

## MEASUREMENTS FOR ACCENTEDNESS, PAUSE AND NUCLEAR STRESS PLACEMENT IN THE EFL CONTEXT

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### Abstract

This study reports on an experimental research conducted with 50 Spanish-L1 college students, divided into 2 groups (A and B). They were presented with a teacher-centered approach based on controlled exercises, but group B received an awareness-building component in which students completed a sequence of tasks with a focus on phonological form. Both groups recorded a speaking test before and after instruction which was used to measure and compare degrees of accentedness, frequency and duration of pauses and nuclear stress placement. Different groups of raters listened and judged the speech samples. Multivariate analysis showed that group B obtained better results in all 3 parameters than the other group. Finally, some pedagogical implications for the teaching of L2 pronunciation in ELT contexts will be discussed.

**Keywords:** pronunciation instruction; accentedness; pauses; nuclear stress; awareness-rising

In the past, the teaching of pronunciation was highly overlooked and thus disregarded from the current ELT (English language teaching) mainstream. However, during the last two decades a change of paradigm has taken place which has brought pronunciation instruction back on stage (Murphy and Baker, 2015). This emergence of pronunciation teaching has pushed teachers and researchers to redirect their goals if successful communication is to be achieved (Baker, 2011; Derwing and Munro, 2015; Levis, 2005). In the past, the main goal was to push learners to develop a near-native like pronunciation. Aligned with this objective, most pronunciation teachers used (and some of them still do it in different contexts) what some would typify as an imitative-intuitive methodology based on controlled exercises such as drilling and mechanical activities. The general assumption under this approach

is that through repetition and imitation teachers believe that learners will be able to eradicate their foreign accents and thus perfect their L2 pronunciation to reach native-like standards. However, empirical research results along with a more globalized view of pronunciation teaching have demonstrated that this goal is neither realistic nor attainable (Celce-Murcia et al., 2010; Derwing and Munro, 2015; Derwing, Munro and Wiebe, 1998)

With the advent of more communicative approaches to language teaching, the importance of developing students' intelligible L2 (second language) pronunciation seems to be a critical goal by many of those involved in L2 pedagogy. From those teachers and researchers who are involved in this field, we know that learners need to achieve a comfortable level of L2 pronunciation that allows them to communicate effectively in different contexts (Derwing, Thomson, Foote and Munro, 2012;

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Levis, 2005). That is, pronunciation teachers should aim to help their L2 learners understand different English accents, being them native or non-native (Jenkins, 2000), and produce comprehensible speech regardless of their regional accents (Derwing and Munro, 1998; Derwing and Munro, 2009; Munro and Derwing, 2015; Trofimovich and Isaacs, 2012). Such a change of goals implies a consequential change in pronunciation teaching objectives whereby consciousness-raising tasks function as a central focus in a supportive and natural context for language learning to occur (Ellis, 2001; 2003; 2015; Luchini, 2015). In pronunciation teaching contexts, a consciousness-raising task is a pedagogic activity in which the learners are presented with L2 data related to a phonological feature that they will later on have to produce, and in which they perform some operation on the data to arrive at an explicit understanding of how that phonological feature functions in discourse, and how it can be best realized in free speech (adapted from Ellis, 2015).

This paper reports on a study conducted with two groups of college students from an Argentinean university, whereby the first language (L1) is Spanish and the L2 English. Each group received a different treatment. Group A was exposed to a teacher-centered approach, while group B received an additional teaching component aimed at raising students' phonological awareness. The purpose of this study was to evaluate the benefits of adding such a component and compare results with the other group that did not include it. To delimit the scope of this research, from the total number of prosodic dimensions, only measurements of degree of accentedness, frequency and duration of silent pauses, and nuclear stress placement were analyzed. Finally, based on the findings obtained some implications for pronunciation teaching will be addressed.

## Literature Review

For the last decades, there has been a slow but steady movement to bring L2 pronunciation instruction back on stage as the general goals of teaching worldwide have prioritized the effective use of the spoken language. Research studies by Brown

(1991), Morley (1991), Raymond (1995), Taylor (1993), Yule and MacDonald (1995), Mac Donald, Yules and Powers (1994) and Munro and Derwing (1995), among others, initiated a new period of empirical research to inform the work of L2 pronunciation teaching. This phenomenon has brought about an emergent debate about what features of L2 phonology are necessary to teach, how to effectively teach them, and what teachers and students think and know about pronunciation teaching (Derwing and Munro, 1997; Derwing, Munro and Wiebe, 1997; 1998; Derwing and Murno, 2015; Murphy and Baker, 2015).

In the past, pronunciation teaching was more sided with what Levis (2005) has coined *the nativeness principle* (though, at present, this view is still alive and kicking in many teaching contexts worldwide!). Following this principle, teachers concentrate chiefly on the description of phonemes and their meaningful contrasts, along with some structurally based interest in stress, rhythm, and intonation. Pedagogically speaking, instruction centers on articulatory descriptions, imitation, repetition and memorization of patterns through drills and dialogues, with extensive attention to correction. It also takes as read the accessibility to native speaker models to listen to, an option that has been enhanced by the use of tape recorders and language labs in the mid-twentieth century, followed by audio- and videocassettes and more lately by compact disks and digital video disks. All this is done in the hope that learners will eventually pronounce the rhythms and sounds of the target language like an English native speaker. Such concern for accurate pronunciation, based on native models, aims at enabling learners to come as close as possible to native-like performance models (Breitkreutz, Derwing and Rossiter, 2002; Celce-Murcia, Brinton and Goodwin, 2010).

