

## The Impact of Suprasegmental Instruction on L2 English Comprehensibility and Accentedness: A Study with Argentinean Pre-Service Teachers and Brazilian Raters

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*The teaching of L2 pronunciation has gained renewed prominence in Applied Linguistics, with key constructs such as intelligibility, comprehensibility, and accentedness, playing an increasingly central role in both pedagogical practices and research agendas. In this context, the present classroom-based study evaluated the efficacy of a short pronunciation workshop focused on suprasegmentals, delivered by advanced trainee teachers to Argentinean learners of English. The Argentinean students completed picture description tasks before and after instruction, and their recordings were evaluated by ten Brazilian graduates of an English Teacher Training Program. These Brazilian listeners rated each sample using 9-point Likert scales for comprehensibility and accentedness, and later identified linguistic features they believed influenced their judgments. Although overall improvements in perceptual ratings were limited, meaningful patterns emerged: segmental accuracy and pausing were consistently identified as key factors shaping listener perception. The findings suggested that the listeners' background and limited training in suprasegmentals may have led to a focus on segmental cues during evaluation. While immediate gains were not uniformly observed, the workshop offered valuable pedagogical experience for both trainee teachers and learners. The study highlighted the importance of integrating segmental and suprasegmental instruction and concluded with several recommendations and suggestions for improving L2 pronunciation pedagogy and future research.*

**Keywords:** *accentedness, assessment, comprehensibility, L2 pronunciation teaching*

### Introduction

For a long time, L2 pronunciation has played a marginal role in foreign language teaching. Many English teachers often report prioritizing institutionally mandated content such as grammar and vocabulary, leaving pronunciation instruction largely overlooked. They frequently argue that pronunciation is a particularly complex area to address due to the intangible and elusive nature of speech features (García Jurado and Arenas 2005). In addition, many educators feel underprepared, lacking the explicit knowledge and methodological training needed to teach pronunciation effectively (Derwing and Munro 2013). Time constraints and limited access to suitable didactic resources further hinder its inclusion. Most commercial textbooks provide minimal pronunciation practice, and when they do, they tend to focus narrowly on segmental aspects (Silveira 2002). These factors together help explain why pronunciation often remains peripheral in the language classroom.

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In response to the growing recognition of the role of pronunciation in communicative competence, this study sought to evaluate the impact of a short-term suprasegmental-focused workshop on Argentinean learners of English. The instruction was delivered by advanced trainee teachers, and its effectiveness was assessed through perceptual judgments provided by Brazilian graduates in English language teaching. Specifically, the study examined whether the workshop had a measurable effect on learners' comprehensibility and accentedness, and which linguistic features most influenced listener perception. The study also explored the pedagogical implications for both pronunciation instruction and the training of future teachers.

This article is organized into six sections. Following the introduction, the literature review outlines key concepts and recent developments in L2 pronunciation research. The methodology section presents the classroom context, participants, data collection instruments, and procedures. The results section reports the quantitative and qualitative findings from listener evaluations. The discussion interprets these results in light of relevant theories, including insights from Complex Dynamic Systems Theory and metalinguistic awareness. The paper concludes by summarizing key findings, offering pedagogical recommendations, and suggesting directions for future research in pronunciation teaching and listener-speaker interaction

## **Background**

### *Rethinking Pronunciation Goals in a globalized World*

Over the past decade, driven largely by the effects of globalization and the increasing demand for a shared means of international communication, L2 pronunciation instruction has gained renewed prominence in the field of Applied Linguistics (Derwing and Munro 2015; Levis 2018). This resurgence can be traced back to Levis' (2005) influential article, in which he articulated two opposing principles that have shaped the pedagogical direction of pronunciation teaching: The Nativeness and the Intelligibility Principles. The Nativeness Principle is grounded in the traditional belief that the goal of pronunciation instruction should be native-like speech, with minimal to no trace of the learner's first language (L1) features. In contrast, the Intelligibility Principle advocates for a more functional approach, asserting that L2 learners need only be understandable to their interlocutors. This view accepts the presence of L1-influenced features in L2 speech, so long as they do not interfere with communicative clarity. Contemporary research increasingly supports intelligibility as a more realistic and equitable instructional goal, especially in multilingual settings where English functions as a lingua franca (Levis 2020; Tergujeff 2021; Saito et al. 2022; Saito and Akiyama 2023; Thomson and Derwing 2021).

*Research, Practice and Pedagogical Impact*

Today, L2 pronunciation teaching and research occupy a prominent space in international academic forums, with numerous conferences, symposia, and special interest groups dedicated exclusively to this area. Events such as the *Pronunciation in Second Language Learning and Teaching (PSLLT)* conference and the activities of the *IATEFL Pronunciation Special Interest Group (PronSIG)* reflect the growing global engagement with pronunciation pedagogy and research. Parallel to this increased scholarly attention, a substantial body of high-quality empirical studies continues to highlight the pivotal role of pronunciation instruction in enhancing L2 learners' speech intelligibility, a core dimension of successful oral communication (Derwing et al. 2014; Isaacs and Trofimovich 2012; Lee et al. 2015; Saito 2011; Saito and Akiyama 2023; Thomson and Derwing 2015; Trofimovich et al. 2012; Zhang and Yuan 2022; Zimmer et al. 2008). These studies provide compelling evidence that targeted pronunciation instruction, particularly when integrated into communicative contexts, can significantly improve learners' ability to be understood by diverse interlocutors, thereby facilitating more effective international and intercultural communication (Baker 2012).

*Teacher Beliefs and Practices in EFL Pronunciation: Local Realities and Global Trends*

Buss (2016) points out that in Brazil, for example, the teaching and learning of English pronunciation have regained marked interest in recent years. However, this Brazilian researcher highlights the importance of determining if this interest has influenced, in any way, the professional development of teachers. In her study, she explored the beliefs and practices of a group of 60 Brazilian English teachers in the context of teaching EFL. Findings from online surveys indicate that EFL teachers generally hold positive attitudes toward the teaching of English pronunciation and recognize its importance in language instruction. However, many reported relying on traditional, form-focused techniques, such as mechanical repetition and the isolated practice of individual sounds at the word level. These approaches, while familiar, are often disconnected from real-world communicative contexts and fail to address suprasegmental features like stress, rhythm, and intonation.

