Language Teaching Techniques for Pronouncing the Past Tense Phonemes /t/, /d/, and /ɪd/ in Regular Verbs When Reading Aloud

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Abstract

This article presents the results of a research study based on two language teaching techniques, drilling and color-coding, and their effect on the correct pronunciation of the past tense phonemes /t/, /d/, and /ɪd/ in regular verbs in simple past tense when reading aloud; the population of this study was composed of twelve young adults. Qualitative and quantitative data from two instruments: an identification tally sheet and a questionnaire were gathered. The results obtained in the pre and

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post-test (identification tally sheet) and the performance of the participants from the experimental groups (B and C) showed that there was a positive impact on the accurate production of the past tense phonemes when reading aloud. Lastly, this research study provides evidence to claim the teaching of drilling and color-coding techniques are useful to pronounce the past tense phonemes /t/, /d/, and /ɪd/ in regular verbs correctly.

Keywords: pronunciation, simple past tense phonemes, simple past tense, drilling, color-coding, techniques.

Resumen

Este artículo presenta los resultados de una investigación basada en dos técnicas de enseñanza, repetición y código de colores, y su efecto en la pronunciación correcta de los fonemas /t/, /d/, e /ɪd/ en verbos regulares en pasado simple cuando se lee en voz alta; la población de este estudio estuvo conformada por doce adultos jóvenes. Información cualitativa y cuantitativa fue recolectada por medio de dos instrumentos: una escala de identificación y un cuestionario. Los resultados obtenidos en la evaluación inicial y en la final y el desempeño de los participantes y de las participantes de los grupos experimentales (B y C) mostraron que hubo un impacto positivo en la producción correcta de los fonemas en pasado simple cuando se lee en voz alta. Finalmente, esta investigación muestra evidencia que afirma que las ténicas de repetición y el código de colores son útiles para pronunciar los fonemas del pasado simple correctamente.

Palabras claves: código de colores, fonemas en pasado simple, pasado simple, pronunciación, repetición, , técnicas.

I. Introduction

One of the main objectives when teaching English as a Foreign Language (EFL) is to help learners develop competence in the speaking skill. Indeed, learning a foreign language requires students to cognitively strive to communicate efficiently. English pronunciation is usually considered one of the most difficult linguistic aspects to teach due to its various dialects and to each individual's native language influence. In other words, adequate pronunciation entails extra effort since it, sometimes, involves learners' working

on memorizing specific rules and patterns and applying them when speaking. According to Marín (2008), "teachers may find difficulty in trying to help their learners at different proficiency levels improve or, at least, to develop an awareness of pronunciation aspects" (p. 144). With this in mind, teachers can help students understand and internalize specific pronunciation patterns of the sound system of the target language by selecting the appropriate teaching techniques to create an engaging and meaningful learning process.

For native Spanish speakers, learning the appropriate pronunciation of the English language may lead to frustration since there are certain sounds that are difficult to utter or that may not exist in the learners' mother tongue, which can lead to misunderstandings. Villalobos (2008) explained that pronunciation is essential when learning English; in fact, if vowel and consonant sounds are not produced accurately, the intended message cannot be delivered comprehensively. One of the reasons why EFL learners may become frustrated is because the written form of the English language does not have a one-to-one correspondence between a graphic and its pronunciation; hence, it becomes harder to memorize patterns and produce sounds.

For example, EFL learners find that one of the hardest phonemes to pronounce is the -ed ending of regular verbs in simple past tense. In this regard, Marín (2008) stated that Spanish speakers may face difficulties when producing the -ed ending because of the lack of sound-spelling correspondence, the addition of an "epenthetic vowel" (e.g., fixed, /fɪksɪd/, instead of /fɪkst), which is an over-generalized rule, and because the final consonant clustering is not common in Spanish (pp. 145-146). Basically, the mispronunciation of the -ed endings to form the simple past tense of regular verbs is a frequent error caused by overgeneralization. In fact, Rodríguez (2016) affirmed that "it takes a lot of muscle training to properly pronounce the consonant groups of two, three and four consonants" (p. 15). For instance, techniques such as reading aloud, drilling, and self-monitoring, among others, may aid students in learning pronunciation patterns. Therefore, the use of appropriate teaching techniques for explaining and practicing pronunciation rules helps learners understand and overcome possible difficulties in the production of phonemes.

II. Theoretical Framework

2.1. Language Teaching Techniques

Techniques have become not only a significant element to re-inforce the educational process during language lessons, but also an innovative and engaging way to keep individuals participating actively in the classroom. Celce-Murcia, Brinton, Goodwin, and Griner (2010) indicated that teachers need to use authentic materials and a wide range of techniques to boost learners' pronunciation to create a balance between repetition and communicative activities. Herrell and Jordan (2004) defined techniques as "the body of specialized procedures and methods used in any specific field" (p. 4). Within the process of applying a technique, teachers should set the specific goal to be achieved at the end of each lesson, which, naturally, may vary depending on the type of students' needs, learning styles, and context.