Contemporary ways of teaching pronunciation, however, are more closely associated with the *intelligibility principle* (Levis 2005). Currently, the most dominant methods in language teaching sustain that the primary goal of language teaching should be intelligibility, and to achieve this, using language to communicate should be pivotal in all L2 classroom instruction. Teachers following this principle seek

to identify the most important aspects of both the suprasegmentals and segmentals and amalgamate them appropriately in classes that meet the needs of any given group of learners; that is, learners are explicitly informed about and pushed to focus their attention on the sound, rhythm and intonation systems of the target language (Murphy and Baker 2015). This focus on language as communication has brought about a remarked interest in re-directing the goals for teaching pronunciation (Celce-Murcia et al., 2010; Ferreiro and Luchini, 2015). We know that nonnative speakers have a threshold level of pronunciation, and if they fail to reach it, they will probably have to deal with some interactional obstacles when communicating, no matter how well their management of English grammar and vocabulary might be. Aligned with the *intelligibility principle*, then, the goal of pronunciation instruction is not to make learners sound like native speakers of English, unless they are rarely gifted or motivated to do so, but to enable them to go beyond their threshold level so that their pronunciation will not threaten their ability to communicate effectively (Derwing and Munro, 1995; 1998; 2015; Murphy and Baker, 2015; Luchini, 2015). We know that pronunciation is an essential component of communicative competence and, as such, it should be given high priority in the English language classroom (Morley, 1991; 1994; Taylor, 1991; Celce-Murcia et al., 1996; 2010; Pennington, 1996). As a consequence of its importance, many more teachers are now interested in pronunciation, but the truth is that most of them are not quite sure which dimensions of L2 phonology are important to teach or how they might be most effectively taught in language classrooms. For the most part, they base their teaching practices on their own experience as language teachers and on their intuitions.

A reasonable and realistic teaching goal then would be to focus on pedagogic attention to those items which are teachable and learnable and also essential for L2 oral communication (Dalton and Seidlhofer, 1994; Jenkins, 1998; 2000; Cruttenden, 2001). Reciprocal tasks (Ellis, 2001) with a specific focus on form are crucial for the development of key phonological features (Jenkins, 2000; Jones and Evans, 1995; Luchini, 2005; 2015; Swain, 1997; Swain and Lapkin, 2001; Thornbury,

1993) because they involve negotiation of meaning and thus more opportunities for learners to adjust and accommodate their receptive as well as productive pronunciation skills (Jenkins, 1996; 1998; 2000; Ellis, 2003; 2015). Learners need to be given opportunities for noticing gaps in their interlanguage and thus compare their output with target language models (Rutherford, 1987; Schmidt, 1990; Thornbury, 1997; Willis, 1996; Samuda, 2001). On the other hand, controlled sessions are also essential to classroom work in accommodation skills and where changes to L1 phonological habits are necessary (Brown, 1991; 1995; Jenkins, 2000) because they push learners to move from receptive to productive competence in core problematic areas such as segment production (Kenworthy, 1987; Jenkins, 2000; Levis, 2001; Levis and Grant, 2003; Raymond, 1995).

Receptively speaking, learners need to range far beyond the limits of the dominant native-speaker accents such as RP (the standard British accent) or GA (General American) in their receptive repertoires to be able to cope with the different accent varieties of their interlocutors whom they are most likely to meet, whether they are native or non-native English speakers. The best way to achieve this familiarity is through repeated exposure to assorted L1 and L2 accents of English with a focus on areas of difference, especially those which are considered highly risky for establishing mutual intelligibility (Celce-Murcia et al., 2010; Jenkins, 1998; 2000; Luchini, 2008; 2011; 2012a; 2012b; 2015; Rosewarne, 2002; Walker, 2001; 2010).

Although a considerable interest in L2 pronunciation instruction has increased in the last years, there is very little empirical evidence as to whether one approach of pronunciation instruction in EFL contexts is better than another (Murphy and Baker, 2015). In 1994, Macdonald, Yule and Powers carried out an experiment in which they examined three common pedagogical approaches to pronunciation instruction in the ESL classroom: teacher-led drilling, self-study in a language laboratory, and modified interaction, which they contrasted with a no-treatment group. Their findings revealed that there was a great amount of individual variation in their 23 Mandarin participants' pronunciation performance.

Only one significant difference was perceived in the students' pronunciation of the self-study group which rendered considerably better results than those coming from the learners in the control condition right after intervention. However, there were a number of important limitations to their study which do not allow to lay claim to accomplishment of goals. Despite this observation, this study was important in that it examined the efficacy of pronunciation instruction in terms of NS judgments of accentedness and because it paved the way for further studies.

