	Added	GT2	[ædɪt]	Wrong sentence	Break-down (3)
24	Failed	ET1	[fɛɪd]	Falling	Break-down (3)

(continued)

(Table 5 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
25	Reminded	ST1	[ɹɪmaɪndɪd]	Wrong sentence	Break-down (3)
26	Gave	GT1	[geɪv]	Speak	Break-down (3)
27	Jumped	ET1	[dʒʌmpt]	Wrong sentence	Break-down (3)
28	Changed	BPT1	[tʃeɪndʒɛ]	Change	Intelligible (1)
29	Sang	ST2	[sɑŋg]	Blank space	Break-down (3)
30	Counted	BPT2	[kaʊntəd]	Count	Other verb forms (2)
31	Called	ET2	[kɔːld]	Blank space	Break-down (3)
32	Dressed	GT2	[dɹɛst]	Blank space	Break-down (3)

Table 6: Data from participant SIX – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹɔvd]	prove	Other verb forms (2)
2	Attended	ET1	[ətɛndɪd]	Attended	Intelligible (1)
3	Asked	BPT2	[æskt <sup>h</sup> ]	Asked	Intelligible (1)
4	Drew	ST1	[dru]	is	Break-down (3)
5	Danced	ET2	[dænst]	Blank space	Break-down (3)
6	Tried	ST2	[tɹaɪɛt]	Tried	Intelligible (1)
7	Saw	GT2	[sɔ]	Kiss all	Break-down (3)
8	Rented	BPT1	[ɹɛnd]	Rent	Intelligible (1)
9	Crossed	ST1	[kɹɔst]	Crossed	Intelligible (1)
10	Printed	GT1	[pɹɪntɪd]	Printed	Intelligible (1)
11	Shared	BPT2	[ʃærd]	Shared	Intelligible (1)
12	Woke up	ET2	[wɔʊkʌp]	Woke up	Intelligible (1)
13	Adopted	ST2	[ədɔptɪd]	Addocted	Break-down (3)

(continued)

(Table 6 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
14	Brushed	BPT1	[bɪʌʃt]	Brushed	Intelligible (1)
15	Taught	ET1	[tɔt]	Talk	Break-down (3)
16	Planned	GT2	[plɛnt]	Plant	Intelligible (1)
17	Drank	BPT2	[dɪɛŋk]	Drank	Intelligible (1)
18	Sounded	ET2	[saʊndɪd]	Blank space	Break-down (3)
19	Clapped	GT1	[klæpt]	Clapt	Intelligible (1)
20	Joined	ST1	[dʒɔɪnd]	Joined	Intelligible (1)
21	Fought	BPT1	[fɔt]	Wrong sentence	Break-down (3)
22	Worked	ST2	[wʊkɛd]	Walked	Break-down (3)
23	Added	GT2	[ædɪt]	Blank space	Break-down (3)
24	Failed	ET1	[fɛɪd]	Blank sentence	Break-down (3)
25	Reminded	ST1	[ɹɪmaɪndɪd]	Remind	Other verb forms (2)
26	Gave	GT1	[gɛɪv]	Gave	Intelligible (1)
27	Jumped	ET1	[dʒʌmpɪt]	Jump	Other verb forms (2)
28	Changed	BPT1	[tʃeɪndʒɛ]	Changed	Other verb forms (2)
29	Sang	ST2	[sɔŋg]	Blank space	Break-down (3)
30	Counted	BPT2	[kaʊntɔd]	Counted	Intelligible (1)
31	Called	ET2	[kɔɪd]	Calls	Other verb forms (2)
32	Dressed	GT2	[dɪɛst]	dress	Other verb forms (2)

Table 7: Data from participant SEVEN – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹɔvd]	prove	Other verb forms (2)
2	Attended	ET1	[ətendɪd]	Attended	Break-down (3)
3	Asked	BPT2	[æsktʰ]	Asc	Other verb forms (2)
4	Drew	ST1	[dru]	dru	Intelligible (1)
5	Danced	ET2	[dænst]	Blank sentence	Break-down (3)
6	Tried	ST2	[tɹaɪet]	Tried	Intelligible (1)
7	Saw	GT2	[sə]	so	Intelligible (1)
8	Rented	BPT1	[ɹænd]	Rend	Intelligible (1)
9	Crossed	ST1	[krɔst]	Crost	Intelligible (1)
10	Printed	GT1	[pɹɪntɪd]	Printed	Intelligible (1)
11	Shared	BPT2	[ʃærd]	Blank space	Break-down (3)
12	Woke up	ET2	[woukʌp]	Over a played	Break-down (3)
13	Adopted	ST2	[ədɔptɪd]	Adocted	Break-down (3)
14	Brushed	BPT1	[brʌʃt]	Prush	Break-down (3)
15	Taught	ET1	[tɔt]	Blank space	Break-down (3)
16	Planned	GT2	[plɛnt]	Blank sentence	Break-down (3)
17	Drank	BPT2	[dɹɛŋk]	Drink	Other verb forms (2)
18	Sounded	ET2	[saundɪd]	Wrong sentence	Break-down (3)
19	Clapped	GT1	[klæpt]	Blank space	Break-down (3)
20	Joined	ST1	[dʒɔɪnd]	Joied	Break-down (3)
21	Fought	BPT1	[fɔt]	fort	Break-down (3)
22	Worked	ST2	[wouked]	Walked	Break-down (3)
23	Added	GT2	[ædrɪt]	Wrong sentence	Break-down (3)