2.2. Drilling

Constant training in language techniques is necessary to prepare EFL learners to face real-life situations in different contexts. Techniques become essential for teaching how to pronounce words accurately; indeed, the technique of drilling, sometimes known as repetition, is based on the Audiolingual Method. Richards and Rodgers (2001) asserted that this approach was developed in the 1950s, and its instruction was primarily based on the oral skill. It emphasizes the importance of habit formation and mechanical learning to be able to use the target language; as a result, the use of drills and dialogues was essential since repetition and constant practice help students learn pronunciation. Moreover, Marín (2008) stated that drilling is "one of the most traditional techniques used in pronunciation, commonly linked to Audiolingualism, a method from the 1940-1950s in which pronunciation gained relevance through teachers' explanation of phonetics, use of transcriptions, and modeling" (p. 126).

Brown (2001) classified drilling as a controlled technique because the instructor's input is highly required to explain to the learners the type of work to be done. Additionally, Zaroh and Laksmi (2013) stated hat drilling involves the teacher saying a word and getting students to repeat it constantly, which is the foundation for learning accurate pronunciation patterns as established in the Audiolingual Method's principles. Handoko and Mindari (2016) also referred to drilling as a

useful technique for foreign language individuals because it emphasizes repetition through oral practice. Nevertheless, can students transfer that knowledge to unfamiliar words? According to Kelly (2000), drilling helps improve learners' pronunciation and the learning of rules and new items of the language by offering autonomy to students in future contexts. Drills and pattern practice, according to Richards and Rodgers (2001), include several variations, which form the basis of Audiolingualism, such as repetition, inflection, replacement, restatement, completion, transposition, expansion, contraction, transformation, integration, rejoinder, and restoration; teachers should take into account these variations for creating activities in which the drilling technique makes students active participants in the learning process and helps them remember the pronunciation patterns.

For the purposes of this research study, repetition (saying utterances/statements after another person), and inflection (a word in a sentence appearing in another form when repeated, for example, I listen to the radio – *I listened to the radio*), and expansion (a word added to take a certain place in the sentence, for instance, I wanted [pizza] *wanted pizza*) are the types of drills implemented since the correct production of the -ed endings through the designed activities requires oral practice, the identification of sounds, and their correct usage in a sentence, respectively. In all these practices, as stated by Richards and Rodgers (2001), learners play a "reactive role by responding to stimuli, and thus have little control over the content, pace or style of learning" (p. 62), ensuring the learning of new verbal behaviors and the language contents. Furthermore, Richards and Rodgers (2001) stated that "the teacher's role is central and active; [controlling] the direction and pace of learning, monitoring and correcting the learner's performance" (p. 62). Based on Richards and Rodgers (2001), the application of rules when learning pronunciation patterns, the constant repetition during the process, and the modeling of the language behavior and structure help English language students learn the correct pronunciation of phonemes.

2.3. Color-Coding

On the other hand, color-coding is another technique for teaching pronunciation; it aims at working as a visual support for categorizing and discriminating sounds. The use of color cues may serve as the basis to promote linguistic achievement and autonomy since learning the

pronunciation patterns is useful for knowing how to pronounce a phoneme based on its color. Richards and Rodgers (2001) affirmed that color-coding is grounded on the Silent Way Method, developed by Gattegno, which emphasizes problem-solving through the use of sequenced material. The Silent Way focuses on teaching the language by associating rules and patterns visually (mainly through colors). In fact, this method started by using a chart and specific colors for certain sounds; however, as Cherry (2002) asserted this was "simply 'one man's proposal'" on how to teach pronunciation (p. 219). From this perspective, the use of colors can be optimized and/or adapted in more dynamic activities considering the students' needs. Mackintosh (1965) noted that "the use of color does solve quickly and easily the problems created by the ambiguous grapheme-phoneme relationship of English without affecting usual spelling" (p. 6). Namely, learners identify written language and encode it to later decode meaning from what they hear.

This relates to the purpose of this research study which, besides drilling, also emphasizes the use of color-coding along with reading aloud to find out whether this combination (implementation of the drilling and color-coding techniques) proves helpful for students' pronunciation. Furthermore, the association of colored resources with pronunciation patterns promotes controlled linguistic environments and learners' autonomy. Gattegno (1963) pointed out that some materials designed for the Silent Way method were colored wooden rods, phonic code charts (known as Fidel charts), sound colored rectangular charts, texts, word charts, drawings, pictures, and transparencies, among others. Most of these materials were used for pronunciation and sound recognition, providing teachers with controlled linguistic environments and "serious game-like situations" (Gattegno, 1963, p. 57). These materials also give non-native students autonomy, linguistic awareness, good diction, and clear pronunciation, among other benefits while triggering spontaneous speech and "inner criteria" (p. 8) for accurate production at some point of the language learning process (Gattegno, 1963).

Accordingly, Marín (2008) explained that "the use of color-coding systems may help learners be autonomous since they know when and how to pronounce a sound based on its color" (p. 146). After the proper use of teaching materials addressing this technique, accurate pronunciation can become automatic for learners, which is what many educators aim to achieve in their lessons. Even though the Silent Way

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remains as a traditional method because of its characteristics, it primarily seeks to provide learners with sequences and structures and to promote their autonomy based on the association of colors to pronunciation patterns.