In 1998, Derwing, Munro and Wiebe extended that research by comparing the implementation of 3 perspectives on pronunciation teaching over a longer period of time (10-week instructional intervals vs. 2 days for Macdonald et al.'s study, 1994). They collected pre- and post-speech samples from 3 groups of ESL learners. One received segmental training, the second was taught with a global focus and the third received no specific phonological instruction. Forty-eight English native speaker listeners assessed the speech samples by rating them for accentedness, comprehensibility and fluency in blind tasks. Although both groups instructed in pronunciation showed significant improvements in comprehensibility and accentedness when completing a controlled task, only the global group showed improvement in comprehensibility and fluency when dealing with a more extemporaneous task.

In a recent study, Saito (2012) conducted a research synthesis to summarize the state of the art of the pedagogical potential of pronunciation teaching. In his report, the author described the extent to which explicit instruction in L2 pronunciation favors phonological acquisition, how its effectiveness may vary according to (a) focus of instruction (segmentals vs. suprasegmentals), (b) type of instruction (focus on form vs. focus on formS), or (c) type of outcome measures (controlled vs. spontaneous production).

Following Saito's line of research, Lee, Jang and Plonsky (2014) carried out a meta-analysis of effectiveness of L2 pronunciation instruction. In their study, these researchers determined the overall effects of pronunciation instruction and the sources and extent of variance observed with respect to practical

and pedagogical relevance. They discuss their findings in relation to instructed L2 acquisition research in general and in comparison with other reviews on pronunciation instruction. They point out some areas of pronunciation instruction that call for further investigation and fine-tuning.

We can see now that a wealth of empirical research is being conducted and used to inform the teaching of ESL pronunciation instruction. However, there are still insufficient studies targeting pronunciation learning and teaching in the EFL context. Thus an investigation of the effects of such modes of instruction in this particular context is warranted (Derwing et al., 2012; Saito, 2012). In this experimental study, we set out to evaluate the effect of adding a communicative, awareness-building component (Luchini, 2005) to a teacher-centered, form-focused pronunciation course and compare its results with those coming from another group that did not include such component. Both teaching experiences were carried out in the EFL context, and the comparison of results was done taking into account measurements of degree of accentedness, frequency and duration of pauses and allocation of nuclear stress.

When Derwing and Munro (2009) study degrees of accentedness in L2, they explore the ways in which nonnative accents differ from a local variety of English and the impact of that difference on speakers and listeners. Accentedness refers to the extent to which a listener judges L2 speech to differ from native speaker norms (Munro and Derwing, 1995). Research has continually demonstrated that even heavily accented speech can be highly comprehensible and intelligible (Luchini and García Jurado, 2015). Accent judgments are a common measure of proficiency in pronunciation. However, a speaker's speech may also be judged through intelligibility scores. L2 learners who have intelligibility problems are almost always rated as having very strong accents. Nevertheless, the reverse situation is not necessarily true (Derwing and Munro, 2015). Some speakers who have a very strong L2 accent are intelligible even though more processing time may be required by listeners to understand their speech (Munro and Derwing, 1995; Derwing and Murno, 1997). Robust

findings in studies exploring the correlations among these prosodic features demonstrated that they operate independently (Derwing and Munro, 2005; Isaac and Trofimovich, 2012; Luchini, 2015; Trofimovich and Isaacs, 2012).

Pausing is closely associated with fluency and with the degree of foreign accent (Derwing, Thomson and Munro, 2006). Pausological research has shown that both pause duration and pause frequency affect listeners' rating of foreign accent in L2 speech, and that both are often considered determinants of fluency and intelligibility (Lennon, 1990; Trofimovich and Baker, 2006). L2 learners on average use more pauses than native speakers do, perhaps reflecting the difficulties in processing and memory constraints, characteristics of L2 production (Schachter, Christenfeld, Ravina and Bilous, 1991). The development of speech fluency, as measured by frequency and duration of pauses, is relatively well established in adults acquiring an L2 (Trofimovich and Baker, 2006). The frequency and duration of pauses in adult L2 learners' speech typically decreases as learners gain more experience with their L2 (Trofimovich, 2006). It seems that adult L2 learners' ability to produce L2 speech using fewer and shorter pauses may depend more on learners' age at the time of first exposure to their L2 than on the amount of their experience with the L2 (Olynyk, D'Anglejan and Sankoff, 1987). Möle (1994) claims that it may be feasible to make some assessment of learner fluency by exploring a variety of temporal variables, including length and allocation of silent pauses, length of fluent speech runs between pauses and frequency and distribution of filled pauses. The difference between native like speech and L2 speech mainly lies in the frequency and distribution of such features rather than their presence versus absence (Lennon, 1990).