(continued)

(Table 7 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
24	Failed	ET1	[fɛɪd]	Wrong sentence	Break-down (3)
25	Reminded	ST1	[ɹɪmɪndɪd]	Blank sentence	Break-down (3)
26	Gave	GT1	[geɪv]	Gave	Intelligible (1)
27	Jumped	ET1	[dʒʌmpɪt]	Blank space	Break-down (3)
28	Changed	BPT1	[tʃeɪndʒɛ]	Change	Intelligible (1)
29	Sang	ST2	[sʌŋg]	Blank space	Break-down (3)
30	Counted	BPT2	[kaʊntəd]	Blank space	Break-down (3)
31	Called	ET2	[kɔːld]	Blank space	Break-down (3)
32	Dressed	GT2	[dɪɪst]	Dress	Other verb forms (2)

Table 8: Data from participant EIGHT – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹɪʊvd]	prove	Other verb forms (2)
2	Attended	ET1	[ətendɪd]	Change	Break-down (3)
3	Asked	BPT2	[æsktʰ]	Asked	Intelligible (1)
4	Drew	ST1	[dɹu]	Threw	Break-down (3)
5	Danced	ET2	[dænst]	Tense	Break-down (3)
6	Tried	ST2	[traɪɛt]	Blank space	Break-down (3)
7	Saw	GT2	[sɔ]	Son	Break-down (3)
8	Rented	BPT1	[ɹɛnd]	Have	Break-down (3)
9	Crossed	ST1	[kɹɔst]	Cross	Other verb forms (2)
10	Printed	GT1	[pɹɪntɪd]	Prepared	Break-down (3)
11	Shared	BPT2	[ʃærd]	Shared	Intelligible (1)
12	Woke up	ET2	[woukʌp]	A played of	Break-down (3)

(continued)

(Table 8 continued)

<b>Sentence number</b>	<b>Target verb</b>	<b>Talker</b>	<b>Verb produced (talker)</b>	<b>Verb transcribed (listener)</b>	<b>Intelligibility level</b>
13	Adopted	ST2	[ədɒptɪd]	Topic	Break-down (3)
14	Brushed	BPT1	[brʌʃt]	Practice	Break-down (3)
15	Taught	ET1	[tɔt]	Took	Break-down (3)
16	Planned	GT2	[plɛnt]	Blank sentence	Break-down (3)
17	Drank	BPT2	[drɛŋk]	Drink	Other verb forms (2)
18	Sounded	ET2	[saʊndɪd]	Sounds	Other verb forms (2)
19	Clapped	GT1	[klæpt]	Capturert	Break-down (3)
20	Joined	ST1	[dʒɔɪnd]	Joined	Intelligible (1)
21	Fought	BPT1	[fɔt]	Fourty	Break-down (3)
22	Worked	ST2	[wʊokɛd]	Walked	Break-down (3)
23	Added	GT2	[ædɪt]	Wrote	Break-down (3)
24	Failed	ET1	[fɛɪd]	faind	Break-down (3)
25	Reminded	ST1	[rɪmɪndɪd]	Wrong sentence	Break-down (3)
26	Gave	GT1	[geɪv]	Blank space	Break-down (3)
27	Jumped	ET1	[dʒʌmpɪt]	Blank sentence	Break-down (3)
28	Changed	BPT1	[tʃeɪndʒɛ]	Changed	Other verb forms (2)
29	Sang	ST2	[sɑŋg]	Sound	Break-down (3)
30	Counted	BPT2	[kaʊntəd]	Conetemined	Break-down (3)
31	Called	ET2	[kɔɪd]	Colleds	Break-down (3)
32	Dressed	GT2	[drɛst]	Drastic	Break-down (3)



Table 9: Data from participant NINE – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹɪʊvd]	prove	Other verb forms (2)
2	Attended	ET1	[ətɛndɪd]	Attended	Intelligible (1)
3	Asked	BPT2	[æsktʰ]	Asked	Intelligible (1)
4	Drew	ST1	[dɹu]	Blank space	Break-down (3)
5	Danced	ET2	[dænst]	Dance	Other verb forms (2)
6	Tried	ST2	[tɹaɪɛt]	Tried	Intelligible (1)
7	Saw	GT2	[sə]	Saw	Intelligible (1)
8	Rented	BPT1	[ɹɛnd]	Rent	Intelligible (1)
9	Crossed	ST1	[kɹɔst]	Crossed	Intelligible (1)
10	Printed	GT1	[pɹɪntɪd]	Printed	Intelligible (1)
11	Shared	BPT2	[ʃærd]	Shared	Intelligible (1)
12	Woke up	ET2	[woukʌp]	Woke up	Intelligible (1)
13	Adopted	ST2	[ədɔptɪd]	Adopted	Intelligible (1)
14	Brushed	BPT1	[bɹʌʃt]	Brushed	Intelligible (1)
15	Taught	ET1	[tɔt]	Blank space	Break-down (3)
16	Planned	GT2	[plɛnt]	Blank sentence	Break-down (3)
17	Drank	BPT2	[dɹɛŋk]	Drink	Other verb forms (2)
18	Sounded	ET2	[saʊndɪd]	Was	Break-down (3)
19	Clapped	GT1	[klæpt]	Clapt	Intelligible (1)
20	Joined	ST1	[dʒɔɪnd]	Joined	Intelligible (1)
21	Fought	BPT1	[fɔt]	Fart	Break-down (3)
22	Worked	ST2	[wouked]	Broked	Break-down (3)
23	Added	GT2	[ædɪt]	Add	Other verb forms (2)
24	Failed	ET1	[feɪd]	Failed	Intelligible (1)
25	Reminded	ST1	[ɹɪmaɪndɪd]	Reminded	Intelligible (1)