Consistent with findings from other international studies in similar EFL contexts, teachers highlight the pressing need for more systematic and up-to-date professional development opportunities focused specifically on pronunciation pedagogy (Baker 2014; Couper 2017; Foote et al. 2011; Foote et al. 2016). In line with this trend, Luchini (2005) and Luchini and Chiusano (2009) advocate for a task-based and communicative approach to pronunciation instruction in Argentinian EFL settings, showing that such methods can enhance learners' intelligibility. Similarly, Zimmer et al. (2008), working in the Brazilian context, stress the importance of integrating explicit and practical pronunciation training tailored to learners' linguistic backgrounds. Their work, alongside other contributions with focusing on the Brazilian pronunciation teaching scenario (Alves 2015; 2021; Alves and Albuquerque 2023; De los Santos and Alves 2022; Kupske and Alves 2017; Lima Jr. and Alves 2019; Machry da Silva et

al. 2024; Perozzo and Alves 2023), reinforces the global call for pedagogically sound, context-sensitive approaches to pronunciation teaching in foreign language classrooms.

### *Shifting Pedagogical Goals and measuring Impact*

In communicatively-oriented L2 teaching contexts, where the Intelligibility Principle is prioritized as a core pedagogical goal (Levis 2005; 2018), intelligibility emerges as a central construct in pronunciation instruction. This focus aligns with the growing consensus in the field that intelligibility, rather than native-like accuracy, should be the primary target of instruction (Darcy and Rocca 2022; Derwing and Munro 2015; Gordon and Darcy 2019; Levis 2005; Saito and Akiyama 2023). Munro and Derwing (1995) define intelligibility as the extent to which a listener actually understands L2 speech, while comprehensibility refers to the listener's perception of how effortful or easy the speech is to understand (Derwing and Munro 1997). As early as the mid-20th century, Abercrombie (1949, p. 120) asserted that "language learners need no more than a comfortably intelligible pronunciation," a view echoed by scholars such as Gilbert (1980), Pennington and Richards (1986), Crawford (1987), and Morley (1991), who emphasized the pedagogical importance of intelligibility, even as they lamented the scarcity of empirical research to support its instruction. This lack of clarity may partly explain why many teachers remain uncertain about what aspects of pronunciation are teachable, learnable, or even desirable in an L2 classroom.

Consequently, studies that evaluate the effectiveness of pronunciation instruction—and its influence on learners' intelligibility and comprehensibility—are both timely and necessary (Thomson and Derwing 2015; Saito et al. 2022). The present study seeks to address this gap by evaluating the outcomes of a pronunciation workshop focused on suprasegmental features. The workshop was taught by advanced pre-service teachers from an English Teacher Training Program at a public university in Argentina and assessed by a group of ten Brazilian L1 teachers of English residing in Brazil, using measures of comprehensibility and accentedness as evaluative benchmarks.

### *Understanding Comprehensibility and accentedness*

Comprehensibility is defined as the extent to which listeners perceive L2 speech as easy or difficult to understand. This construct is typically measured through listener judgments using Likert-type scales, often ranging from 1 (very difficult to understand) to 9 (very easy to understand) (Munro and Derwing 1995; Derwing and Munro 1997). Another commonly studied construct is accentedness, which refers to the perceived degree of deviation from native-like pronunciation, based on differences in phonetic and prosodic features (Derwing and Munro, 2015).

Comprehensibility may be said to align more closely with the Intelligibility Principle, which emphasizes successful communication and mutual understanding as instructional priorities. Conversely, accentedness appears to be more in line with the Nativeness Principle, as it tends to reflect listeners' perceptions of how much an L2 speaker's pronunciation is influenced by their L1 (Crowther et al. 2017). These associations, however, should be interpreted with caution, as they are not rigid and may vary depending on contextual, linguistic, and sociolinguistic factors.

Recent research increasingly supports the pedagogical value of targeting comprehensibility in pronunciation instruction, particularly in global and EFL contexts where intelligibility is a more realistic and inclusive instructional goal (Saito and Akiyama 2023). Lev-Ari and Keysar (2010) argue that native listeners often perceive L2-accented speech as less credible and accurate, particularly when a noticeable foreign accent is present. They attribute this tendency not to the actual content of the speech, but to limitations in the listener's perceptual processing.

Drawing on earlier work by Derwing and Munro (1997) and Oppenheimer (2008), this process is described as the subjective experience of how easy or difficult it is for individuals to process information when engaged in a cognitive task. This ease, or processing fluency, can significantly influence how information is judged. Research shows that information which is easier to process is often perceived as more truthful, salient, and aesthetically pleasing than information that requires greater cognitive effort (Reber and Schwarz 1999; Whittlesea 1993). In the context of L2 speech, this means that reduced processing fluency may lead to negative evaluations, contributing to biased perceptions of foreign-accented speakers.

Given these implications, it becomes essential to identify which linguistic dimensions of L2 speech hinder processing fluency and thereby contribute to diminished comprehensibility and increased perceptions of accentedness. In this regard, Trofimovich and Isaacs (2012) emphasize the importance of disentangling comprehensibility from foreign accent. Doing so allows for a more detailed and fair assessment of L2 speech, especially in contexts where intelligibility is the primary communicative goal. This approach also helps challenge persistent assumptions - such as the belief that less comprehensible speech is inherently less trustworthy or competent than speech perceived as accent-free (Lippi-Green 1997), thereby contributing to more equitable evaluations of bilingual speakers.

#### *Listener Perception and the Complexity of assessing accented Speech*

Munro and Derwing (1995) and Derwing and Munro (1997) define accentedness as the perceived degree of deviation in a speaker's pronunciation compared to that of a listener, typically a native speaker, based on differences in segmental and suprasegmental features such as vowel quality, intonation, and rhythm. While accentedness is often salient to listeners, it does not necessarily hinder understanding. Research has shown that accentedness is partially independent of intelligibility and comprehensibility, meaning that speech may be heavily accented yet still easily understood (Trofimovich and Isaacs 2012). Indeed, it is often difficulties in comprehensibility -not accent itself- that interfere with successful communication (Derwing and Munro 2009; 2015; Saito 2021).

