

English as a Foreign Language Speaking Skills development: Investigating Beginner Learners' Vowel Sound Mispronunciation

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DOI: <https://doi.org/10.47772/IJRISS.2026.100601299>

Received: 04 July 2026; Accepted: 10 July 2026; Published: 17 July 2026

ABSTRACT

Speech production is understood to encompass the cognitively demanding stages of conceptualization; lexicalization; morphological, phonological and phonetic encoding; and articulation. Still, central in speaking is the articulation of strings of sounds a hearer interprets to derive meaning. This process is even more challenging in the context of learning an additional language. In the context of Morocco, speaking in English presents challenges for EFL learners, detrimental among which is the mispronunciation of sounds hindering communication. This study investigates the mispronunciation of English vowel sounds by Moroccan beginner EFL learners. Data was collected through overt observation of three first-year high school classes (90 Students) during twenty one-hour lessons. Mispronounced words by the students, reflecting inaccurate vowel sounds, were recorded and analyzed. The findings reveal interference errors—mispronunciation of English vowel sounds that are not part of these learners' first language phonetic inventory (Moroccan Arabic). There were also intra-language vowel sound errors. The errors manifested in either shortened or substituted long vowel sounds and reduced or substituted diphthongs. Given the importance of pronunciation instruction, these findings may have implications for EFL teaching and for improving speaking proficiency. The recommendations drawn from the present study's findings include teaching the English language vocalic system as part of pronunciation instruction at the beginner level to EFL learners. Syllabus and coursebook design would, likewise, benefit from the findings in terms of sound pronunciation gradation and the inclusion of the IPA symbols, given the sound-spelling inconsistency in the English language.

Keywords: EFL Morocco; pronunciation; speaking deficiency; teaching pronunciation; teaching speaking; TEFL; intelligibility; vowel sounds

INTRODUCTION

Speaking in a second language (L2) is challenging, for it involves production of utterances in a sound system different than that of the learner's first language (L1). This production of strings of sounds is the culmination of a process with challenges at every stage—conceptualization, formulation, articulation, and monitoring (Levelt, 1989). Catford (2001) highlights the complex nature of speaking, noting that the phases of speech production begin with conceptualization of the event a speaker needs to communicate about. This conceptualization is encoded in a form dictated by the grammar of the language (phonology, morphology, syntax, and semantics). The linguistically encoded utterance is then externalized and subsequently decoded by the hearer to yield a meaning closely matching that intended by the speaker. Yet, a universal challenge for L2 learners is at the level of producing phonetically and L2 phonologically accurate words and utterances. This deficit, undoubtedly, is detrimental to two central prerequisites for effective communication: intelligibility and comprehensibility. Intelligibility is the actual understanding at the lexical, semantic, and pragmatic levels, and comprehensibility refers to the degree of effort by the listener involved in understanding (Levis, 2018).

One of the aspects of the speaking deficiency for Moroccan EFL learners is the mispronunciation of English sounds, affecting their speech intelligibility. Although many aspects of this speaking difficulty have been explored, limited research has investigated the pronunciation aspect. The present study is, thereby, devoted to investigating the problems that native Moroccan Arabic (MA) speakers experience with regard to the production

of English vowel sounds. The aim is to identify any error patterns and to shed light on possible causes. The significance of this research is in seeking to pinpoint areas where learners have pronunciation problems and in attempting to contribute to improving pronunciation teaching in EFL contexts. Towards this end, three classes of beginner English learners at a public high school were observed during lessons, and their mispronounced words reflecting vowel inaccuracy were recorded and analyzed. The analysis of the errors was conducted adopting Corder's (1975) error analysis model, as elaborated by James (2013), consisting of the three steps of data collection, description, and explanation.

The following three questions are posed to pursue the aims of the present study:

- What type of errors do Moroccan beginner EFL learners make with regard to pronunciation of English vowel sounds?
- What are the possible causes of Moroccan beginner EFL learners' vowel sound mispronunciation?
- Is there evidence of L1 interference in the Moroccan beginner EFL learners' vowel pronunciation errors?