(continued)

(Table 9 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
26	Gave	GT1	[geiv]	Gave	Intelligible (1)
27	Jumped	ET1	[dʒʌmpɪt]	Jump	Other verb forms (2)
28	Changed	BPT1	[tʃeɪndʒe]	Change	Intelligible (1)
29	Sang	ST2	[sɑŋg]	Sang	Intelligible (1)
30	Counted	BPT2	[kauntəd]	Counted	Intelligible (1)
31	Called	ET2	[kɔːld]	Call	Other verb forms (2)
32	Dressed	GT2	[dɪɪst]	Dress	Other verb forms (2)

Table 10: Data from participant TEN – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹɪʊvd]	proved	Intelligible (1)
2	Attended	ET1	[ətendɪd]	Attended	Intelligible (1)
3	Asked	BPT2	[æskt <sup>h</sup> ]	Asked	Intelligible (1)
4	Drew	ST1	[dɹu]	Drew	Intelligible (1)
5	Danced	ET2	[dænst]	Dance	Other verb forms (2)
6	Tried	ST2	[tɹaɪet]	Tried	Intelligible (1)
7	Saw	GT2	[sɔ]	Saw	Intelligible (1)
8	Rented	BPT1	[ɹɛnd]	Ran	Break-down (3)
9	Crossed	ST1	[kɹɔst]	Crossed	Intelligible (1)
10	Printed	GT1	[pɹɪntɪd]	Printed	Intelligible (1)
11	Shared	BPT2	[ʃærd]	Shared	Intelligible (1)
12	Woke up	ET2	[woukʌp]	Woke up	Break-down (3)
13	Adopted	ST2	[ədɒptɪd]	Adopted	Intelligible (1)
14	Brushed	BPT1	[brɪʌʃt]	Brushed	Intelligible (1)
15	Taught	ET1	[tɔt]	Blank space	Break-down (3)

(continued)

(Table 10 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
16	Planned	GT2	[plɛnt]	Planned	Intelligible (1)
17	Drank	BPT2	[dɪɛŋk]	Drank	Intelligible (1)
18	Sounded	ET2	[saʊndɪd]	Sound	Other verb forms (2)
19	Clapped	GT1	[klæpt]	Clapped	Intelligible (1)
20	Joined	ST1	[dʒɔɪnd]	Joined	Intelligible (1)
21	Fought	BPT1	[fɔt]	Fought	Intelligible (1)
22	Worked	ST2	[wouked]	Blank space	Break-down (3)
23	Added	GT2	[ædɪt]	Added	Intelligible (1)
24	Failed	ET1	[feɪd]	Failed	Intelligible (1)
25	Reminded	ST1	[ɪmaɪndɪd]	Reminded	Intelligible (1)
26	Gave	GT1	[geɪv]	Gave	Intelligible (1)
27	Jumped	ET1	[dʒʌmpt]	Jumped	Intelligible (1)
28	Changed	BPT1	[tʃeɪndʒe]	Changed	Other verb forms (2)
29	Sang	ST2	[sʌŋg]	Sang	Intelligible (1)
30	Counted	BPT2	[kauntəd]	Contact	Break-down (3)
31	Called	ET2	[kɔld]	Called	Intelligible (1)
32	Dressed	GT2	[dɪɛst]	Dressed	Intelligible (1)

Table 11: Data from participant ELEVEN – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹɔvd]	proved	Intelligible (1)
2	Attended	ET1	[ətendɪd]	Attended	Intelligible (1)
3	Asked	BPT2	[æskt <sup>h</sup> ]	Asked	Intelligible (1)
4	Drew	ST1	[dru]	Grow	Break-down (3)
5	Danced	ET2	[dænst]	Stands	Break-down (3)
6	Tried	ST2	[traɪet]	Tryed	Intelligible (1)
7	Saw	GT2	[sə]	soon	Break-down (3)
8	Rented	BPT1	[ɹɛnd]	Rent	Intelligible (1)
9	Crossed	ST1	[kɹɔst]	Crossed	Intelligible (1)
10	Printed	GT1	[pɹɪntɪd]	Printed	Intelligible (1)
11	Shared	BPT2	[ʃærd]	Shared	Intelligible (1)
12	Woke up	ET2	[woukʌp]	Woke up	Intelligible (1)
13	Adopted	ST2	[ədɒptɪd]	Adopted	Intelligible (1)
14	Brushed	BPT1	[brʌʃt]	Brushed	Intelligible (1)
15	Taught	ET1	[tɔt]	Talk	Break-down (3)
16	Planned	GT2	[plɛnt]	Broke	Break-down (3)
17	Drank	BPT2	[dɹɛŋk]	Drink	Other verb forms (2)
18	Sounded	ET2	[saundɪd]	are	Break-down (3)
19	Clapped	GT1	[klæpt]	Clapped	Intelligible (1)
20	Joined	ST1	[dʒɔɪnd]	Joined	Intelligible (1)
21	Fought	BPT1	[fɔt]	Fought	Intelligible (1)
22	Worked	ST2	[wouked]	Worked	Intelligible (1)
23	Added	GT2	[ædɪt]	Added	Intelligible (1)
24	Failed	ET1	[feɪd]	Failed	Intelligible (1)
25	Reminded	ST1	[ɹɪmaɪndɪd]	Reminded	Intelligible (1)
26	Gave	GT1	[geɪv]	Give	Other verb forms (2)