2.4. Simple Past Tense Phonemes: /t/, /d/, and /ɪd/

Pronunciation is the process of relating phonemes, intonation, word stress, and syllabic structures when a verbal message is constructed. In fact, Forel and Puskás (2005) asserted that phonetics is defined as sound production, transmission, and perception; it is the descriptive system necessary for the study of the phonological aspects of any language. These experts affirmed that phonology refers to the existent inventory of sounds, their specific features, and the rules for specifying how they interact with each other; both phonetics and phonology are studied to comprehend how pronunciation works. Moreover, these authors explained that the English phonemes /t/ and /d/ are plosives; meaning that they are "sounds in which there is a complete closure in the mouth, so that the air is blocked for a fraction of a second and then released with a small burst of sound, called a plosion (it sounds similar to a small explosion). Plosives may be alveolar," (p. 10) as in the case of /t/ and /d/; actually, foreign language learners find alveolar phonemes more difficult to produce in regular verbs in simple past tense. Rodríguez (2016) asserted that the number of consonants that can appear at the end of a word is one of the factors responsible for the errors that persist in the pronunciation of native Spanish speakers, and "this difficulty is accentuated by the higher percentage and types of closed syllables that English presents; this occurs in the past pronunciation of regular verbs" (p. 12). Consequently, teachers should use pronunciation techniques to help learners produce the -ed endings of regular verbs in simple past tense accurately.

On the other hand, the /ɪd/ phoneme is a vowel-consonant combination, which requires less effort to produce because it resembles a sound combination frequently used in Spanish such as *you* (*usted*) and *wall* (*pared*), and it creates a new syllable which makes it easier to pronounce. Additionally, to produce the phonemes /t/, /d/, and /ɪd/ correctly, individuals need to be able to recognize that /t/ is pronounced after all voiceless consonant phonemes (/p/, /k/, /f/, /θ/, /s/, /ʃ/, /tʃ/, [except /t/]; /d/ is produced after all voiced consonant phonemes (/b/, /g/, /v/, /ð/, /z/, /ʒ/,

/dʒ/, /w/, /j/, /l/, /r/, /m/, /n/ and /ŋ/ [except /d/], and vowels; and /ɪd/ is pronounced after /t/ and /d/. Rodríguez (2016) explained that in order to correctly differentiate the three pronunciations of the past tense in regular verbs, "it is important to pay attention to the pronunciation of the ending of the verb in the infinitive form (not to its writing) and to identify if it is a voiceless sound (the vocal cords do not vibrate) or if it is a voiced sound (vibration of the vocal cords)" (p. 12). To conclude, although all three phonemes do exist in Spanish, in seeing words with -ed endings in English, a native Spanish speaker would naturally give it the /ɪd/ phonetic ending of Spanish. The /t/ and /d/ phonemes in accordance with the -ed phonological spelling at the end of words would not naturally follow, thus making these phonemes more difficult to recognize and produce.

III. Methodology

3.1. Research Method and Type of Study

This research followed a mixed-methods approach and two types of data were collected: qualitative and quantitative. According to Creswell (2003):

> A mixed methods-approach is one in which the researcher tends to base knowledge claims on pragmatic grounds (e.g., consequence-oriented, problem-centered, and pluralistic). It employs strategies of inquiry that involve collecting data either simultaneously or sequentially to best understand research problems. The data collection also involves gathering both numeric information (e.g., on instruments) as well as text information (e.g., on interviews) so that the final database represents both quantitative and qualitative information. (pp. 18-20)

Qualitative and quantitative information was gathered to examine the participants' pronunciation and their perceptions before and after the implementation of two pronunciation techniques (drilling and color-coding) when reading aloud. The immersion of the researchers in the environment under study led to a deeper understanding of the teaching and learning processes that occurred in that context; in fact, one of the researchers played the role of the instructor since she was the current teacher of the course and the other two the role of data collectors.

In addition, this was a case study since it was focused on analyzing the specific needs of the chosen population and on trying to provide a possible solution for the research problem. Hernández, Fernández, and Baptista (2006) explained that this type of research is based on examining a specific group of participants from whom information related to the processes taking place in a given context is obtained. Stake (as cited in Creswell, 2003) stated that in case studies:

> The researcher explores in depth a program, an event, an activity, a process, or one or more individuals. The case (s) is (are) bounded by time and activity, and researchers collect detailed information using a variety of data collection procedures over a sustained period of time". (p. 15)

For that reason, all the data was gathered from the instruments designed and administered in control group A and experimental groups B and C. This process was grounded on comparing and contrasting the data obtained.

3.2. Research Participants

The participants of this research study were twelve learners taking an intermediate conversational course in a private institution, located in Heredia, Costa Rica. Students took English lessons twice a week for two hours each day. They were in three different groups of four students each. The learners' ages ranged between 17 and 28 years old. All the students were from the province of Heredia, Costa Rica, where they were studying their first or second year at different universities in the area. The students' main objective was to become communicatively competent in English to be able to apply for a job and to complement their majors; thus, they were highly interested in speaking this language accurately to communicate in varied contexts.

Additionally, the participants were low intermediate to intermediate language learners. Likewise, the individuals received training in the past tense pronunciation in the prior course; however, the learners still presented issues in regard to the pronunciation of the phonemes /t/, /d/, and /ıd/ in regular verbs when reading aloud. Finally, gender was not considered a variable of interest for this research, so the number of females and males was different in control group A as well as in experimental groups B and C.