LITERATURE REVIEW

The Moroccan EFL learners' speaking challenges have been investigated with the aim to determine the underlying causes. Some of these causes are sociolinguistic, resulting from the distance between the Moroccan culture (C1) and the culture associated with the target language (English), the lack of opportunities for speaking English in daily life, and the apprehension of negative evaluation that contribute to speaking anxiety (Eddraoui & Wirza, 2019). The EFL learners' anxiety was also invoked by Baddane (2025), interestingly highlighting the cyclical nature of this inhibiting factor. Baddane notes that, due to anxiety, the learners' participation in class is limited, which deprives them from opportunities to practice and improve their speaking skills and oral language production proficiency. The limited speaking proficiency, in turn, leads to the learners' reluctance to speak in class.

Other causes are the lack of the necessary vocabulary to express oneself, low self-confidence, the complexity of the textbooks, and the teaching methodology (El Hannaoui, 2017). Additional causes of this speaking deficiency are teacher instructions and feedback, the overall classroom conditions or setting, and the lack of adequate communication aids (Sakale, 2012). This body of research indicates that the speaking issues for Moroccan EFL learners have been explored chiefly from the extra-linguistic-factor standpoint. Yet, we may benefit from exploring the linguistic factors contributing to this speaking deficiency.

Moroccan EFL learners' speaking problems have not been exhaustively explored at the linguistic level, specifically the pronunciation difficulties faced by learners. Little has been done in researching the common pronunciation errors made by these learners and the likely causes. While multiple studies have explored this issue for EFL learners who are native speakers of different varieties of Standard Arabic (SA), Benhima's (2019) is a study of English pronunciation errors made by native speakers of Moroccan Arabic (MA). This study provides invaluable insights into the problem at hand. It explored segments (consonants and vowels) and the supra-segmental feature stress, and discussed error correction at the university level.

More insights were provided by Anasse and Mrissa (2023). The authors found that the common pronunciation errors made by novice English learners can be categorized into the six categories: (1) misplaced stress, (2) minimal pairs, (3) word stress, (4) vowel length, (5) homophones, and (6) mispronouncing the sounds /ð/, /tʃ/ and /ʃ/. Anasse and Mrissa attribute this pronunciation deficiency to interlanguage, L1 interference, the lack of exposure to English sounds, poor input, and incorrect drilling from instructors. This cumulative knowledge on the EFL speaking and pronunciation challenges in the context of Morocco may be expanded, and additional factors in mispronunciation errors may be exposed.

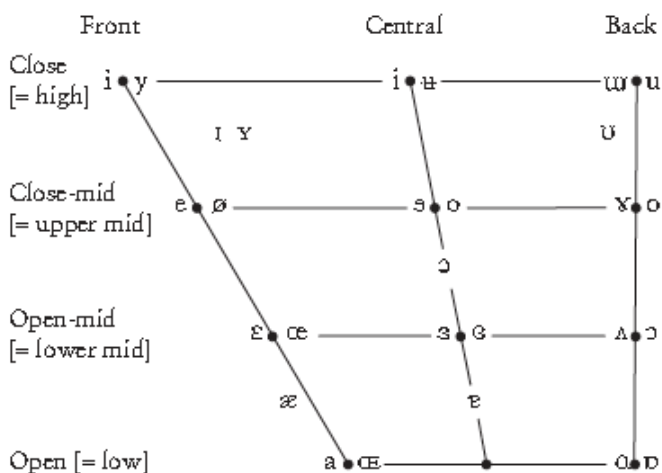
The present study aims to investigate the linguistic aspect of the speaking problem at hand and approaches it from the phonetics-phonology angle, focusing exclusively on vowel sound mispronunciation. It seeks to explore the manifestations and causes of this issue at the early stages of learning the English language by MA native speakers so that remedial actions could be developed.

Human language is a species-specific code of communication, and humans are, according to the innatist view, predisposed for the acquisition of language. Yet, the acquisition of language is channeled by the input children receive. This input reflects the sound system of their L1, to which they have been exposed since early age. Learning another language entails, therefore, learning different sounds, sound combinations and the resulting processes, and supra-segmental features—features superimposed on sounds such as stress.

Phonetics, the systematic study of human speech sounds, provides means for describing and classifying all the sounds that can be produced by human vocal tracts (Catford, 2001). Natural languages differ in the phonemes they include from the phonetic sound inventory. It follows that learning the English language entails correctly articulating its phonemes (consonants and vowels). Vowel sounds, the focus of this study, are sounds in which there is no obstruction to the flow of air as it passes unimpeded from the larynx to the lips (Roach, 2009). Vowels also are the highest among sounds in the sonority scale and are at the nucleus of syllables, making them of central importance to parsing utterances into words during speech perception and to intelligibility during speech production.