Defining the characteristics of a foreign accent remains a complex endeavor, involving interrelated physiological, acoustic, and perceptual dimensions. Studies have explored the influence of multiple phonetic variables, including coarticulation, prosodic contours, pausing, voice quality, pitch range, speech rate, and stress placement, all of which may contribute to listeners' perceptions of accentedness (Isaacs and Trofimovich 2012; Isbell et al. 2024; Kang 2010; Zhang and Yuan 2022). These features interact with cognitive and social factors, such as processing fluency

and listener expectations, which can shape how speech is evaluated (Lev-Ari and Keysar 2010; Gluszek and Dovidio 2010).

Much of the research in this area has relied on native English speakers as raters, who evaluate non-native speech using Likert-type scales to judge accentedness and comprehensibility (Munro and Derwing 2001). While this has yielded valuable insights, the present study adopts a different approach: the listeners serving as assessors are not native speakers of English, but rather Brazilian L1 teachers of English. This decision reflects an effort to mirror real-world communicative settings more accurately -where English is frequently used as a lingua franca among non-native speakers- and to capture how L2 speech is perceived by those who interact with it in everyday professional and academic contexts (Saito et al. 2022; Kiczkowiak and Lowe 2019).

### *Bridging Research and Pedagogy in L2 Pronunciation*

Effective communication in a second language requires flexibility from both speakers and listeners in real-time phonological encoding and decoding. In this interactive process, L2 pronunciation teachers play a critical role by selecting phonetic and phonological features that most significantly contribute to communicative success. The challenge, however, lies in determining which features should be prioritized for instruction.

More than two decades ago, Levis (1999) identified a disconnect between pronunciation research and teaching practice: a gap that, despite progress, still persists. While the field now includes a substantial body of research, relatively few studies directly address which phonological elements should be emphasized to improve comprehensibility (Derwing et al. 2012; Derwing and Munro 2015; Saito and Hanzawa 2016; Foote et al. 2016) or reduce accentedness (Crowther et al. 2017; Isaacs and Trofimovich 2012).

Recent efforts have attempted to bridge this gap by integrating research findings into pedagogical frameworks (Derwing and Munro 2015; Saito 2020). Instructional models now increasingly promote phonological awareness through explicit, form-focused activities rather than relying solely on immersive exposure. Studies by Sardegna and Lee (2018), Couper (2003; 2006; 2017), and Burri (2015) demonstrate that targeted instruction, especially when directed at features linked to intelligibility, leads to significant improvements in L2 pronunciation outcomes.

A growing body of research has also identified specific phonological features that are both teachable and communicatively relevant. These include segmental aspects and suprasegmental features such as word stress, rhythm, intonation, and vowel reduction (Derwing et al. 1997; 1998; Saito 2011; Ketabi and Saeb 2015; MacDonald et al. 1994). These findings emphasize the need for evidence-based instructional decisions that reflect the communicative value of specific features rather than traditional or intuitive choices.

Empirical evidence further suggests that suprasegmental accuracy plays a particularly influential role in shaping listener judgments. For example, Isaacs and Thomson (2020) found that while segmental errors were moderately related to perceptions of accentedness and comprehensibility, suprasegmental features such as

stress, rhythm, and intonation had a stronger overall impact. These results align with prior studies highlighting the prominence of prosody in speech perception (Cutler and Clifton 1984; Field 2005; Hahn 2004; Derwing and Munro 2015; Saito and Shintani 2016).

Accordingly, if the instructional goal is to enhance comprehensibility and reduce perceived foreign accent, prosodic features should take precedence in pronunciation instruction (Celce-Murcia et al. 1996, 2010; Derwing and Rossiter, 2003; Gilbert 1993; Pennington and Richards 1986). Teachers should focus on phonological dimensions that most affect listener perception, especially those that may hinder intelligibility or heighten perceived accentedness (Derwing and Munro 2013; Derwing et al. 2009; Saito and Shintani 2016).

The reciprocal relationship between research and pedagogy remains essential. Ongoing empirical inquiry is needed to determine which phonological features most influence listener judgments and how instruction can effectively enhance comprehensibility and attenuate perceived accent. Learners from diverse L1 backgrounds encounter a range of pronunciation challenges, and teachers must make informed instructional decisions to support students' spoken development in varied EFL contexts.

In line with global communication practices, recent studies have increasingly employed non-native listeners to assess L2 pronunciation, particularly in contexts where both speakers and raters are non-native users of English (Ludwig & Mora, 2017; Munro et al., 2006; Rossiter, 2009; Trein et al. 2022, 2024). These approaches reflect the realities of English as a lingua franca and call attention to the importance of studying pronunciation in authentic, non-native interactional settings. Similarly, the present classroom-based study was conducted with non-native speakers and listeners, aiming to replicate real-world EFL communicative scenarios.

### **Delimitation of the Research Area**

This classroom-based study aims to explore the relationship between suprasegmental instruction and listener perception in an EFL context. Specifically, it investigates the impact of targeted L2 pronunciation instruction on learners' speech production and how it is evaluated by non-native listeners. The study addresses the following research questions:

1. To what extent did formal instruction in suprasegmental features affect the comprehensibility and perceived accentedness of Argentinean students' L2 speech, as rated by Brazilian L1 English teachers?
2. Which specific linguistic features in the Argentinean students' L2 speech most strongly hindered comprehensibility and contributed to the perception of a foreign accent among the Brazilian listeners?