The nucleus or nuclear syllable (O'Connor and Arnold, 1973; Wells, 2006), or tonic syllable or prominence (Brazil, 1980; 1994; 1997; Halliday and Greaves, 2008) or information focus (Levis 2001) is the highest value of pitch or its acoustic correlate (F<sub>0</sub>), relative to the accented syllable in a tone unit. A tone unit represents a way of dividing up spoken language into units of information. The span of speech

over which an intonation pattern or contour extends is called a tone unit. This must include at least one accented syllable. Depending on the number of phrases and clauses and the speaker's speech rate, an utterance may be made up of one or several tone units. Every tone unit contains, at least, one major change in pitch (a fall or a rise or a combination of both), which begins on an accented syllable. This combination of stress and pitch variation is also known as sentence stress (Dauer, 1983; 1993). Normally, the tonic syllable occurs on the last accented syllable of a tone unit. Because stress often occurs in content words, it can be said that, in English, sentence stress usually falls on the last lexical item before a pause or a potential pause. For intelligibility and comprehensibility purposes, the location of the nucleus is crucial in English (Field, 2005; Hahn, 2004). A frequent mistake made by non-native speakers is either to put a major pitch change on every stressed syllable, to have no one word with a major pitch change or to misplace it. Shifting nuclear stress may bring about confusion to the listener who might be expecting one nuclear stress on the last lexical content word. Unless this happens, the listener might think that the speaker means something else (Dauer, 1983). Given its importance for the attainment of effective oral communication, the teaching of nuclear stress placement should be prioritized in the English pronunciation class (Field, 2005; Hahn, 2004; Jenkins, 2000; Luchini, 2015).

From the total number of prosodic dimensions we selected only these three constructs because we needed to limit and narrow down our scope of study. We chose these measures at the expense of others because they are strong predictors of effective oral communication.

### **Research question**

We mentioned earlier that the growing interest to incorporate pronunciation instruction into the EFL classroom has led to some confusion as to which L2 phonological dimensions are more important to teach or how they may be most effectively taught. Motivated by these concerns, this paper aims to provide an answer to the following research question:

- Which are the effects of adding an awareness-building component to a teacher-centered pronunciation approach?

## Method

### *Context*

The experiment was carried out in *Discurso Oral II* (DOII), a course on English pronunciation taught in 2nd year of the Teacher Training Program, Universidad Nacional de Mar del Plata, Argentina. DO II aims at enabling students to acquire a highly acceptable non-native pronunciation. Students meet for four 2-hour sessions per week over a four-month period. The contents of this course focus on suprasegmentals and the approach adopted is mainly grounded in the *intelligibility* principle.

To enter the program, learners need to master an English proficiency level equivalent or superior to B2+ (Common European Framework of Reference for Languages). Before taking DOII, students need to take and pass *Phonetics and Phonology I and II*, in which they are presented with the description and nature of the English sound system, and made to repeat and imitate, in a language lab, a series of recordings of English native speaker models (preferable with an RP accent). Along with these two pronunciation classes, they need to complete a number of other courses aiming at developing general linguistic knowledge and initial teacher training skills.

### *Participants*

Fifty Spanish-L1 student teachers participated in the experiment. They were divided into two groups: group A (n=25) and group B (n=25). Their ages ranged from 20-41 (mean: 21.88 years) in group A, and 19-30 (mean: 21.60) years in group B. Their years of formal L2 instruction ranged from 5-9 at private local language institutes in Mar del Plata, Argentina (years of instruction, A: 7.12%, and B: 7.32%). In each group there were 23 female participants and 2 males. None of them reported having lived in an English-

speaking country before taking the course. Outside the classroom, the participants in both groups never used English and did so only when completing homework. Native and non-native speaker models were the input they received in their classes at the university. The language of instruction in both groups was English.

For the sake of the experiment, each group was exposed to a different treatment. Group A was taught using a teacher-centered, form-focused pronunciation type of instruction. The students were given lectures on stress, rhythm and intonation. Later, using phonetic script, stress and intonation conventions, they took dictations. This was done to help them recognize sounds in connected speech as well as stress placement and tone orientation. After the dictation sessions, the students went to the language lab where they listened to and repeated recorded stimuli produced by English native speakers.

Group B, on the other hand, slightly reduced the workload of the dictation and lab sessions and added, instead, a communicative, awareness-building block. This session was taught in this block for 2 weekly hours. Learners completed a battery of progressive consciousness-raising tasks aimed at increasing their awareness of specific phonological target forms followed by a period of analysis and reflection. In a typical teaching sequence of this block (i), students were presented with some kind of comprehensible input, especially, in the form of videos or recordings, featuring the phonological target form they would then have to produce, (ii) they completed collaborative tasks, and, guided by the input session, they were expected to use their interlanguage resources, (iii) as they performed the task, they noticed gaps in their outputs. They were allowed to turn to their L1 as their only available source at that time to make meaning. That recourse helped them establish phonological differences between L1/L2, (iv) a discussion session followed in which learners compared and contrasted their own performance with the input material. Then, learners reported their findings and the target phonological focused form was generally introduced, (v) students were assigned a similar task which required them to consciously use the same target form which had been previously

introduced, but using a different context. That new task was used as recourse to consolidate and check the level of internalization, if any, of the new target form, (vi) a final discussion and reflection section followed, aiming at raising the students' awareness of what had happened phonologically when they had engaged in such tasks. They were also asked to explore the methodological implications underlying each task and examine how they had contributed to self-monitor and thus self-regulate their learning processes (Reed and Michaud, 2015), (vii) they were later asked to read literature related to the topics discussed in the practical sessions to bridge the gap between theory and practice and further expand their conceptual knowledge (Luchini, 2005).