Vowels differ from consonants in that they are articulated without major constriction in the vocal tract, which acts as a resonating chamber. Modifying the shape of the vocal tract through movements of the tongue, jaw, and lips causes different timbres to be imparted to the basic sound produced at the vocal cords (Hayes, 2009). Vowels are usually distinguished by three properties. While the close/open feature refers to the position of the jaw (the extent to which the mouth is open), front/back indicates whether the tongue is curled to the back or extended towards the front of the mouth, and the rounded/unrounded parameter indicates the shape of the lips (Sadiqi & Naji, 1999). This taxonomy is underpinned by the generative grammar framework, where a finite number of features—three for vowels, not including Tense/lax—are used to describe a large number of sounds. Figure 1 indicates the classification of vowel sounds based on their properties.

Figure 1. Classification of Vowel Sounds



<https://www.internationalphoneticassociation.org/sites/default/files/IPA>

Still, one of the important characteristics of vowels—and phonemes in general—is distinctiveness; that is, vowel sounds are contrastive (Katamba, 1989). A change in vowel sound distinguishes the meaning of two words, as in the minimal pairs marry - merry /mæri/-/meri/ and tan - ten /tæn/-/ten/. Hence, accurate production of sounds that are part of a preconceived code enables transformation of acoustic signals into cognitive messages. This production of acoustic signals is orchestrated by the brain, which orders different configurations of the vocal tract. Such a process becomes automated with multiple usage events (Odisho, 2014). Therefore, learning to produce L2 vowel sounds is training the brain to send different messages to the articulators in the vocal tract to execute novel configurations corresponding to new vowel sounds and then practicing their articulation.

Many languages only have five vowels. Five is the most common category of vowel system in the world's languages. The English language system is one of the less common and more complex types. It is thus predictable that most foreign learners would have trouble attaining the English language vowel system (Cruttenden, 2014).

In order to investigate English vowel sound errors made by Moroccan EFL learners, it is necessary to overview the vowel systems of both Moroccan Arabic (MA) and English. The English language includes the short vowel sounds /ɪ, e, ə, æ, ʌ, ɒ, ʊ/, the long vowel sounds /i:, ɜ:, ɑ:, ɔ:, u:/ and diphthong vowel sounds /eɪ, aɪ, ɔɪ, aʊ, əʊ, ɪə, ʊə/ (a sequence of two vowel sounds that functions as a single sound and that is also termed *vowel glide*). These diphthongs can be subdivided into fronting diphthongs ending in /ɪ/, backing diphthongs ending in /ʊ/, and centring diphthongs ending in /ə/ (Colins et al., 2019). Table 1 illustrates the English vowel sounds, classified based on their properties. The classification of diphthongs is shown in Table 2.

Table 1. English Vowel Sounds and Their Properties

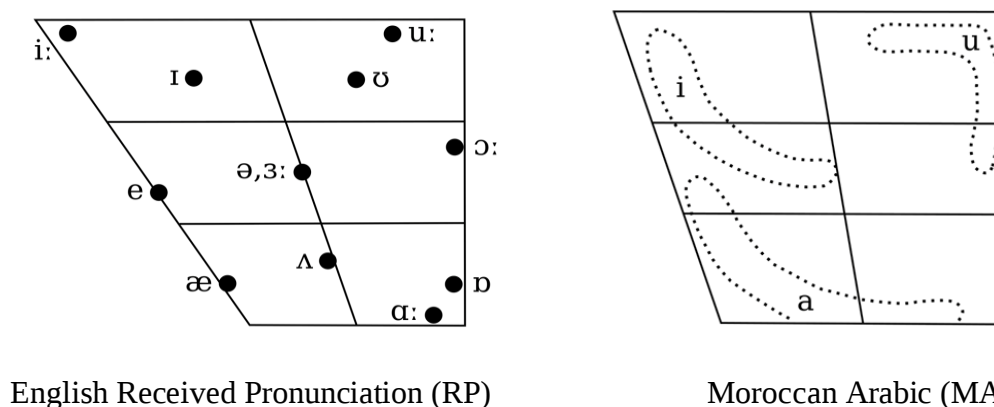
Front		Back		
	Central			
Rounded	Unrounded	Unrounded	Rounded	
	ɪ - i:		ʊ - u:	Close/High
	e - ɜ:	ə - ʌ	ɔ:	Mid
	æ	ɑ:	ɒ	Open/Low