## **Method**

### *Context*

This classroom-based study was conducted within the framework of an L2 pronunciation workshop at a public university in Argentina. The workshop was delivered by three advanced pre-service teachers under the supervision of an experienced pronunciation instructor. Its primary aim was to introduce students to key aspects of English suprasegmentals, including word, sentence and nuclear stress, rhythm, and intonation, with a focus on distinguishing between simple (falling/rising) and compound (fall-rise/rise-fall) tones. The workshop served as a preparatory experience prior to the core pronunciation course taught in the second year of the TEFL (Teaching English as a Foreign Language) program, which follows an initial segmental phonology course. The workshop spanned three weeks and included six two-hour sessions held twice weekly.

### *Task Design and Data Collection Procedure*

The Argentinean students completed a picture description task individually for both the pre- and post-tests, recorded before and after the instructional period. To minimize familiarity and task repetition effects, two different sets of images, each showing people engaged in everyday activities, were used. Although using different prompts may introduce some variability, this approach was preferred over using identical stimuli, especially considering the short three-week interval between tests. Repeating the same task within such a timeframe could have produced gains attributable to practice rather than instruction. As Bygate (2001) originally observed, task repetition often improves accuracy, fluency, and complexity by allowing learners to shift attention to linguistic form. More recent research supports this view, showing that task repetition, depending on timing and context, can enhance narrative fluency (Bui, 2023), promote the retention of technical vocabulary in listening tasks (Ma, 2023), and increase self-efficacy and motivation in L2 writing contexts (Teng, 2024). In light of these findings, using different picture sets in the pre- and post-tests helped isolate instructional effects on comprehensibility and accentedness from potential repetition-related gains. Students were given 30 seconds to examine the images and 60 to 90 seconds to describe them. All recordings were conducted in quiet university classrooms. In line with ethical research guidelines, all participating students signed informed consent forms prior to data collection, voluntarily agreeing to take part in the study.

### *Participants' Profile and Background*

Initially, twelve students enrolled in the workshop. Following the first week, four dropped out, and three were absent on the day of the post-test, leaving a final sample of five participants who completed both the instruction and testing phases. Pre- and post-tests were recorded one week before and after the workshop, respectively. Prior to data collection, participants completed a self-evaluation academic questionnaire, indicating proficiency levels between B2 and C1, as defined by the Common

European Framework of Reference for Languages (CEFR). At the time of the study, all students were in the second year of the TEFL program and had previously completed a course in Phonetics and Phonology focused on segmental features.

#### *Assessment Procedures and Rater Reliability*

Ten experienced language teachers, all graduates from a public university in Southern Brazil and M.A. candidates at this university, served as raters for the perception tasks. In addition to their academic training, all had at least two years of professional experience teaching English in local language institutes or secondary schools. As part of their undergraduate studies, they completed two semester-long courses in phonetics and phonology, which emphasized segmental features such as consonant and vowel articulation. Instruction on suprasegmentals, by contrast, was limited and not systematically reinforced through practice, a fact that was also reflected in the raters' own reports of having received little explicit training in prosody. They evaluated ten speech samples (five from the pre-test and five from the post-test) to assess comprehensibility and accentedness. The recordings were presented in randomized order within the same session to prevent any ordering effects. Comprehensibility was rated on a 9-point Likert scale, where 1 indicated considerable cognitive effort required to understand the speech, and 9 signaled ease of understanding. Accentedness was measured using the same scale, with 1 corresponding to a strong foreign accent and 9 to a native-like accent. Following the rating task, the assessors completed a brief written reflection identifying linguistic factors, such as pronunciation, grammar, vocabulary, and discourse organization, that may have influenced their judgments.

## **Results**

### *Comprehensibility*

As described in the Method section, comprehensibility was assessed using a 9-point Likert scale, in which 1 indicated a high degree of cognitive effort required to understand the L2 speech and 9 represented ease of understanding. Table 1 presents the individual ratings provided by the ten Brazilian listeners for the pre- and post-test recordings, reported separately.

**Table 1.** *Comprehensibility Rates (pre- and post-tests)*

	Pre-test	Post-test
Median	8.0	7.5
Maximum	9.0	9.0
Minimum	3.0	3.0

*Note.* Authors' own work

As shown in the median values in Table 1, even prior to instruction, the speech samples were rated as highly comprehensible by the Brazilian listeners. This may be partially attributed to the linguistic proximity between Portuguese and English, both of which share Latin roots. Additionally, in southern Brazil—particularly in regions bordering Uruguay and Argentina—exposure to Spanish is relatively common, potentially contributing to a degree of mutual intelligibility. Another relevant factor is that the Argentinean learners had previously received explicit instruction in segmental phonology. Notably, many of the Brazilian raters reported having received more extensive training in segmentals than suprasegmentals during their own phonetics coursework, which may have influenced their perception and contributed to the relatively high comprehensibility scores.

A comparison of descriptive statistics from the pre- and post-tests indicates a slight decrease in median comprehensibility ratings following instruction. However, a paired-samples Wilcoxon test revealed no statistically significant difference between the two testing points ( $Z = -1.25, p = .21$ ). Given the lack of significance in the overall data, individual comparisons were then conducted to examine each Argentinean speaker’s ratings across both tests. These results are presented in Table 2.

**Table 2.** Individual Rates for Comprehensibility

	Pre-test					Post-Test				
	St 1	St 2	St 3	St 4	St 5	St 1	St 2	St 3	St 4	St 5
Median	8.0	7.0	8.5	9.0	8.0	7.0	8.0	8.0	6.5	8.0
Minimum	7.0	3.0	6.0	7.0	6.0	4.0	7.0	7.0	5.0	3.0
Maximum	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0

Note. Authors’ own work

Table 2 shows that all five speech samples received the highest possible comprehensibility score (‘9’) from at least one rater, indicating that each recording was perceived as highly comprehensible by some listeners. However, the minimum scores varied across samples, which in turn affected the median values. To examine differences in comprehensibility over time, Wilcoxon signed-rank tests were conducted for each individual speaker, comparing their pre- and post-test medians.