3.3. Instruments

To collect data, two different instruments were designed; they described as follows:

a. Identification tally sheet: It was created for collecting quantitative data to classify the learners' pronunciation of the past tense phonemes /t/, /d/, and /ɪd/ in regular verbs when reading aloud. The instrument consisted of a chart divided into ten columns (five for the pre-test and five for the post-test). Each set of five columns was distributed as follows: the phoneme (/t/, /d/, or /ɪd/), a regular verb in simple past tense portraying that phoneme, and three columns for the researcher to check the participants' pronunciation as correct, incorrect, and/or absent, which refers to the complete omission of the -ed sound when pronouncing the regular verb in simple past tense. The pronunciation of the regular verbs under study and the tasks carried out were exactly the same during the pre and post-test for control group A as well as for experimental groups B and C. To administer the identification tally sheet, a reading sample was utilized. It consisted of a text about a person's busy day, which contained eighteen sentences and six regular verbs in simple past tense for each of the phonemes under study. This reading sample was adapted from Speak Method (n.d.), and it was chosen because it contains a considerable number of regular verbs in simple past tense and it matched the learners' language level.

b. Questionnaire: It was exclusively implemented in experimental groups B and C to collect qualitative information related to the participants' perceptions in regard to the implementation of the language teaching techniques (drilling and color-coding). This instrument was designed in the students' native language to avoid language barrier issues in answering it; it was composed of instructions and five open-ended questions in which learners were asked to indicate their opinion on whether the techniques were helpful or not to pronounce the -ed past tense phonemes.

3.4. Implementation of the Techniques

The implementation of the techniques for experimental groups B and C was based on six activities, which included three exercises

for each of the two pronunciation techniques. For instance, the Timer Activity, the Floor is Lava game, and Building Up activities were used for drilling; and the Color Paper, Color Slap, and Memory Game were applied for the color-coding technique. To execute each activity, the necessary materials were provided to the instructor, who was one of the researchers. In addition, to obtain a more reliable contrast between the techniques, two activities, one for drilling and another for color-coding, were implemented in each session. In other words, two techniques were carried out per session to make a total of six. The verbs used in the simple past tense for each activity were the same as those in the pre and post-test (reading sample); there were a total of 18 verbs, specifically six for each phoneme.

3.4.1. Drilling

a. Timer activity (repetition): Students were divided into two teams; each team was given eight blocks for lives, two for each student. The teacher was also given a list of verbs she could use. She had a (loud) countdown clock, she repeated a verb in simple past tense three times, and participants repeated chorally. The instructor uttered a short sentence using that verb and learners repeated it chorally. After that, they passed a ball around and repeated the sentence individually. When the countdown clock stopped, the person with the ball in his/her hands lost a life and had to give a block to the other team. The team with more blocks won. The length of time changed in each round. In this activity, the phoneme /t/ was emphasized. For example:

Teacher: worked (repeated three times) Students chorally: worked (repeated three times) Teacher: I worked yesterday	Student 1: I worked yesterday (passed the ball) Student 2: I worked yesterday (This continued until the timer stopped)

b. "The floor is lava" game (inflection): For this game, the researchers provided the teacher with a list of verbs and materials. Learners were all located on one side of the classroom. The teacher placed tape circles on the floor; each circle represented one -ed phoneme, each one previously labeled by the instructor. Then, the teacher said a verb in its base form out loud and yelled "The floor is lava!" The students had to think of the verb in simple past tense form and

immediately stepped on the circle labeled with the corresponding -ed sound. Once they were in each circle, the teacher said the verb in simple past tense out loud for participants to repeat it. The instructor then proceeded to check the students' responses by asking them to repeat the verb in simple past tense. If the responses were incorrect, the instructor had to provide feedback before the next round started. The individuals who responded correctly could stay in the game for the next round, and the ones who did not or who placed themselves in the incorrect circle were out of the game. In this game, the phoneme /d/ was emphasized. For example:

Teacher: Remember Students: (Switch the verb into past tense and look for the correct circle) Teacher: Remembered Students chorally: Remembered Teacher: Can you repeat the verb?	Student 1: Remembered /rɪˈmɛmbərd/ (Student continued in the game) Teacher: Can you repeat the verb? Student 2: Remembered* /rɪˈmɛmbərt/ (Student was corrected but could not continue in the game)

c. Building up (expansion): Participants made a circle to create short stories in a sequence. They built up statements by adding a word or phrase given by the teacher. The instructor said verbs, verb phrases, and other information one after the other, to each student, in a sequence. The learners had to repeat each sentence and keep adding on verbs and the information provided by the instructor. The verbs or verb phrases had to be used in simple past tense. This activity emphasized the /ɪd/ phoneme production. The same verbs as in the reading sample (pre and post test) were used and given to the teacher. A total of six verbs ending in /ɪd/ were used, and the story ended when all the verbs were pronounced. For example:

Teacher: I wanted Student 1: I wanted pizza Teacher: to order Student 2: I wanted to order pizza Teacher: yesterday	Student 3: I wanted to order pizza, yesterday Teacher: I decided Student 4: I wanted to order pizza yesterday, but I decided to eat lasagna.