***Instrument for data collection***

Both groups (A and B) took the same speaking achievement test before and after instruction (pre- and post-test, respectively). Approximately, 15 weeks separated the administration of these tests, thus reducing the possibility that the outcomes evidenced the result of memory or practice effects. The students were asked to complete three communicative tasks in which they had to speak spontaneously in English, first, individually (task 1 and 2) and then in pairs (task 3) (Luchini, 2004). Both tests were recorded on tape in a language laboratory. All the recordings in each group were done simultaneously. Only part of Task 2 of this test was used. In this task, students had to

compare and contrast two pictures of people leading different types of lives. This task was chosen because the speakers were not engaged in reciprocal talk and as such there were no speech overlaps and variations in pitch as a result of turn taking. The number of speech samples amounted to 100. Task 2 had a total duration of 1 minute and 30 seconds. Only 30 seconds of this task in both pre- and post-tests were selected. All the speech sequences were equally delimited by time boundaries. Neither the beginning nor the end of each sample was included. This was done to work with the middle portion of each speech signal, in which the greatest rate of fluency was expected.

***Procedure  
Accentedness***

Ten English-native-speaker-raters from Canada, working individually, listened to the 100 recordings and rated them using a 1-9-rating scale to determine the speakers' degree of perceived accentedness. The listeners made a scalar judgment of accentedness (9= no accent, 1= extremely strong accent). The raters heard each stimulus once and were given time to judge each recording. To reduce the effects of fatigue, they were given short breaks of about 3 minutes in between the recordings. None of the raters reported having had hearing impediments. Table 1 shows some more information about these Canadian raters.

**Table 1:** Information about the 10 Canadian raters

Eval.	Age	Sex	L1	Other languages	Program	Degree	Teaching	Course	Languages
1	55	F	English	French	TESL certificate	BA	yes	Phonology	English, French
2	27	F	English	French	TESL Bed	B	yes	Phonology	English
3	30	M	English	French; Italian, Japanese	TESL certificate	B	yes	Phonology	English
4	30	F	English	French, Chinese	PhD education	MA	yes	Phonology	English
5	47	F	English	French	APLI	MA	yes	Phonology	English
6	29	M	English	French; Italian, Spanish	TESL Bed	BC	yes	Phonology	English
7	42	F	English	French	TESL certificate	MA	yes	Phonology	English
8	26	M	English	French	Linguistics	BA	yes	Phonology	English
9	46	F	English	Italian	APLI	BA	yes	Phonology	English
10	33	F	English	French	TESL Bed	BA	yes	Phonology	English

## Nuclear stress placement

Two Spanish-L1 specialists (aged 42, 62 respectively), working separately and guided by the rules that govern nuclear stress location in English, the context and their vast experience as English pronunciation teachers (more than 25 years each), segmented the transcriptions. All the filled and empty pauses were removed. Using inter-marker reliability, they compared results until they reached final consensus. The final product of each recording/transcription was used as “master rating” against which each student’s production was evaluated. The major difficulty in the procedure was speech segmentation. The problem with working with free speech data is normalizing for speech length. Different people many produce speech samples that are different in length and, therefore, they have different opportunities to produce the items that are being measured. To get a measure for each participant, it was agreed to divide each count by the total number of possibilities. These counts and possibilities depend on what it is being measured. If, for example, in a given speech sample there are five nuclear stresses (as suggested by the specialists), then there are 5 possibilities. So everything the student has done will be counted out of 5. If, for example, a student got 3 out of 5 of these nuclear stresses right, then the correct count for this student is 3. And the final measure will be 3 divided by 5 (3/5), that is, 3 stresses out of 5. So the counts will be a proportion of nuclear stresses produced correctly. If a student got more nuclear stresses than there should be, then, these extra stresses were not counted down. To illustrate this procedure, the transcription of a recording belonging to student 1 from group A (pre-test) is shown below. Pauses that separate the tone units are indicated by slanted bars (/). Syllables bearing nuclear stresses are highlighted in **bold type**, and rhythmic stresses are indicated by asterisks.

### Analysis of the specialists using rules for stress placement and their experience: “master rating”

#### *Student 1 - Pre-Test*

/there are \*many \*dishes on the **table**/ so I think that \*maybe they are \*foreign \*people \*trying

\*local **dishes**/ and in the second photograph/  
I see a \*boy \*sitting on the \*street **alone**/ and I  
think that he’s \*thinking about **something**/ and  
I \*think that/

As can be seen, in this speech sample the specialists identified 5 nuclear stresses.

### Perceptual analysis done by the specialists

#### *Student 1 - Pre-Test*

/there are \*many \*dishes on the **table**/, so I  
\*think that \*maybe they are **foreign**/ **people**/  
\*trying \*local **dishes**/ and in the \*second  
**photograph**/ I \*see a **boy**/ \*sitting on the  
**street**/ **alone** / and I **think** that/ he’s \*thinking  
about **something**/ I \*think \*that/

After the specialists listened to the speech sample, they identified 10 nuclear stresses. Four of these matched the 5 stresses recognized by the specialists. On applying the quotient suggested, a ratio for this parameter was obtained, indicating how measurements for this parameter were made.