The analysis revealed statistically significant differences for three students: Student 1 ( $Z = -2.57, p = .01$ ), Student 2 ( $Z = -2.04, p = .04$ ), and Student 4 ( $Z = -2.39, p = .017$ ). Notably, Student 2 showed a significant improvement from the pre- to the post-test, suggesting a positive impact of the workshop on her comprehensibility. In contrast, Students 1 and 4 exhibited significant declines in their post-test ratings. While these decreases may initially seem unexpected, potential explanations will be explored in detail in the Discussion section.

*Accentedness*

Listeners rated accentedness using a 9-point Likert scale, where a score of 1 indicated highly accented speech and 9 reflected native-like pronunciation. As with comprehensibility, the recordings of all five speakers were evaluated and compared across the pre- and post-tests. Descriptive results are presented in Table 3.

**Table 3.** *Accentedness rates (pre- and post-tests)*

	Pre-test	Post-test
Median	6.2	5.0
Minimum	2.0	2.0
Maximum	9.0	9.0

*Note.* Authors' own work

Accentedness ratings were generally lower than those for comprehensibility, highlighting the relative independence of the two constructs—speech may be perceived as accented yet still be considered comprehensible (Isaacs and Trofimovich 2012). A comparison of pre- and post-instruction speech samples revealed a decrease in accentedness ratings following the workshop, suggesting that listeners perceived the post-test speech as more accented. A paired-samples Wilcoxon test confirmed this difference to be statistically significant ( $Z = -2.31, p = .021$ ). As with comprehensibility, individual comparisons were conducted for each of the five Argentinean speakers. These results are presented in Table 4.

**Table 4.** *Individual rates for accentedness*

	Pre-test					Post-Test				
	St 1	St 2	St 3	St 4	St 5	St 1	St 2	St 3	St 4	St 5
Median	5.5	5.5	6.5	8.0	5.5	3.0	5.5	6.0	6.5	5.5
Minimum	2.0	2.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0
Maximum	7.0	8.0	8.0	9.0	7.0	7.0	8.0	8.0	9.0	8.0

*Note.* Authors' own work

Unlike the comprehensibility ratings, the highest accentedness scores varied more noticeably across speakers, ranging from 7 (Student 1 – pre- and post-test; Student 5 – pre-test) to 9 (Student 4 – pre- and post-test). In contrast, the minimum scores showed less variation, consistently falling between 2 and 3 across all recordings, which likely influenced the overall distributions. As shown in Table 4, none of the students demonstrated improvement in accentedness ratings following the workshop, based on descriptive statistics.

To explore potential differences at the individual level, Wilcoxon signed-rank tests were conducted for each participant. A statistically significant difference was found only for Student 1 ( $Z = -2.02, p < .05$ ), whose post-test ratings reflected a marked decrease in perceived nativeness. This suggests that, at least for Student 1, participation in the workshop may have resulted in more noticeable accented features, as perceived by the Brazilian raters.

### Unpacking Listener Judgments: Linguistic Factors Shaping Perceptions of Comprehensibility and Accentedness

As outlined in the Method section, after rating each speech sample for comprehensibility and accentedness, the Brazilian participants were asked to complete a follow-up task in which they commented on linguistic factors, such as pronunciation, grammar, vocabulary, and discourse organization, that may have facilitated or hindered their evaluations. Rather than being provided with a predefined list, listeners were encouraged to draw on their own linguistic knowledge and experience to explain their perceptions. This qualitative component provided valuable insights into the patterns observed in the quantitative data.

In this section, we focus on the comments related to the pre- and post-test recordings of Student 1 and Student 2. As previously discussed, Student 1 exhibited a significant decrease in both comprehensibility and accentedness ratings, while Student 2 showed a significant improvement in comprehensibility. The results shown in Table 5 may help to illuminate potential linguistic factors underlying these contrasting outcomes.

**Table 5.** *Qualitative Analyses of Student 1's Productions*

	Pre-test	Post-test
Aspects mentioned in both pre- and post-tests		
Vowels produced as in Spanish	Listeners 1, 2, 5	Listeners 1, 7, 9
Fricatives not voiced	Listeners 1, 4, 9, 10	Listener 4
Too many pauses	Listeners 2, 3, 4, 7, 9, 10	Listeners 2, 6, 7
Aspects mentioned in the pre-test audio only		
Seldom use of pauses	Listener 6	
Syllable-timed rhythm	Listener 7	
Aspects mentioned in the post-test audio only		
Grammar mistakes		Listeners 1, 3
Attempts to speak fast		Listeners 1, 3

Use of light /l/ in word-final position		Listener 4
Problems with lexical choices		Listeners 4, 9
Problems with discourse organization		Listener 4
Problems with intonation		Listener 8
Mispronunciation of the retroflex		Listeners 9, 10

*Note.* Authors' own work

As shown, seven linguistic features were mentioned exclusively in the evaluation of the post-test audio. Several of these comments referred to segmental aspects of the learners' speech, such as the articulation of retroflex consonants and the use of light /l/ in word-final position. Additionally, listeners noted grammatical errors and inappropriate lexical choices, both of which may have negatively influenced comprehensibility ratings. Comments on the post-test also highlighted difficulties with English vowel production and the absence of voicing in syllable-initial fricatives, particularly the /z/ sound, which is not part of the Spanish (L1) phonemic inventory. These segmental and grammatical issues likely contributed to listeners' perceptions in the post-test phase.

With regard to suprasegmental features, the most frequently mentioned aspect was the use of pauses in L2 speech. Six listeners noted the presence of "too many pauses" in the pre-test recordings, while three made similar observations about the post-test. Additionally, two raters remarked on "attempts to speak fast" in the post-test samples. These comments suggest that listeners were particularly attuned to fluency-related features such as pausing and speech rate. Notably, most of the Brazilian raters reported having focused their English phonetics training on segmental features; thus, the suprasegmental elements they commented on—pauses and speech tempo—are relatively surface-level observations that do not require in-depth knowledge of prosodic phenomena.