Table 2. English Diphthongs Classification

Vowel Glide		Diphthong	Words
Fronting	front mid → ɪ	eɪ	Play /pleɪ/
	central open → ɪ	aɪ	Price /praɪs/
	open-mid (rounded) → ɪ	ɔɪ	Boy /bɔɪ/
Backing	central open → ʊ	aʊ	South /saʊθ/
	central mid → ʊ	əʊ	Go /gəʊ/
Centring	front close-mid → ə	ɪə	Near /nɪə/
	central close-mid → ə	ʊə	Cure /kʊə/

However, MA, a variety of Standard Arabic (SA), only has three phonemic vowels /ɪ, a, u/ in addition to /ə/ (schwa) used to break up consonant clusters (Lahrouchi, 2018). MA has the same three peripheral vowel sounds as SA, but without the length contrast the SA vowel sound system exhibits (long vowel sounds). Figure 2 illustrates the difference between English and MA in terms of vowel sounds. Another major difference between the two languages is the consistency of sound-spelling equivalence in MA and inconsistency in English. In more specific terms, each sound in MA is represented by one grapheme (letter), and each grapheme represents only one sound. Contrastingly, in English, a phoneme may have more than one equivalent spelling, and letters or letter combinations can represent multiple sounds. Consider how the vowel sound /ʌ/ is spelled (u) in {sun} and (o) in {son}, and the vowel sound /ɪ/ is spelled (ea) in {flea}, (ee) in {flee}, (eo) in {people}, and (i) in {ski}. Another example of the sound-spelling inconsistency in the English language is the letter (a) representing the diphthong /eɪ/ in {ate} and the phoneme /æ/ in {at}.

Figure 2. Differences Between the English and Moroccan Arabic Vowel Systems



Adapted from Turcsan (2021)

The Contrastive Analysis Hypothesis (CAH) predicts that cross-linguistic differences present difficulties in second language learning. That is, learners transfer forms of their native language (NL) to the target language (TL) (Lado, 1957). This transfer is positive when the transferred forms apply to both the NL and the TL. Negative transfer, on the other hand, hinders learning, as the NL transferred forms do not apply to the TL. Correspondingly, native speakers of MA would find learning the sound segments of English that have no counterparts in their L1 challenging. Flege's (1995) speech learning model further suggests that accuracy in L2 sound production is affected by assimilation and dissimilation of phonetic categories between NL and TL.

Error Analysis Hypothesis (EAH) goes beyond L1 negative transfer as a source of L2 errors. It is claimed within this framework that errors made by second language learners can be the outcome of different causes. According to this view, errors are systematic and fossilized, which excludes mistakes that the learners can correct themselves. The EAH procedure involves, in its original model, data collection, description, and explanation. A more developed model consists of identification of errors, description of errors, classification of the errors, and profiling and error analysis (James, 2013). The latter is the model adopted in this study, in addition to a revised version of CAH, in seeking to answer the research questions.

METHOD

Participants

Ninety beginner learners of English as a foreign language—fifteen to sixteen years old—participated in this study. These students were at the Common European Framework of Reference (CEFR) A1 proficiency level. They were students in common core (first year) classes at a public high school, learning English for the second year after having learned elementary notions of English (pre-A1 level) during their final year in middle school.

Instruments and procedures

Data triangulation was ensured through observation of different lessons at different times during twenty sessions. The researcher overtly observed sessions during which the students were taught the English language systems and skills. There were varied targeted learning standards for the activities in which the students were involved during observation. These included language development (vocabulary and grammar), interpersonal communication, interpretive communication (listening and reading), presentational communication (writing and speaking), and culture standards. Qualitative data was collected as the lessons unfolded, and words uttered by the students reflecting vowel sound mispronunciation were noted and later transcribed and categorized. These words were classified based on the mispronounced vowel sounds, and Received Pronunciation (RP) was the English pronunciation model against which the researcher contrasted these students' pronunciations. As a means of achieving theory triangulation, systematic observation was conducted according to James's (2013) model of error analysis, and errors were profiled using Crystal's (1992) profiling of phonology model (PROPH). In addition, Eckman's (1977) Markedness Differential Hypothesis (MDH) revised model of CAH was utilized for a more subtle interpretation and gradation of errors.

FINDINGS

The reoccurring pronunciation problems among these students were concerning the short vowels /e, æ, ʊ, ə/, the long vowels /i:, ɜ:, u:, ɔ:, ɑ:/ and the diphthongs /eɪ, aɪ, aʊ, əʊ, ɪə/, as shown in Table 3.