(continued)

(Table 11 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
27	Jumped	ET1	[dʒʌmpʃ]	Jumped	Intelligible (1)
28	Changed	BPT1	[tʃeɪndʒe]	Changed	Other verb forms (2)
29	Sang	ST2	[sɑŋg]	Sang	Intelligible (1)
30	Counted	BPT2	[kauntəd]	Counted	Intelligible (1)
31	Called	ET2	[kɔːld]	Called	Intelligible (1)
32	Dressed	GT2	[driːst]	Dressed	Intelligible (1)

Table 12: Data from participant TWELVE – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹuːvd]	prove	Other verb forms (2)
2	Attended	ET1	[ətendɪd]	Attend	Other verb forms (2)
3	Asked	BPT2	[æsktʰ]	Asked	Intelligible (1)
4	Drew	ST1	[dɹu]	True	Break-down (3)
5	Danced	ET2	[dænst]	Don't like	Break-down (3)
6	Tried	ST2	[traɪet]	Tried	Intelligible (1)
7	Saw	GT2	[sə]	Saw	Intelligible (1)
8	Rented	BPT1	[ɹend]	Rent	Intelligible (1)
9	Crossed	ST1	[kɹɔst]	Crost	Intelligible (1)
10	Printed	GT1	[pɹɪntɪd]	Printed	Intelligible (1)
11	Shared	BPT2	[ʃærd]	Shared	Intelligible (1)
12	Woke up	ET2	[woukʌp]	Awake up	Break-down (3)
13	Adopted	ST2	[ədɒptɪd]	Adopted	Intelligible (1)
14	Brushed	BPT1	[brʌʃt]	Brushed	Intelligible (1)
15	Taught	ET1	[tɔt]	Blank space	Break-down (3)
16	Planned	GT2	[plɛnt]	Blank space	Break-down (3)

(continued)

(Table 12 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
17	Drank	BPT2	[dɹæŋk]	Drank	Intelligible (1)
18	Sounded	ET2	[saʊndɪd]	Blank space	Break-down (3)
19	Clapped	GT1	[klæpt]	Claps	Other verb forms (2)
20	Joined	ST1	[dʒɔɪnd]	Joined	Intelligible (1)
21	Fought	BPT1	[fɒt]	Fault	Break-down (3)
22	Worked	ST2	[wʊkəd]	Blank space	Break-down (3)
23	Added	GT2	[ædɪt]	Wrong sentence	Break-down (3)
24	Failed	ET1	[feɪd]	Found	Break-down (3)
25	Reminded	ST1	[ɹɪmaɪndɪd]	Remained	Break-down (3)
26	Gave	GT1	[geɪv]	Gave	Intelligible (1)
27	Jumped	ET1	[dʒʌmpt]	Jumped	Intelligible (1)
28	Changed	BPT1	[tʃeɪndʒe]	Changes	Other verb forms (2)
29	Sang	ST2	[sɑŋg]	Blank space	Break-down (3)
30	Counted	BPT2	[kaʊntəd]	Counted	Intelligible (1)
31	Called	ET2	[kɔld]	Call	Other verb forms (2)
32	Dressed	GT2	[dɹɛst]	Blank space	Break-down (3)

Table 13: Data from participant THIRTEEN – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹʊvd]	proved	Intelligible (1)
2	Attended	ET1	[ətendɪd]	Attended	Intelligible (1)
3	Asked	BPT2	[æskt <sup>h</sup> ]	Asked	Intelligible (1)
4	Drew	ST1	[dru]	Grow	Break-down (3)
5	Danced	ET2	[dænst]	Danced	Intelligible (1)
6	Tried	ST2	[traɪet]	Tried	Intelligible (1)

(continued)

(Table 13 continued)

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
7	Saw	GT2	[sə]	Song	Break-down (3)
8	Rented	BPT1	[ɹɛnd]	Rent	Intelligible (1)
9	Crossed	ST1	[kɹɔst]	Crossed	Intelligible (1)
10	Printed	GT1	[pɹɪntɪd]	Printed	Intelligible (1)
11	Shared	BPT2	[ʃærd]	Shared	Intelligible (1)
12	Woke up	ET2	[wʊkʌp]	Woke up	Intelligible (1)
13	Adopted	ST2	[ədɒptɪd]	Adopted	Intelligible (1)
14	Brushed	BPT1	[brʌʃt]	Brushed	Intelligible (1)
15	Taught	ET1	[tɔt]	Taught	Intelligible (1)
16	Planned	GT2	[plɛnt]	Brought	Break-down (3)
17	Drank	BPT2	[dɹɛŋk]	Drank	Intelligible (1)
18	Sounded	ET2	[saʊndɪd]	Sounds	Other verb forms (2)
19	Clapped	GT1	[klæpt]	Clapped	Intelligible (1)
20	Joined	ST1	[dʒɔɪnd]	Joined	Intelligible (1)
21	Fought	BPT1	[fɔt]	Fought	Intelligible (1)
22	Worked	ST2	[wʊkɪd]	Walked	Break-down (3)
23	Added	GT2	[ædɪt]	Added	Intelligible (1)
24	Failed	ET1	[feɪd]	Failed	Intelligible (1)
25	Reminded	ST1	[ɹɪmaɪndɪd]	Reminded	Intelligible (1)
26	Gave	GT1	[geɪv]	Gave	Intelligible (1)
27	Jumped	ET1	[dʒʌmpɪt]	Drew	Break-down (3)
28	Changed	BPT1	[tʃeɪndʒɛ]	Changed	Other verb forms (2)
29	Sang	ST2	[sʌŋg]	Sang	Intelligible (1)
30	Counted	BPT2	[kaʊntəd]	Counted	Intelligible (1)
31	Called	ET2	[kɔld]	Called	Intelligible (1)
32	Dressed	GT2	[dɹɛst]	Dressed	Intelligible (1)