3.4.2. Color-coding

a. Color-paper game: For this game, the researchers provided the teacher with colored paper pieces and a bag. Students took pieces of paper of assorted colors from a bag; they were told they could take as many as they wanted. The pieces of paper already had the verbs in their base form written down. Then, the teacher explained that the number of pieces of paper grabbed by each student indicated the number of sentences they had to generate for the class, and the colors indicated the phoneme needed. This activity emphasized the /t/ phoneme production; red was used for this sound. Green and blue represented the /d/ and /ɪd/ phonemes respectively. Red pieces of paper outnumbered other pieces since the emphasis was on the /t/ production. As already mentioned, the verbs used for these activities were the same as in the reading sample (pre and post test), thus, there were 18 verbs in total, six for each -ed phoneme. However, for participants to have more opportunities to practice this sound; there were 12 red /t/ pieces, 6 green /d/ pieces, and 6 blue /ɪd/ pieces, making a total of 24 verbs for this activity. For example:

b) Student 1: (took five pieces: three color red, one green, and one blue) c) Teacher: Go ahead and create the sentences based on the verbs you see in each card, remember that red indicates sound /t/, green sound /d/, and blue /ɪd/.	Student 1: I worked yesterday, I developed a project, I washed my hair, I called my sister, and I needed to study more.

b. Color slap: For this activity, the researchers provided the teacher with the material needed. The teacher arranged learners into two teams and put 24 verb flashcards (base form) facing down on a table. The colors of the flashcards indicated the -ed phoneme needed: red for /t/, green for /d/, and blue for /ɪd/. Taking turns, a student from each group had to face up a verb card and instantly all the group members, at the same time, had to slap the table if they believed they knew the correct -ed pronunciation of the past tense form of the verb. The student who slapped the table first had to answer by correctly uttering the past tense form of

the verb, and he/she won a point for his/her team. This game emphasized /d/ production; green was used for this sound. Red and blue represented /t/ and /ɪd/ sounds respectively. Green verb flashcards outnumbered others since the emphasis was on /d/ production. To do this, the green verb flashcards doubled the rest (12 green /d/, 6 red /t/, 6 blue /ɪd/ verb flashcards). For example:

Teacher: (faced down the 24 cards) Student 1: (faced up one card) Student 1, 2, 3, 4: (slapped the card)	Student 3: (slapped the card first) (verb in the card: call) the sound is /d/, called.

c. Memory game: For this game, the researchers provided the teacher with the material needed. A set of 24 pairs (a total of 48 cards) of regular past tense verb cards was posted on the board facing down. The four participants played as a group and by taking turns, they uncovered the cards and tried to pair verbs up according to their color. After a card was uncovered, the learner pronounced the past tense form of the verb written on it aloud for the class. When the student matched two cards, he/she had to utter a sentence that included the correct pronunciation of the past tense form of the verb on the cards. Immediate feedback was given if there were any incorrect answers but no point was granted if this happened. The student who gathered more cards won. This game emphasized the use of the /ɪd/ sound; blue was used for its recognition. Red and green represented /t/ and /d/ sounds. Blue cards outnumbered the others since the emphasis was on /ɪd/ production. To do this, the blue cards doubled the rest (12 blue /ɪd/, 6 red /t/, and 6 green /d/ cards). For example:

Teacher: (faced down the 24 cards) Student 1: (faced up one card), (verb in the card: need), the sound is /ɪd/, needed. (Faced up another card), (verb in the card: need), the sound is /ɪd/, needed.	Teacher: Okay, so you found a pair, try to create a sentence. Student 1: I needed to finish my homework yesterday.

IV. Results and Discussion

4.1. Pre and Post-Test

The identification tally sheet (pre-test along with the reading sample) instruments gathered data based on the students' pronunciation of the past tense phonemes /t/, /d/, and /ɪd/ in regular verbs when reading aloud before implementing the drilling and color-coding language techniques; it was applied in control group A and experimental groups B and C. The data collected was categorized by group and by participant, and it is shown as follows:
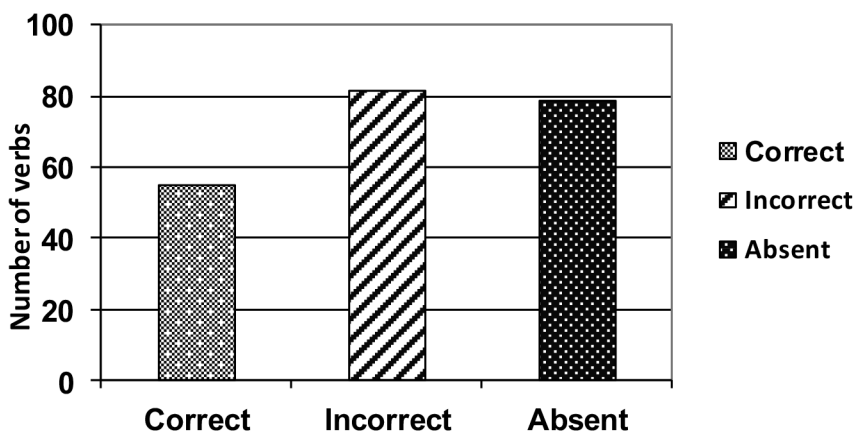

Figure 1. Pre-test: Overall results from the participants' pronunciation of the past tense phonemes /t/, /d/, and /ɪd/ when reading aloud.