Taken together, the raters' comments reveal three main tendencies: a predominance of references to segmental errors (e.g., vowel quality, devoicing of fricatives, retroflex articulation), recurrent mentions of grammatical and lexical issues, and more superficial observations of suprasegmentals, mostly related to pausing and speech rate. These patterns mirror the raters' limited formal training in prosody and their stronger background in segmental phonology, which likely shaped the salience of certain features over others. Importantly, the qualitative data also help to explain the divergent trajectories observed in the ratings: while Student 2 benefited from noticeable improvements in pausing that were explicitly acknowledged by the listeners, Student 1's speech attracted a higher number of negative comments about segmental and rhythmic issues, which contributed to declining comprehensibility scores. Thus, the qualitative analysis provides a richer picture of how listener background and attentional focus interact with learner performance in shaping judgments of comprehensibility and accentedness. This may explain the limited scope of suprasegmental feedback provided. In order to illustrate these patterns more concretely, Table 6 summarizes the qualitative evaluations of Student 2's production.

**Table 6.** *Qualitative Analyses of Student 2's Productions*

	Pre-test	Post-test
Aspects mentioned in both pre- and post-tests		
Vowels produced as in Spanish	Listeners 1, 7	Listeners 1, 5
Fricatives not voiced	Listeners 1, 4, 9	Listeners 1, 4, 9, 10
Grammar mistakes	Listeners 3, 4	Listener 4
Good use of pauses	Listener 2	Listeners 2, 6, 7, 8, 10
Aspects mentioned in the pre-test audio only		
Problems with lexical choices	Listeners 3, 8, 9, 10	
Too many pauses	Listeners 2, 5, 7, 9	
Problems with discourse organization	Listener 4	
Problems with intonational phrases	Listener 8	
Good vocabulary	Listener 2	
Aspects mentioned in the post-test audio only		
Mispronunciation of interdental fricatives		Listeners 7, 8, 9
Problems with intonation		Listener 3

*Note.* Authors' own work

As previously noted, Student 2 showed an important improvement in comprehensibility following the workshop. This is reflected in the qualitative data, where only two “problematic” aspects were mentioned exclusively in the post-test evaluation. Segmental issues related to vowel production and the absence of voicing in syllable-initial fricatives were identified in both pre- and post-test recordings. These observations suggest that listeners tend to focus on phonological features that diverge from their own developing language norms, particularly those that stand out due to cross-linguistic differences. For example, the voicing of /z/ in syllable-initial position typically poses no difficulty for Brazilian learners, as this sound is present in Brazilian Portuguese (Cristófar-Silva 2002). Consequently, its absence in a speaker's production is more perceptually salient to Brazilian raters than it might be for others.

Recent research supports the notion that listeners' phonological background significantly influences their perception of L2 speech (Isaacs and Trofimovich 2012; Saito et al. 2022). Moreover, studies show that perceived comprehensibility gains are not always aligned with noticeable reductions in segmental errors, but may instead reflect improved prosodic or fluency-related patterns (Saito and Akiyama, 2023; Zielinski 2008).

It is worth noting that while four listeners highlighted issues with pausing in the pre-test, none reported problematic pause use in the post-test. Conversely, five listeners explicitly praised the post-test recordings for their “good use of pauses,” compared to only one in the pre-test. These observations suggest that improvements in pausing patterns may have played a key role in the significant increase in Student 2's comprehensibility ratings.

The qualitative data further indicate that Brazilian listeners tended to focus on pausing as the most salient suprasegmental feature in their evaluations. This preference likely stems from the perceptual accessibility of pauses, which are easier

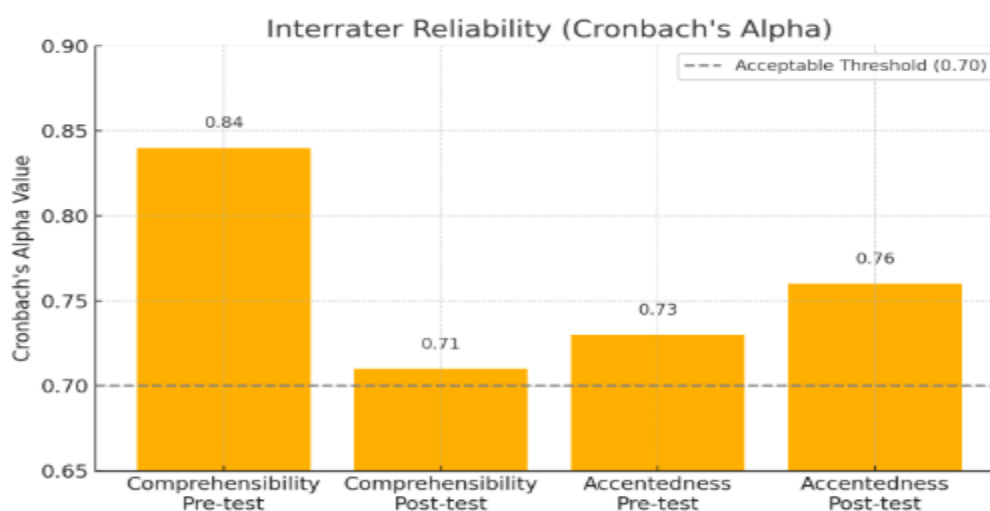
to notice and describe without requiring technical phonetic terminology. In contexts where listeners, such as student-teachers or general English users, have received limited or no formal instruction in suprasegmentals, judgments of features such as pausing or speech rate may rely more on intuitive perception than on explicit phonological awareness.

Kahng (2014) supports this interpretation and shows that listeners without specialized prosodic training often base their assessments on more immediately noticeable features like pausing and speech rate, while subtler prosodic cues such as stress, rhythm or intonation may go unnoticed. This finding aligns with the present study, suggesting that a listener's instructional background notably influences which suprasegmental dimensions are prioritized during accented speech assessment.