Table 14: Data from participant *FOURTEEN* – session two

Sentence number	Target verb	Talker	Verb produced (talker)	Verb transcribed (listener)	Intelligibility level
1	Proved	GT1	[pɹʊvd]	Proovacies	Break-down (3)
2	Attended	ET1	[ətɛndɪd]	Attended	Intelligible (1)
3	Asked	BPT2	[æskt <sup>h</sup> ]	Asked	Intelligible (1)
4	Drew	ST1	[dɹu]	Trew	Break-down (3)
5	Danced	ET2	[dænst]	Stays	Break-down (3)
6	Tried	ST2	[tɹaɪet]	Tried	Intelligible (1)
7	Saw	GT2	[sə]	Saw	Intelligible (1)
8	Rented	BPT1	[ɹɛnd]	Rend	Intelligible (1)
9	Crossed	ST1	[kɹɔst]	Crossed	Intelligible (1)
10	Printed	GT1	[pɹɪntɪd]	Printed	Intelligible (1)
11	Shared	BPT2	[ʃærd]	Shared	Intelligible (1)
12	Woke up	ET2	[woukʌp]	Woke up	Intelligible (1)
13	Adopted	ST2	[ədɔptɪd]	Adopted	Intelligible (1)
14	Brushed	BPT1	[bɹɪʃt]	Brushed	Intelligible (1)
15	Taught	ET1	[tɔt]	Taught	Break-down (3)
16	Planned	GT2	[plɛnt]	Blank space	Break-down (3)
17	Drank	BPT2	[dɹɛŋk]	Drink	Other verb forms (2)
18	Sounded	ET2	[saundɪd]	Blank space	Break-down (3)
19	Clapped	GT1	[klæpt]	Clapped	Intelligible (1)
20	Joined	ST1	[dʒɔɪnd]	Joined	Intelligible (1)
21	Fought	BPT1	[fɔt]	Fact	Break-down (3)
22	Worked	ST2	[wouked]	Worked	Intelligible (1)
23	Added	GT2	[ædtɪ]	Added	Intelligible (1)
24	Failed	ET1	[fɛɪd]	Failed	Intelligible (1)
25	Reminded	ST1	[ɹɪmaɪndɪd]	Reminded	Intelligible (1)
26	Gave	GT1	[geɪv]	Gaves	Other verb forms (2)

(continued)



(Table 14 continued)

<b>Sentence number</b>	<b>Target verb</b>	<b>Talker</b>	<b>Verb produced (talker)</b>	<b>Verb transcribed (listener)</b>	<b>Intelligibility level</b>
27	Jumped	ET1	[dʒʌmpt]	Jumped	Intelligible (1)
28	Changed	BPT1	[tʃeɪndʒe]	Changed	Other verb forms (2)
29	Sang	ST2	[sɑŋg]	Blank space	Break-down (3)
30	Counted	BPT2	[kaʊntəd]	Counted	Intelligible (1)
31	Called	ET2	[kɔːld]	Called	Intelligible (1)
32	Dressed	GT2	[dɪɛst]	Dressed	Intelligible (1)



**APPENDIX K – Familiarity test one, two and three**

Universidade Federal de Santa Catarina  
Centro de Comunicação e Expressão  
Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários  
Aluna: Fernanda Delatorre Nível: Doutorado  
Professora Orientadora: Dra. Rosane Silveira

**Answer sheet for the familiarity test 1**

*Obrigada por colaborar com esta pesquisa. Certifique-se de que respondeu todas as perguntas. Caso tenha alguma dúvida, por gentileza, peça ao pesquisador para esclarecê-la.*

Name: \_\_\_\_\_

Fase: \_\_\_\_\_

Test number \_\_\_\_\_ Date: \_\_\_ / \_\_\_ / \_\_\_\_.

Descrição das categorias usadas no teste:

- (1) Eu não conheço esta palavra
- (2) Eu acho que já vi esta palavra
- (3) Eu reconheço esta palavra como uma palavra em inglês, mas eu não lembro o seu significado
- (4) Eu conheço esta palavra
- (5) Eu conheço esta palavra e a uso com frequência