### Pause frequency and duration

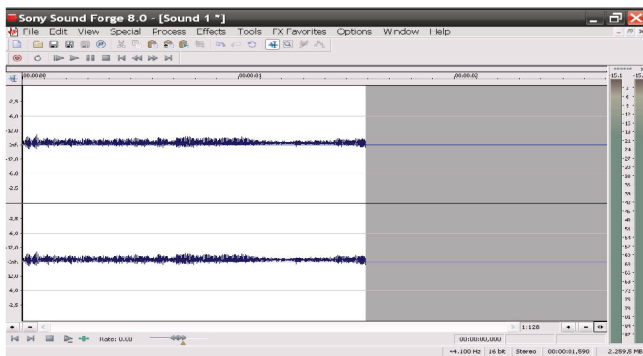
Only empty pauses were examined. Two L1-Spanish specialists analyzed them individually and at different times. The first one, aged 42 and with more than 25 years of college teaching experience, transcribed the recordings and marked pauses as he listened to them. The other, an English lab technician and expert in technological resources, listened to the recordings to double-check what the other specialist had done, and made adjustments when necessary. Using Soundforge 8.0., the second specialist did the acoustic analysis. Whenever there were discrepancies between the specialists, they agreed to listen to the recordings again until they reached agreement. Pauses inferior in duration to 100 ms. were disregarded (Butragueño, 2008). Pause frequency was calculated by averaging the number of pauses superior to 100ms. for each participant across the 30 seconds of each speech sample. Pause duration was calculated by adding the duration of each pause longer than 100 ms. for each participant



across the 30 seconds of each speech sequence. Student 1's speech sample (pre-test) is transcribed in Figure A in which the location of a long pause (1590ms) is shown. The visual representation of this pause is also shown in the form of an energy wave in Figure A:

Student 1  
Pre-test  
/And, well there are many dishes on the table, so I think that maybe they are foreign people trying local dishes, and in the second photograph, I see a boy um...(1590ms.) sitting on the street alone um...and I think that, well, he's thinking about something. Um and well...I think that.../

Figure A: Empty pause: 1590 ms



Results

In the research question we sought to address whether the incorporation of an awareness-building component to a teacher-centered approach for the teaching of L2 pronunciation would produce some kind of effect in the students' oral productions regarding the use of pauses, nuclear stress allocation and degree of accentedness. Results show that group A, which did not include the awareness-raising component, obtained higher scores in frequency/duration of pauses and in degree of accentedness than group B. In nuclear stress location, however, group B obtained a higher point than group A. Nonetheless, obtaining a higher point in degree of accentedness implies that group A was perceived as having a stronger L1 accent in L2 speech than group B. Similarly, scoring a higher point in frequency/duration

of pauses means comparatively that group A rendered a less fluent speech than group B. Table 2 shows average scores of each prosodic parameter analyzed for both groups (A and B).

Table 2: Average scores for the prosodic features evaluated in both groups

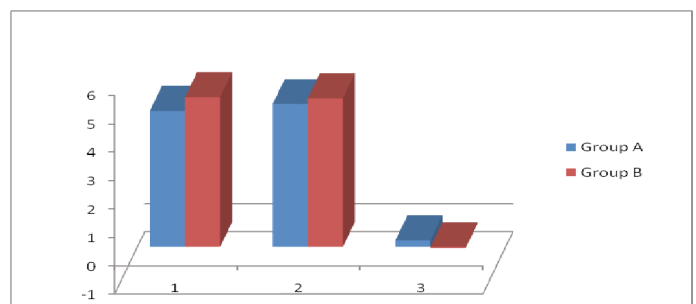
Differences	Groups	Media	Standard Deviation
Frequency of pauses	A	,76	3,50
	B	-,64	3,21
Pause duration	A	-1129,6	3832,92
	B	-987,92	3944,52
Nuclear stress placement	A	-,01	,22
	B	,05	,21
Accentedness	A	,31	,54
	B	-,04	,58

Below we can observe the degree of incidence of each parameter studied on the production of free speech. For the analysis of accentedness, multivariate analysis was used. Unvaried ANOVA revealed statistically significant differences in accentedness  $F(1, 48) = 4,942$   $p < 0,05$ . Table 3 shows the results in averages for each group in pre- and post-test conditions, and the total average. To facilitate understanding, Figure B shows results in a table and bar chart.

Table 3: Average of accentedness in both groups

Groups	Pre-T	Post-T	Average
Group A	4,8	5,036	0,236
Group B	5,28	5,236	-0,044

Figure B: Exploration of means for accentedness in both groups



Exploration of means revealed that group A obtained higher points of difference for this parameter than group B. We said earlier that an increase in this parameter indicates that these learners were perceived by the raters as having had a stronger foreign accent in L2 speech than those in group B. Thus group B was perceived as having developed an L2 accent closer to that of the native speaker model.

Nuclear placement scores showed that group B was more accurate with the location of this stress than group A. There seems to be a positive correlation between nuclear stress and comprehensibility and intelligibility. Numerous studies conducted in ESL contexts have demonstrated that the correct placement of nuclear stress increases the degree of listeners' comprehensibility and intelligibility (Cutler and Clifton, 1984; Cutler, Dahan and van Donselaar, 1997; Derwing and Munro, 1997; Field, 2005; Hahn, 2004; Luchini, 2015; Munro and Derwing, 1995). To explore these correlations in the EFL context, however, empirical studies should be conducted. As group B scored higher points in nuclear placement than the students in group A, it is very likely that their speech was perceived as clearer than their counterparts in group A. On looking at the difference in performance intra-group (pre-/post-tests), 56% of group B made important headway in the location of nuclear stress. Thirty-six % showed regression, and 8% did not show either advances or regression. On the other hand, 56% of the students in group A failed to locate the nuclear stresses accurately in their productions. Only 40% showed improvement in this parameter, and 4% remained unchanged. Figure C shows nuclear stress placement in averages for both groups.