### Rater Agreement and Reliability of Perceptual Judgments

Interrater reliability was assessed using Cronbach's alpha, applying an absolute agreement model to determine the consistency of ratings across the ten non-native assessors. This statistical measure evaluates the extent to which raters produce similar scores when judging the same speech samples, thereby ensuring that the results are not influenced by individual variability in judgment. For the comprehensibility ratings, the Cronbach's alpha values were 0.84 for the pre-test and 0.71 for the post-test. For accentedness, alpha values were 0.73 (pre-test) and 0.76 (post-test). These values are all above the widely accepted threshold of 0.70, which is generally considered indicative of acceptable to high reliability in perceptual studies (George and Mallery 2003). The particularly high value of 0.84 for pre-test comprehensibility suggests a strong level of agreement among the raters at that stage, while the post-test values, though slightly lower, still reflect satisfactory consistency. Figure 1 illustrates the interrater reliability values for comprehensibility and accentedness in both pre- and post-tests.

**Figure 1.**



Note. Authors' own work

<sup>a</sup>Fig. Figure created using OriginPro (OriginLab Corporation, 2024)

The slight variations between pre- and post-test alpha values reflect natural differences in how raters perceived the speech samples after instruction, potentially due to increased linguistic variation or less uniform gains across students. Nonetheless, the overall pattern of reliability supports the conclusion that raters were internally consistent in their evaluations across both test phases. These findings lend credibility to the perceptual data collected in this study. Given the subjective nature of comprehensibility and accentedness judgments, the establishment of reliable interrater agreement is essential to validate the results. The consistency observed here confirms that the assessments made by the non-native listeners can be considered dependable for subsequent analysis and interpretation.

### **Discussing and Interpreting Comprehensibility ratings through Cognitive and Developmental Lenses**

Analysis of the comprehensibility data revealed that, although no overall improvement was observed across all speakers, distinct individual trends emerged. Two students showed a statistically significant decrease in their comprehensibility ratings, while one exhibited a significant increase. These patterns suggest two possible developmental trajectories. In the case of those whose scores declined, it is plausible that the explicit instruction received triggered a cognitive restructuring process, whereby learners were actively attempting to internalize and reorganize new linguistic patterns. As noted by Wremble (2007), such temporary destabilization is common in L2 development and may precede long-term gains as learners work toward more stable and accurate L2 productions.

This interpretation aligns with both Ellis's (1993, 2008) cognitive-interactionist perspective, as well as De Bot, Lowie and Verspoor (2007) and Larsen-Freeman and Cameron's (2008) Complex Dynamic Systems Theory (CDST). Ellis emphasizes that the introduction of explicit knowledge often increases cognitive load, resulting in a temporary decline in performance as learners attempt to integrate new forms. CDST similarly frames language development as a non-linear, dynamic process marked by variability, instability, and transitional phases (De Bot, 2015; Verspoor et al., 2021). From this perspective, the observed declines may reflect necessary moments of disorganization that precede the emergence of more stable and complex L2 systems. Such variability may also reflect task-related constraints, as research has shown that increased task complexity can reduce comprehensibility and heighten perceptions of accentedness (Mora-Plaza et al. 2024).

Beyond developmental dynamics, several contextual and pedagogical factors may also help explain the limited overall improvement and the declines observed in certain learners' scores. First, the short duration of the workshop — only three weeks — may have constrained opportunities for students to consolidate new suprasegmental patterns and transfer them into production. Second, because the sessions were delivered by trainee teachers, the input models might not have been sufficiently robust or consistent to promote noticeable gains, as teacher expertise has been shown to strongly influence pronunciation outcomes (Levis et al. 2016). Third, individual differences in learning styles and strategy use could have played a role:

while some learners appeared to respond positively to explicit prosodic instruction, others may have struggled to integrate new knowledge into their developing language systems. Finally, the shared L1 context between teachers and students may have fostered smoother communication but plausibly reduced exposure to the kind of phonological variation that supports international intelligibility (Moghaddam 2012). These considerations suggest that instructional, learner-related, and contextual variables, in addition to rater background, might all have contributed to the mixed results observed in this study. These insights contribute to addressing Research Question 1, as they help interpret how suprasegmental instruction may have impacted learners' comprehensibility outcomes.

Listener feedback further revealed that pausing played a significant role in perceived comprehensibility. While excessive or poorly timed pauses were frequently noted in the pre-test, several listeners praised the post-test recordings - especially those of Student 2- for a more effective use of pauses. This change may reflect an increase in learners' metalinguistic awareness following the instructional intervention. According to Ellis (2008) and Roehr-Brackin (2018), metalinguistic awareness enables learners to reflect on and regulate their language use, particularly in contexts involving explicit instruction. However, during early stages of internalizing new forms, this awareness can lead to finely tuned self-monitoring, which may disrupt fluency and result in hesitations or over-cautious delivery.

Therefore, the increased pausing observed in some post-test performances should not necessarily be interpreted as a decline in ability. Rather, it may represent a transitional phase, an intermediate state between declarative knowledge and procedural fluency, where learners are in the process of integrating explicit instruction into their spontaneous speech production. These findings emphasize the importance of considering cognitive and developmental dynamics when evaluating short-term changes in L2 comprehensibility.

It is important to consider that the Brazilian listeners in this study had limited formal training in English prosody at the time of the evaluations. In the absence of explicit knowledge of suprasegmental features, such as stress, rhythm and intonation, listeners may rely more heavily on segmental cues and surface-level prosodic features, particularly those that are perceptually salient and cognitively accessible (Isaacs and Trofimovich 2012; Kang 2010). In this context, pausing, especially its frequency and placement, appeared to play a prominent role in shaping their perceptions of L2 speech. This point begins to address Research Question 2 by identifying the specific linguistic features (e.g., pausing, segmental accuracy) that influenced comprehensibility and accentedness judgments.

Pauses are closely linked to syntactic and discourse organization and can be detected without specialized phonological training. Research suggests that even untrained listeners tend to interpret frequent or poorly timed pauses as indicators of reduced fluency or difficulty in message formulation (Kahng 2021; Derwing et al. 2004). In this study, several assessors noted that after instruction, some Argentinean speakers exhibited more frequent pauses and hesitations, which may have contributed to the decrease in comprehensibility ratings observed in certain cases.