**Familiarity test 1**

<b>VERB</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Bought	( )	( )	( )	( )	( )
Voted	( )	( )	( )	( )	( )
Trained	( )	( )	( )	( )	( )
Washed	( )	( )	( )	( )	( )
Came	( )	( )	( )	( )	( )
Cheered	( )	( )	( )	( )	( )
Guided	( )	( )	( )	( )	( )
Stopped	( )	( )	( )	( )	( )
Played	( )	( )	( )	( )	( )
Drove	( )	( )	( )	( )	( )
Watched	( )	( )	( )	( )	( )
Painted	( )	( )	( )	( )	( )
Laughed	( )	( )	( )	( )	( )
Needed	( )	( )	( )	( )	( )
Made	( )	( )	( )	( )	( )
Saved	( )	( )	( )	( )	( )
Visited	( )	( )	( )	( )	( )
Took	( )	( )	( )	( )	( )
Looked	( )	( )	( )	( )	( )
Judged	( )	( )	( )	( )	( )
Skipped	( )	( )	( )	( )	( )
Avoided	( )	( )	( )	( )	( )
Wrote	( )	( )	( )	( )	( )
Caused	( )	( )	( )	( )	( )
Had	( )	( )	( )	( )	( )
Kissed	( )	( )	( )	( )	( )
Spelled	( )	( )	( )	( )	( )
Recorded	( )	( )	( )	( )	( )
Slept	( )	( )	( )	( )	( )
Screamed	( )	( )	( )	( )	( )
Missed	( )	( )	( )	( )	( )
Waited	( )	( )	( )	( )	( )

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Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários  
Aluna: Fernanda Delatorre Nível: Doutorado  
Professora Orientadora: Dra. Rosane Silveira

### **Answer sheet for the familiarity test 2**

*Obrigada por colaborar com esta pesquisa. Certifique-se de que respondeu todas as perguntas. Caso tenha alguma dúvida, por gentileza, peça ao pesquisador para esclarecê-la.*

Name: \_\_\_\_\_

Fase: \_\_\_\_\_

Test number \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_\_.

Descrição das categorias usadas no teste:

- (1) Eu não conheço esta palavra
- (2) Eu acho que já vi esta palavra
- (3) Eu reconheço esta palavra como uma palavra em inglês, mas eu não lembro o seu significado
- (4) Eu conheço esta palavra
- (5) Eu conheço esta palavra e a uso com frequência

**Familiarity test 2**

<b>VERB</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Proved	( )	( )	( )	( )	( )
Attended	( )	( )	( )	( )	( )
Asked	( )	( )	( )	( )	( )
Drew	( )	( )	( )	( )	( )
Danced	( )	( )	( )	( )	( )
Tried	( )	( )	( )	( )	( )
Saw	( )	( )	( )	( )	( )
Rented	( )	( )	( )	( )	( )
Crossed	( )	( )	( )	( )	( )
Printed	( )	( )	( )	( )	( )
Shared	( )	( )	( )	( )	( )
Woke up	( )	( )	( )	( )	( )
Adopted	( )	( )	( )	( )	( )
Brushed	( )	( )	( )	( )	( )
Taught	( )	( )	( )	( )	( )
Planned	( )	( )	( )	( )	( )
Drank	( )	( )	( )	( )	( )
Sounded	( )	( )	( )	( )	( )
Clapped	( )	( )	( )	( )	( )
Joined	( )	( )	( )	( )	( )
Fought	( )	( )	( )	( )	( )
Worked	( )	( )	( )	( )	( )
Added	( )	( )	( )	( )	( )
Failed	( )	( )	( )	( )	( )
Reminded	( )	( )	( )	( )	( )
Gave	( )	( )	( )	( )	( )
Jumped	( )	( )	( )	( )	( )
Changed	( )	( )	( )	( )	( )
Sang	( )	( )	( )	( )	( )
Counted	( )	( )	( )	( )	( )
Called	( )	( )	( )	( )	( )
Dressed	( )	( )	( )	( )	( )

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### **Answer sheet for the familiarity test 3**

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Name: \_\_\_\_\_

Fase: \_\_\_\_\_

Test number \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_\_\_.

Descrição das categorias usadas no teste:

- (1) Eu não conheço esta palavra
- (2) Eu acho que já vi esta palavra
- (3) Eu reconheço esta palavra como uma palavra em inglês, mas eu não lembro o seu significado
- (4) Eu conheço esta palavra
- (5) Eu conheço esta palavra e a uso com frequência

**Familiarity test 3**

<b>VERB</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Wished	( )	( )	( )	( )	( )
Left	( )	( )	( )	( )	( )
Loved	( )	( )	( )	( )	( )
Started	( )	( )	( )	( )	( )
Filled in	( )	( )	( )	( )	( )
Spent	( )	( )	( )	( )	( )
Parked	( )	( )	( )	( )	( )
Invited	( )	( )	( )	( )	( )
Cut	( )	( )	( )	( )	( )
Earned	( )	( )	( )	( )	( )
Provided	( )	( )	( )	( )	( )
Typed	( )	( )	( )	( )	( )
Included	( )	( )	( )	( )	( )
Cost	( )	( )	( )	( )	( )
Talked	( )	( )	( )	( )	( )
Learned	( )	( )	( )	( )	( )
Ate	( )	( )	( )	( )	( )
Fixed	( )	( )	( )	( )	( )
Concluded	( )	( )	( )	( )	( )
Closed	( )	( )	( )	( )	( )
Forced	( )	( )	( )	( )	( )
Stayed	( )	( )	( )	( )	( )
Posted	( )	( )	( )	( )	( )
Flew	( )	( )	( )	( )	( )
Helped	( )	( )	( )	( )	( )
Brought	( )	( )	( )	( )	( )
Lived	( )	( )	( )	( )	( )
Graded	( )	( )	( )	( )	( )
Blessed	( )	( )	( )	( )	( )
Hurt	( )	( )	( )	( )	( )
Rested	( )	( )	( )	( )	( )
Plugged	( )	( )	( )	( )	( )



**APPENDIX L – Proficiency test – Brazilian listeners**

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Name: \_\_\_\_\_

Fase: \_\_\_\_\_

Proficiency test \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_\_.