Note: Researchers' own elaboration

As shown in Figure 1, in the three groups, the participants pronounced the regular verbs in simple past tense correctly 55 times (25.46%), students mispronounced them 82 times (37.96%), and they were omitted 79 times (36.57%). In addition, the initial performance of the pronunciation of the -ed phonemes while reading aloud, from control group A and from experimental groups B and C is:
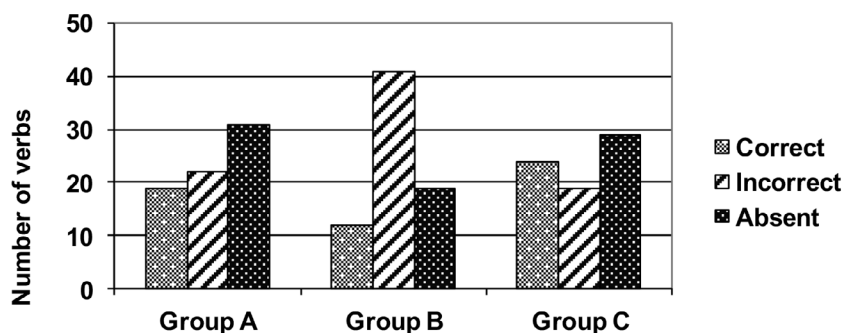
Figure 2. Pre-test: Overall results from each group's pronunciation of
the past tense phonemes /t/, /d/, and /ɪd/ when reading aloud.

Note: Researchers' own elaboration

In control group A, the participants pronounced the regular
verbs in simple past tense 19 times correctly while reading aloud,
which represents 26.38% of the total amount of responses. They mis-
pronounced the -ed endings 22 times (30.55%), and learners omitted
the -ed sounds in 31 occasions (43.05%). Moreover, in experimental
group B, the -ed sounds were pronounced correctly 12 times (16.66%),
mispronounced on 41 occasions (56.94%), and omitted them in 19
opportunities (26.38%). Finally, in experimental group C, the indi-
viduals pronounced the -ed sounds correctly 24 times (33.33%), they
mispronounced them on 19 occasions (26.38%), and omitted them in
29 opportunities (40.27%).

The pre-test indicates a lack of command of the past tense
phonemes in regular verbs when reading aloud in the three groups ac-
cording to their overall initial performance of correct answers, which
was a 26.38% in control group A, 16.66% in experimental group B, and
33.33% in experimental group C, marking an average of 25.46% over-
all correct answers when pronouncing the sounds. In accordance with
Thomson and Derwing (2014) and Marín's (2008) research studies,
there is a need to implement techniques to improve and monitor the use
of -ed endings and their correct pronunciation in regular verbs in simple
past tense. Villalobos (2008) explained that Spanish speakers encounter
final -ed sounds in simple past tense difficult because they tend to pro-
nounce them as they are written. Additionally, Marín (2008) asserted
that the "omissions are usually the product of lack of awareness" (p.

155); in other words, the lack of previous training and knowledge and the influence of Spanish (the participants' mother tongue) could affect the correct students' initial pronunciation of these phonemes.

The identification tally sheet was also administered as the post-test (along with the reading sample); this instrument aimed to identify the students' pronunciation of the past tense phonemes /t/, /d/, and /ɪd/ in regular verbs when reading aloud after the implementation of the drilling and color-coding techniques. It was administered in control group A as well as in experimental groups B and C to compare the effect of both techniques. Based on the students' final performance, during the application of the post-test, in all three groups, most of the times, the participants pronounced the -ed inflection correctly, specifically 141 times; they mispronounced it in 26 opportunities, and omitted it on 49 occasions.
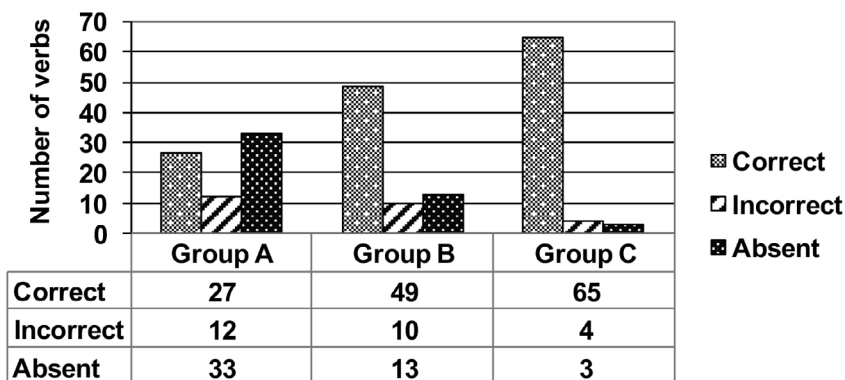

	Group A	Group B	Group C
Correct	27	49	65
Incorrect	12	10	4
Absent	33	13	3

Figure 3. Post-test: Overall results from each group's pronunciation of the phonemes /t/, /d/, and /ɪd/ when reading aloud.

Note: Researchers' own elaboration

In the post-test, the results obtained from groups B and C reflect the effect of the techniques implemented. Experimental groups B and C improved their results from the pre-test to the post-test, where there is an improvement of 51.39% in group B, and 56.94% in group C. This stands as proof of the effectiveness of the exposure to the implemented techniques (drilling and color-coding). Meanwhile, control group A had an overall improvement of 11.12% on their correct responses due to the fact that the pronunciation of the /t/, /d/, and /ɪd/ phonemes in regular verbs in simple past tense is a topic studied in the course the participants

were taking at the moment this research study was carried out (intermediate conversational course). Based on the data obtained from groups B and C, whose participants went through the implementation of the techniques, their significant improvement shows the achievement of a positive outcome from the exposure to the proposed activities, showing these helped improve the learning of the /t/, /d/, and /ɪd/ phonemes when reading aloud.