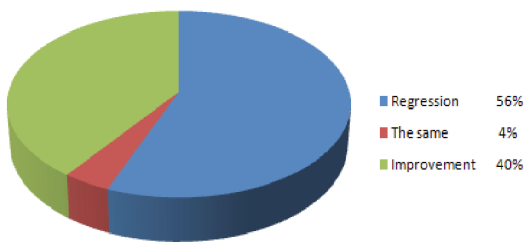
In average, group A made more pauses than group B. As was said earlier, an increase in this parameter, as it occurs with accentedness, means a regression in the development of their L2 speech. Regarding pause duration, group B also obtained a lower score than group A. These results indicate that group B managed to put in more syllables or words than group A in the portion of speech samples analyzed. Because pausing is a term often associated with fluency, we may say that using more and longer pauses meant that students in group A were perceived as more disfluent than those in group B.

It can be argued then that the students exposed to a treatment that integrated an awareness-building component of the type used in this study were more beneficial for the development of fluency than the treatments that did not include it. It would also have been interesting to explore in this context pause allocation. However, due to time constraints and the design of the experiment this was not possible. We suggest that further studies of this type should include the analysis of pause placement. This would allow to expand these results and help determine other possible factors that may have an impact on the development of free speech production (Thomson, 2015).

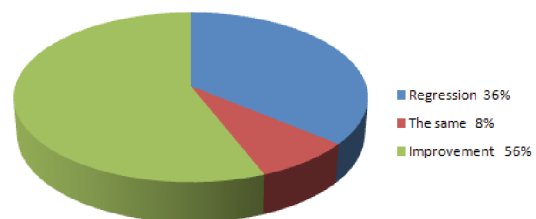
**Discussion**

This study set out to explore the impact of adding an awareness-building component to a teacher-centered approach for the teaching of pronunciation in the EFL context. To carry out the experiment and compare results, measurements of three prosodic features were

**Figure C:** Nuclear stress placement in each group



Group A: Students' performance



Group B: Students' performance

investigated: accentedness, nuclear stress placement and frequency/duration of pauses. On looking at the results obtained a number of assumptions can be made.

In the first place, results show that adding an awareness-building component to a pronunciation course was conducive to the development of students' near native like L2 accent. From pronunciation research (Derwing and Munro, 2015; Levis, 2005), we know that it is extremely difficult for an adult L2 learner to acquire a native-like accent, and that if that is the student's or the teacher's ultimate goal, then, there is a high probability that they may both encounter disappointment on their way. Accent is partially independent from comprehensibility and intelligibility. It is often the case that difficulties with these two other dimensions may cause communication problems, but sometimes an accent may not impede understanding. It is clear then that the ideal focus for pronunciation instruction is to follow the *intelligibility principle* (Levis, 2005), that is, help students develop speech that listeners can easily understand, even though they may have a very strong foreign accent. However, in the particular context of this experiment, the participants were pre-service non-native English teachers who will be expected to serve as models and source of input in English for their students. A very strong foreign accent may cause harm to them because such prospective teachers may be in great frustration and develop a sense of inadequacy in their future profession unless they develop a near-native accent (Demirezen, 2007). Medgyes (1992) reports that these teachers often feel insecure and unconfident using the language they have to teach, and they might even experience fear of speaking in the field of language education. Foreign accent may also lead to social or professional discrimination between non-native and native teachers (Derwing, Rossiter and Munro, 2002). To avoid this, non-native teachers need to reduce their foreign accents. From the evidence provided in this experiment, it seems that adding an awareness-building component helps trainees reduce their foreign accents, a fact that will eventually contribute to boost up their self-confidence to operate successfully in any given teaching context (Luchini and García Jurado, 2015).

Secondly, it can also be observed that the awareness-building component had a positive effect on the number of empty pauses used and their duration. In this study, we considered pauses as a temporal construct of fluency as we measured the number and time attributed to silent pauses of a particular stretch of discourse produced in a limited time span. Describing group B learners as being disfluent is understood to mean that the language knowledge they have is somewhat difficult to access and that their oral language is produced with excessive hesitation (Segalowitz, 2010). There is an indirect correlation between pause duration/frequency and fluency; that is, a decrease in the number of pauses and their duration produces an increase in fluency (Munro and Derwing, 1998; Luchini, 2015). In the pronunciation literature, fluency is a term often associated with other measures of spoken language: comprehensibility and degree of accentedness (Derwing, Thomason and Munro, 2006; Isaac and Thomson, 2013). Although these dimensions are often combined and studied together, given the similarity in how they are measured, fluency is quite distinct from these other prosodic parameters (Derwing, Rossiter, Munro and Ron, 2004; Luchini and García Jurado, 2015).