Oxford University Press  
and  
University of Cambridge Local Examinations Syndicate

Name: .....

Date: .....

# quick placement test

Version 2

This test is divided into two parts:

Part One (Questions 1 – 40) – All students.

Part Two (Questions 41 – 60) – Do not start this part unless told to do so by your test supervisor.

Time: 30 minutes  
Part 1

**Questions 1 – 5**

- Where can you see these notices?
- For questions 1 to 5, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

- 1 

You can look, but don't touch the pictures.
---

A	in an office
B	in a cinema
C	in a museum
- 2 

<b>Please give the right money to the driver.</b>
---

A	in a bank
B	on a bus
C	in a cinema
- 3 

NO PARKING PLEASE
-------------------------

A	in a street
B	on a book
C	on a table
- 4 

CROSS BRIDGE FOR TRAINS TO EDINBURGH
---

A	in a bank
B	in a garage
C	in a station
- 5 

<b>KEEP IN A COLD PLACE</b>
---------------------------------

A	on clothes
B	on furniture
C	on food

**Questions 6 – 10**

- In this section you must choose the word which best fits each space in the text below.
- For questions 6 to 10, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

**THE STARS**

There are millions of stars in the sky. If you look (6) ..... the sky on a clear night, it is possible to see about 3000 stars. They look small, but they are really (7) ..... big hot balls of burning gas. Some of them are huge, but others are much smaller, like our planet Earth. The biggest stars are very bright, but they only live for a short time. Every day new stars (8) ..... born and old stars die. All the stars are very far away. The light from the nearest star takes more (9) ..... four years to reach Earth. Hundreds of years ago, people (10) ..... stars, like the North star, to know which direction to travel in. Today you can still see that star.

- |          |        |         |
|----------|--------|---------|
| 6 A at   | B up   | C on    |
| 7 A very | B too  | C much  |
| 8 A is   | B be   | C are   |
| 9 A that | B of   | C than  |
| 10 A use | B used | C using |

**Questions 11 – 20**

- In this section you must choose the word which best fits each space in the texts.
- For questions 11 to 20, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

**Good smiles ahead for young teeth**

Older Britons are the worst in Europe when it comes to keeping their teeth. But British youngsters

**(11)** ..... more to smile about because **(12)** ..... teeth are among the best. Almost 80% of Britons over 65 have lost all or some **(13)** ..... their teeth according to a World Health Organisation survey. Eating too **(14)** ..... sugar is part of the problem. Among **(15)** ....., 12-year olds have on average only three missing, decayed or filled teeth.

- |              |          |            |           |
|--------------|----------|------------|-----------|
| 11 A getting | B got    | C have     | D having  |
| 12 A their   | B his    | C them     | D theirs  |
| 13 A from    | B of     | C among    | D between |
| 14 A much    | B lot    | C many     | D deal    |
| 15 A person  | B people | C children | D family  |

### Christopher Columbus and the New World

On August 3, 1492, Christopher Columbus set sail from Spain to find a new route to India, China and Japan. At this time most people thought you would fall off the edge of the world if you sailed too far. Yet sailors such as Columbus had seen how a ship appeared to get lower and lower on the horizon as it sailed away. For Columbus this (16) ..... that the world was round. He (17) ..... to his men about the distance travelled each day. He did not want them to think that he did not (18) ..... exactly where they were going. (19) ....., on October 12, 1492, Columbus and his men landed on a small island he named San Salvador. Columbus believed he was in Asia, (20) ..... he was actually in the Caribbean.

- 16 A made      B pointed      C was      D proved
- 17 A lied      B told      C cheated      D asked
- 18 A find      B know      C think      D expect
- 19 A Next      B Secondly      C Finally      D Once
- 20 A as      B but      C because      D if

**Questions 21 – 40**

- In this section you must choose the word or phrase which best completes each sentence.
- For questions 21 to 40, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

- 21 The children won't go to sleep ..... we leave a light on outside their bedroom.  
A except      B otherwise      C unless      D but
- 22 I'll give you my spare keys in case you ..... home before me.  
A would get      B got      C will get      D get
- 23 My holiday in Paris gave me a great ..... to improve my French accent.  
A occasion      B chance      C hope      D possibility
- 24 The singer ended the concert ..... her most popular song.  
A by      B with      C in      D as
- 25 Because it had not rained for several months, there was a ..... of water.  
A shortage      B drop      C scarce      D waste
- 26 I've always ..... you as my best friend.  
A regarded      B thought      C meant      D supposed
- 27 She came to live here ..... a month ago.  
A quite      B beyond      C already      D almost
- 28 Don't make such a .....! The dentist is only going to look at your teeth.  
A fuss      B trouble      C worry      D reaction
- 29 He spent a long time looking for a tie which ..... with his new shirt.  
A fixed      B made      C went      D wore
- 30 Fortunately, ..... from a bump on the head, she suffered no serious injuries from her fall.  
A other      B except      C besides      D apart