4.2. Results Based on Each Phoneme

As previously explained, the pre-test results showed that the three groups pronounced the -ed endings correctly 55 times, incorrectly on 82 occasions, and the sounds were omitted 79 times. On the contrary, the post-test results demonstrated that the participants pronounced the -ed endings on 141 occasions correctly, mispronounced them in 26, and omitted the sounds in 49. Figure 4 illustrates the initial results of the correct production of each phoneme:
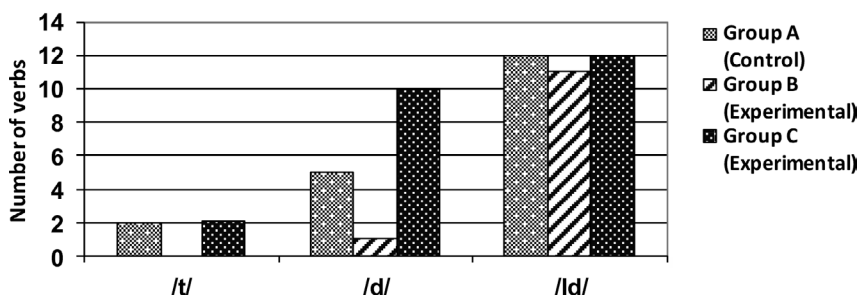

Figure 4. Pre-test: correct answers for each phoneme.

Note: Researchers' own elaboration

Figure 4 includes results of six words for each phoneme /t/, /d/, and /ɪd/, being the maximum number of correct responses for each group 24. According to it, the results indicated that the /t/ sound was the one with the greatest percentage of mistakes in all groups, where only 4 (16.66%) of the answers were given correctly by group A and group C, while group B could not produce any of the sounds correctly. Regarding the /d/ sound, the statistics showed a better performance and understanding since control group A demonstrated correct application of the pronunciation rule in 20.83% of the cases (5 answers), group B in 4.16% (1 answer), and group C in 41.66% (10 answers). Last, with the /

ɪd/ sound, participants showed better mastery over its application given that 50% of the times (12 answers) from groups A and C were correct, while group B answered 45.83% of the occasions accurately (11 answers). In other words, after checking the results, the /ɪd/ phoneme was the one in which the participants scored the better. Based on Marín's (2008, p. 154) research study, this result can be specifically attributed to the fact that the presence of a vowel before the consonant can make its pronunciation easier for Spanish speakers, as it is similar to the sound sequences in this language.

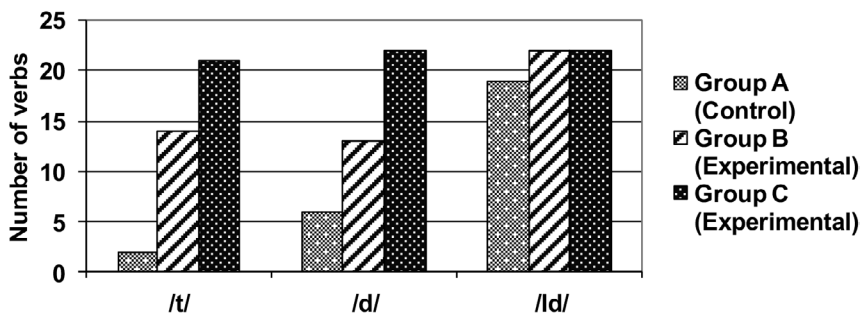Additionally, Figure 5 illustrates the results based on the production of each phoneme in the post-test stage:

Figure 5. Post-test: correct answers for each phoneme.

Note: Researchers' own elaboration

Concerning the individual pronunciation of each sound during the post-test, control group A pronounced the /t/ ending correctly on 2 occasions (8.33% of the times), while group B did it accurately on 14 occasions (58.33%), and group C 21 times (87.5%). Regarding the /d/ ending, group A had a proficiency of 25% with 6 correct answers; group B had 13 correct responses (54.16%), and group C 22 (91.66%). Lastly, the /ɪd/ ending results were 19 correct answers by control group A (79.1%) and 22 by experimental groups B and C, which correspond to 91.66%. Moreover, not only did the experimental groups improve their pronunciation of the phonemes described, but also they seemed to recognize the ending sounds better since group B had only 13 absent endings, unlike the 19 occasions from the pre-test. Group C did not pronounce the sounds at all in three occasions, contrasting the 29 opportunities the sound was absent in the pre-test. On the other hand,

group A did not improve its score in this sense since they went from 31 absent sounds on the pre-test to 33 on the post-test. Meanwhile, experimental groups B and C showed a clear improvement on every sound, specifically on the /ɪd/ phoneme, which Marín (2008) and Cruz (2013) stated as simpler for students to identify and replicate. Cruz's (2013) research subjects also found difficulty when producing the /t/ and /d/ sounds; the author attributed this to "their native language interference and the phonetic references that there are in both languages" (p. 33).