This finding supports the idea that, when explicit prosodic knowledge is lacking, listeners fall back on intuitive cues, such as pausing and speech rate, when

judging L2 speech. These cues, though not always directly related to core prosodic competence, can significantly influence how speech is perceived in terms of fluency and intelligibility (Trofimovich and Isaacs 2012; Saito et al. 2022). Thus, the specific linguistic factors reported by the listeners (e.g., pauses, segmental inaccuracies) provide a clear response to Research Question 2.

In contrast to the comprehensibility results, the overall analysis of accentedness ratings revealed a noteworthy decline. At the individual level, none of the speakers demonstrated a significant improvement in accentedness between the pre- and post-test, reinforcing the idea that accentedness and comprehensibility are distinct constructs that develop independently (Trofimovich and Isaacs, 2012).

These results raise important questions about why all students experienced lower accentedness ratings after instruction, both collectively and individually. One plausible explanation, based on listener feedback, is that raters, who had received formal training in segmental phonology during their academic careers, focused primarily on segmental and syntactic features when evaluating the speech samples. Since the workshop emphasized suprasegmental instruction, segmental aspects were not explicitly targeted, possibly resulting in listener attention being drawn to unchanged or problematic segmental features. This finding further contributes to answering Research Question 2, as it reveals the specific segmental cues that listeners prioritized when perceiving accented speech.

Moreover, in perceptual assessments such as this, unless raters are explicitly guided to attend to suprasegmentals, they may naturally prioritize more familiar or salient features, particularly segmental errors, over prosodic elements. This tendency highlights the importance of aligning instructional focus with assessment criteria, as well as raising listener awareness of the suprasegmental dimensions that may contribute to more accurate and fair evaluations of L2 speech.

Another relevant factor concerns the type and quality of input students received during the workshop. Since the sessions were conducted by trainee teachers, it is possible that the input models provided were not sufficiently robust to facilitate noticeable improvements in comprehensibility. The trainees' limited teaching experience may have influenced the effectiveness of instruction, potentially affecting learner outcomes. Research shows that instructor experience plays a key role in pronunciation instruction effectiveness. According to Levis et al. (2016), well-trained teachers, regardless of native speaker status, can successfully support pronunciation development if they employ informed and strategic pedagogical approaches.

Additionally, it is important to consider that both the trainees and workshop participants shared the same first language (L1). In this context, communication occurred within a shared intermediate L2 system, which may have enabled smooth interaction but offered limited exposure to the kind of phonological variation necessary for improving international intelligibility. This dynamic is consistent with findings by Moghaddam (2012), who notes that while non-native English-speaking teachers (NNESTs) who share learners' L1 can influence their own learning experiences to guide students effectively, this shared background can also result in reduced sensitivity to problematic L2 features that are not salient within the shared developing system.

Moreover, Golombek and Jordan (2005) found that many NNESTs feel underprepared or insecure about their ability to model pronunciation effectively, especially in suprasegmental domains, which may influence both the scope and confidence of their instruction. While learners often prefer native models for pronunciation (Li 2016), the effectiveness of NNESTs can be greatly enhanced with targeted training, particularly in raising awareness of suprasegmental features that might otherwise be overlooked in shared L1 contexts.

These findings highlight the importance of ensuring that pronunciation instruction, especially when led by pre-service teachers, includes not only accurate input and explicit focus on suprasegmentals, but also awareness of the potential limitations imposed by shared linguistic backgrounds and limited instructional experience.

## **Conclusions**

This study explored the development of L2 comprehensibility and accentedness, focusing exclusively on the content of a short-term suprasegmental-focused workshop. The results revealed limited immediate improvement in participants' perceptual ratings; however, the findings underline several pedagogically significant implications.

As for the Brazilian listeners, all participants reported limited formal instruction in suprasegmentals, having received more explicit training in segmental phonology. While they demonstrated strong interrater consistency in their evaluations, the results suggest that enhanced knowledge of prosody, particularly stress, rhythm, and intonation, could further improve their evaluative accuracy. Familiarity with suprasegmental features may also support a subtler understanding of how these elements influence comprehensibility and accentedness in L2 speech.

These findings reaffirm the importance of adopting a holistic approach to pronunciation instruction, one that integrates both segmental and suprasegmental features. Such an approach not only benefits L2 speakers by promoting more intelligible and natural-sounding production but also enhances the perceptual skills of listeners, who play a central role in interaction and meaning negotiation. In multilingual contexts where English is used as a lingua franca, listener flexibility and awareness become as important as speaker clarity. Looking ahead, future research would benefit from adopting longitudinal designs with more extended instructional periods to determine whether sustained suprasegmental training can yield stronger and more lasting effects on learners' comprehensibility and perceived accentedness. In addition, studies that provide raters with explicit training in suprasegmental features prior to the evaluation could help to clarify whether enhanced awareness of prosody shifts their focus away from segmentals and toward a more balanced assessment of L2 speech. Together, these directions would contribute to a deeper understanding of how instruction and evaluation interact in shaping the outcomes of pronunciation pedagogy.

Although the limited perceptual gains observed in this study might suggest that the workshop fell short of its objectives, we contend that its pedagogical value lies in three key contributions. First, the trainee teachers gained practical experience in

teaching L2 pronunciation, an area often underrepresented in teacher education. Second, the Argentinean students were introduced to suprasegmental instruction, which may foster longer-term improvements not yet reflected in immediate outcomes. Third, the Brazilian listeners, many of whom are active language teachers, were exposed to a novel L2 accent, prompting reflection on their own role as listeners and the challenges involved in understanding accented speech.

This study highlights the shared responsibility in communication: intelligibility is not solely the speaker's burden, but a dynamic process that involves the listener's perceptual flexibility and linguistic awareness. As most of the Brazilian assessors were current or future educators, this shift in perspective toward listener responsibility and sensitivity is especially valuable in shaping inclusive and effective language teaching practices.

We hope this research contributes to ongoing discussions on the interplay between segmental and suprasegmental instruction in L2 pedagogy and encourages further studies on listener–speaker interactions across different L1 backgrounds. Future research involving larger and more diverse participant populations will be essential to strengthen the generalizability of findings and deepen our understanding of how pronunciation is taught, perceived, and negotiated across various instructional and intercultural contexts.

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