- 31 She had changed so much that ..... anyone recognised her.  
A almost      B hardly      C not      D nearly
- 32 ..... teaching English, she also writes children's books.  
A Moreover      B As well as      C In addition      D Apart
- 33 It was clear that the young couple were ..... of taking charge of the restaurant.  
A responsible      B reliable      C capable      D able
- 34 The book ..... of ten chapters, each one covering a different topic.  
A comprises      B includes      C consists      D contains
- 35 Mary was disappointed with her new shirt as the colour ..... very quickly.  
A bleached      B died      C vanished      D faded
- 36 National leaders from all over the world are expected to attend the ..... meeting.  
A peak      B summit      C top      D apex
- 37 Jane remained calm when she won the lottery and ..... about her business as if nothing had happened.  
A came      B brought      C went      D moved
- 38 I suggest we ..... outside the stadium tomorrow at 8.30.  
A meeting      B meet      C met      D will meet
- 39 My remarks were ..... as a joke, but she was offended by them.  
A pretended      B thought      C meant      D supposed
- 40 You ought to take up swimming for the ..... of your health.  
A concern      B relief      C sake      D cause



## Part 2

*Do not start this part unless told to do so by your test supervisor.*

### Questions 41 – 50

- In this section you must choose the word or phrase which best fits each space in the texts.
- For questions 41 to 50, mark **one** letter **A, B, C** or **D** on your Answer Sheet.

### CLOCKS

The clock was the first complex mechanical machinery to enter the home, (41) ..... it was too expensive for the (42) ..... person until the 19th century, when (43) ..... production techniques lowered the price. Watches were also developed, but they (44) ..... luxury items until 1868 when the first cheap pocket watch was designed in Switzerland. Watches later became (45) ..... available and Switzerland became the world's leading watch manufacturing centre for the next 100 years.

- 41 A despite      B although      C otherwise      D average
- 42 A average      B medium      C general      D common
- 43 A vast      B large      C wide      D mass
- 44 A lasted      B endured      C kept      D remained
- 45 A mostly      B chiefly      C greatly      D widely

### Dublin City Walks

What better way of getting to know a new city than by walking around it?

Whether you choose the Medieval Walk, which will (46) ..... you to the Dublin of 1000 years ago, find out about the more (47) ..... history of the city on the Eighteenth Century Walk, or meet the ghosts of Dublin's many writers on the Literary Walk, we know you will enjoy the experience.

Dublin City Walks (48) ..... twice daily. Meet your guide at 10.30 a.m. or 2.30 p.m. at the Tourist Information Office. No advance (49) ..... is necessary. Special (50) ..... are available for families, children and parties of more than ten people.

- 46 A introduce      B present      C move      D show
- 47 A near      B late      C recent      D close
- 48 A take place      B occur      C work      D function
- 49 A paying      B reserving      C warning      D booking
- 50 A funds      B costs      C fees      D rates

**Questions 51 – 60**

- In this section you must choose the word or phrase which best completes each sentence.
- For questions 51 to 60, mark **one** letter **A, B, C** or **D** on your Answer Sheet.

- 51 If you're not too tired we could have a ..... of tennis after lunch.  
 A match      B play      C game      D party
- 52 Don't you get tired ..... watching TV every night?  
 A with      B by      C of      D at
- 53 Go on, finish the dessert. It needs ..... up because it won't stay fresh until tomorrow.  
 A eat      B eating      C to eat      D eaten
- 54 We're not used to ..... invited to very formal occasions.  
 A be      B have      C being      D having
- 55 I'd rather we ..... meet this evening, because I'm very tired.  
 A wouldn't      B shouldn't      C hadn't      D didn't
- 56 She obviously didn't want to discuss the matter so I didn't ..... the point.  
 A maintain      B chase      C follow      D pursue
- 57 Anyone ..... after the start of the play is not allowed in until the interval.  
 A arrives      B has arrived      C arriving      D arrived
- 58 This new magazine is ..... with interesting stories and useful information.  
 A full      B packed      C thick      D compiled
- 59 The restaurant was far too noisy to be ..... to relaxed conversation.  
 A conducive      B suitable      C practical      D fruitful
- 60 In this branch of medicine, it is vital to ..... open to new ideas.  
 A stand      B continue      C hold      D remain



**APPENDIX M – List of sentences, verbs and speakers in the randomized order for familiarization intelligibility test**

ST2: We spend time dancing  
BPT1: They print books  
ET2: Babies cry a lot  
GT1: Children cross a street  
BPT2: Men also cook well  
GT2: People make mistakes  
ST1: My parents travel every year  
ET1: Teachers grade students



**APPENDIX N – Answer sheet for familiarization  
session of the intelligibility and familiarity tests**

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Name: \_\_\_\_\_ Fase: \_\_\_\_\_

Training test                      Date: \_\_\_ / \_\_\_ / \_\_\_\_.

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_

6 \_\_\_\_\_

7 \_\_\_\_\_

8 \_\_\_\_\_

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**Answer sheet for the familiarity training  
 test in the familiarization session**

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Name: \_\_\_\_\_

Fase: \_\_\_\_\_

Training test                      Date: \_\_\_/\_\_\_/\_\_\_\_.

Descrição das categorias usadas no teste:

- (1) Eu não conheço esta palavra
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- (4) Eu conheço esta palavra
- (5) Eu conheço esta palavra e a uso com frequência

**Familiarity training test**

<b>VERB</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Print	( )	( )	( )	( )	( )
Spend	( )	( )	( )	( )	( )
Cry	( )	( )	( )	( )	( )
Cross	( )	( )	( )	( )	( )
Travel	( )	( )	( )	( )	( )
Make	( )	( )	( )	( )	( )
Cook	( )	( )	( )	( )	( )
Grade	( )	( )	( )	( )	( )