Summing up, based on the data obtained and on the analysis of control group A and experimental groups B and C, a difference in results can be clearly stated. Groups B and C, who were part of the implementation of the drilling and color-coding techniques, improved their overall results substantially. Group B's correct productions which went from 16.66% (pre-test) to 68.05% (post-test), and group C's went from 33.33% (pre-test) to 90.27% (post-test). This shows improvement in the general results of correct production of the past tense phonemes from 25.46% to a total of 79.16% in the post test, with a considerable improvement of 54.16% average overall. On the other hand, control group A went from 26.38% to 37.5%, improving a percentage of 11.12%. With the previous information, it is a fact that there is a strict relationship between the instructional implementation and the improvement on the production of the simple past -ed phonemes. This progress obtained through the implementation of the techniques also proves Wei's theory (2006), which states that "if language teachers spend time learning and practicing strategies for teaching pronunciation" (p. 3), learners would be able to improve on this micro-skill.

4.3. Research Participants' Perception

To address the participants' perception in terms of the usefulness of each technique (drilling and color-coding) applied during the implementation stage, a questionnaire was administered in experimental groups B and C. In fact, experimental group B considered that drilling was useful for learning the pronunciation of the -ed endings because they could remember and repeat the sounds easily. For example, participant 1 mentioned that *"I was able to hear the sounds in my mind."* This student felt either more acquainted or more positive towards the Audio-lingual approach (linked to the drilling teaching technique), which was the reason why he/she listens to sounds internally over and over and implies

that the technique used can be effective when addressing students with such inclination towards learning. Additionally, in this group, all students agreed on the fact that color-coding was also useful to improve the recalling of the correct pronunciation of the past tense phonemes. They stated that this technique helped them categorize and associate colors with sounds; however, students affirmed that this system took some time for learning how to link sounds and colors. In general, experimental group B considered that both techniques were effective to remember the correct pronunciation of the past tense phonemes.

Experimental group C also considered drilling useful for learning the correct pronunciation of the -ed endings because they could remember the sounds more easily; it was also the way they preferred to learn words. However, one of participants admitted that this technique was monotonous. On the other hand, all participants acknowledged that color-coding was useful to improve their pronunciation, too. Most of them specified that this technique helped them recognize colors according to sounds, for example, one of the students mentioned that *"it was similar to a formula or code for remembering the pronunciation of each phoneme"*. Certainly, most participants, 3 out of 4, in group C considered color-coding more useful to learn the pronunciation of the past tense phonemes.

Such positive perceptions helped reinforce how valuable the use of the techniques was. Both groups B and C described the techniques as useful, where drilling obtained 3 positive votes, color-coding 4, and 1 shared vote. The statistics not only reflect the students' taste towards the activities, but also reflect an improvement from the experimental groups B and C over control group A of almost 42% (37.5% control - 79.1% experimental). Also, the research participants from group B claimed that they *"related the sounds to different colors"* (participant 1), and that it was a good *"way to categorize information and remember it"* (participant 3). There is a clear correlation between the positive perceptions of the participants and the implementation of the color-coding technique. Even though the learners mentioned the monotony of drilling, the students did portray favorable opinions towards the technique, which demonstrated the need to repeat words or phrases more than once, so they are learned more easily and effectively.

V. Conclusions

Based on the obtained data and the analysis carried out, it can be concluded that the use of the drilling and color-coding techniques was effective and had an impact on the participants' pronunciation of the -ed past tense positively and effectively. During the pre-test, learners performed deficiently since all three groups mispronounced and omitted the final -ed endings for most verbs. This showed little command of the production of the past tense phonemes. The implementation of both techniques, drilling and color-coding, was truly effective to help learners pronounce the past tense phonemes /t/, /d/, and /ɪd/ in regular verbs in simple past tense correctly when reading aloud. After the implementation of the techniques in experimental groups B and C, information on the three groups' pronunciation was gathered again (post-test) by using the same identification tally sheet and reading sample. It was shown that experimental groups B and C significantly improved their pronunciation of the past tense phonemes /t/, /d/, and /ɪd/ in regular verbs when reading aloud. In fact, this process showed the usefulness and effectiveness of the two techniques implemented; this was clearly determined through their improvement in the post-test since learners showed their awareness when producing the -ed ending sounds accurately. Regarding control group A, this little improvement is to the fact that it did not receive the implementation because of the research's nature, such lack of change is reasonable. However, there was an improvement due to the fact that the pronunciation of the /t/, /d/, and /ɪd/ phonemes in regular verbs in simple past tense is a topic studied in the course the participants were taking at the moment this research study was carried out (intermediate conversational course); finally, there might have been students in this group who put more effort into learning and applying the rules.

Throughout the application of the questionnaire, the individuals showed their perceived views towards the usefulness of learning the pronunciation of regular verbs in simple past tense through the use of the implemented techniques. Experimental group B preferred drilling in contrast to experimental group C, which liked color-coding the most, because they favored associating sounds to colors since they were learning the pronunciation of the phonemes in a non-repetitive way. Based on the research findings, the participants' pronunciation showed an improvement in the production of the past tense phonemes /t/, /d/,

and /ɪd/. Therefore, the researchers do believe that the participants' perceptions can be a qualitative indicator of the effectiveness of the techniques implemented. Since the learners' positive answers seemed to correlate with the effectiveness of drilling and color-coding, the techniques should be taken into consideration for further studies with other phonemic variables or pronunciation patterns. This could be helpful to test the effectiveness of the procedure and to observe how these techniques work with other sounds and phonemic variables, not only with /t/, /d/ or /ɪd/.

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