Thirdly, group B was more accurate in the allocation of nuclear stresses than group A. The location of the nucleus is crucial in English (Celce Murcia et al., 2010; Jenkins, 1998; 2000; Field, 2005; Hahn, 2004; Levis and Wichmann, 2015). Recognizing tonic syllables helps listener decipher which words belong together and where the culmination of the tone units is. We mentioned earlier that there are a number of frequent mistakes that non-native speakers often make with the nuclear stress in English (Hahn, 2004). Nuclear stress misplacement has proved to be the most threatening one for establishing effective oral communication (Jenkins, 2000; Luchini, 2015). Given that group B showed improvement in the allocation of nuclear stress, we can say that the consciousness-raising tasks done within the framework of the awareness-building block may have had a positive impact on their oral performance. There is a strong correlation between nuclear stress placement and degrees of comprehensibility and intelligibility. As

these two prosodic dimensions seem to be the current ultimate goals of pronunciation instruction, then instructional methodologies that promote the correct allocation of nuclear stress should be adopted in EFL classrooms.

Based on these measurement results, it seems that the awareness-building component gave room for a number of pedagogical innovations that favored pronunciation. In the first place, this block allowed for the combination of different types of activities, ranging from more controlled to less controlled ones. Communicative sessions grounded in consciousness-raising tasks, with a specific focus on form, are crucial for the development of key phonological features (Jenkins, 2000; Jones and Evans, 1995; Swain and Lapkin, 2001; Thornbury, 1993; Luchini, 2005; 2015). Interactive tasks—of the type used in this block—are vital for phonological acquisition, because they involve negotiation of meaning and thus provide more opportunities for learners to adjust and accommodate their receptive as well as their productive oral skills (Jenkins, 2000; Luchini, 2015). Students need to be given chances of noticing gaps which, even if essentially meaning-driven, allow them to devote some attentional focus on form, and, moreover, provide both the data and the incentive for the learners to make comparisons between interlanguage output and target language models (Samuda, 2001).

More controlled sessions dedicated to repetition and imitation, on the other hand, are also necessary to classroom work in accommodation skills and where changes to L1 phonological habits are required, as learners will not be able to converge with one another on more target-like pronunciations unless it is within their capability to produce them successfully (Jenkins, 2000; Luchini, 2013). Minimal pair exercises, drilling and knowing about the rules of contrastive and nuclear stress, for instance, will assist learners to move from receptive to productive competence in core problematic areas (Jenkins, 2000). In all, the main purpose of this awareness-building block in this regard was to establish a degree of controlled to less controlled task-type balance appropriate to a monolingual class composed of students of different talents, different motivations,

and even different stages of development but sharing a common L1.

As regards receptive skills, within the framework of the awareness-building component, learners were exposed to different varieties of English. They need to range far beyond the limits of the dominant native-speaker accents such as RP (the standard British accent) or GA (General American) in their receptive repertoires to be able to cope with the different accent varieties of their interlocutors with whom they are most likely to interact, whether they were native speakers or non-native speakers. The best way for this familiarity to be achieved is through repeated pedagogic exposure to varied L1 and L2 accents of English with a focus on areas of divergence between the students' L1 and the target language, especially those which are considered highly risky for establishing mutual understanding.

Another element that the awareness-building component allowed for was metacognition. In this context, metacognition refers to listener awareness of the cognitive processes involved in comprehension, and the capacity to manipulate, self-regulate, and self-direct these processes (Vandergrift and Goh, 2012). Most of the tasks completed in this block called for the use and enhancement of metacognitive strategies in that, right after they completed each task, the students were asked to analyze the sequence followed, self-evaluate and assess their performance, and reflect upon the implications of each task for the development of their own L2 pronunciation skills.

## Limitations

This study yielded interesting information that could be useful for many pronunciation teachers. However, there are some limitations that should be addressed. The number of participants in each group may not be fully representative of the whole population under scrutiny. Given the complexity of the nature of the experiment, it was not easy to arrange the groups and find fitting participants. This study used a quantitative method to analyze and interpret the data gathered. To further validate findings, a mixed method design is suggested. Only pause frequency/duration

was analyzed here. To be able to make further claims vis-à-vis the impact of pauses on oral fluency, pause location should also be explored.

## Conclusion

In this study, we have compared the oral production of two groups of students exposed to different treatments. The evaluation of their production was done based on measurements of degree of accentedness, frequency/duration of silent pauses and nuclear stress placement. Results indicate that the group that integrated an awareness-building component obtained better results than the other group which did not include it. Founded on this information, we encourage the integration of explicit, focused fluency tasks such as the ones included in the awareness-building component presented to group B, with more controlled activities, mainly because this combination enhances learners' L2 communicative competence, thereby increasing their opportunities for successful oral communication. Teachers' challenges in implementing these types of consciousness-raising tasks in the pronunciation class, determination of maintenance of attention of fluency skills, and identification of ideal combinations of metacognitive strategies (Scarcella and Oxford, 1994) for optimal results are all questions that should be addressed in more detail in upcoming research studies of this type. We suggest that other researchers replicate this study in other EFL contexts to analyze and compare results. It would also be interesting to explore the impact of the awareness-building component in similar contexts, but measure its results using other prosodic dimensions such as intelligibility, comprehensibility, speech rate, stress/rhythm and intonation, to name a few. There is a clear demand for more empirical research in this area.

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