Table 3. Students' Mispronounced Words and Their Accurate RP Pronunciation

Error	Nature of Error	Example Words	Students' Form	RP Form
Short vowels				
/e/ → [ɪ]	Substitution	Present	/prɪznt/	/prezənt/
/æ/ → [a]	Substitution	Cat	/kat/	/kæt/
/ʊ/ → [u]	Substitution	Got	/gut/	/gɒt/
/ə/ → [ɪ]	Substitution	Family	/famɪli/	/fæməli/
/ə/ → [a]	Substitution	Ability	/abɪlɪti/	/əbɪlɪti/

Long Vowels /i:/ → [ɪ] /ɜ:/ → [ʊ] /ɜ:/ → [ɪ] /u:/ → [ʊ] /ɔ:/ → [a] /ɑ:/ → [a]	Shortening Substitution Substitution Shortening Substitution Shortening	Teacher Nurse Perfect Who Walk Father	/tɪtʃər/ /nɜːrs/ /pɜːfekt/ /hu/ /walk/ /fader/	/tiːtʃər/ /nɜːrs/ /pɜːfekt/ /hu/ /wɔːk/ /fɑːðr/
Diphthongs /eɪ/ → [a] /aɪ/ → [ɪ] /aʊ/ → [u] /əʊ/ → [u] /ɪə/ → [ɪ]	Substitution Substitution Reduction Reduction Reduction	Trade Ninety Country Go Fear	/trad/ /nɪnti/ /kʊntri/ /gu/ /fɪr/	/treɪd/ /nainti/ /kaʊtri/ /gəʊ/ /fɪər/

Regarding the mispronunciation of short vowel sounds, the mid-high front unrounded vowel /e/ was substituted with the high front unrounded vowel [ɪ], the low front unrounded vowel /æ/ was substituted with the low central unrounded vowel [a], and the mid-high back rounded vowel /ɒ/ was substituted with the high back rounded vowel [ʊ]. In addition, the mid-high central unrounded /ə/ was pronounced as the high front unrounded vowel [ɪ] and as the low central unrounded vowel [a].

With respect to errors concerning long vowel sounds, the long high front unrounded vowel /i:/ was shortened into the short high front vowel [ɪ], the low high central rounded vowel /ɜ:/ was substituted with either the high front vowel [ɪ] or the high back rounded vowel [ʊ], and the long high back rounded vowel /u:/ was shortened into the high back rounded vowel [ʊ]. Besides, the long mid-high back rounded vowel /ɔ:/ was shortened into the short high back rounded vowel [ʊ], and the long low back unrounded vowel /ɑ:/ was shortened into the short low central unrounded vowel [a].

Moreover, the diphthong mispronunciation manifested in three patterns. First, there was substitution of /eɪ/ with the low central unrounded vowel [a] and /aɪ/ with the short high front vowel [ɪ]. Second, there was reduction of /ɪə/ towards the first vowel sound of the diphthong [ɪ]. Third, /aʊ/ and /əʊ/ were mispronounced and reduced towards the approximant of the second vowel sound of the diphthongs [u].

DISCUSSION

The English short vowel sounds mispronunciation by these learners reflects maintaining the rounded/unrounded feature while altering either the high/low or the front/back features. The pattern of the mispronounced sounds /e/, /æ/ and /ɒ/ can be illustrated as follows:

(a) Mid-high → High

(b) Mid-high → Low

(c) Front → Central

The long English vowel mispronunciation errors reflect shortening of the vowel into its corresponding short vowel sound. However, if the latter is a problematic short vowel sound, a pattern from the three above or pattern (d) is applied.

(d) Central → front or back

Moreover, diphthong mispronunciation exhibits the following three patterns:

(1) Substitution: Diphthong → unrelated monophthong vowel sound

(2) Shortening: Diphthong → the first vowel sound of the diphthong

(3) Shortening: Diphthong → the second vowel sound of the diphthong

The patterns of alteration of features of short and long vowel sounds and diphthongs indicate that the participants

resort to producing one of the three main vowel sounds [ɪ], [a] or [u]. This accords with Lahrouchi's (2018) assertion that Moroccan Arabic only has three phonemic vowels /ɪ, u, a/ and a short central vowel [ə]. The findings show that the participants approximate English vowel sounds that have no MA counterparts to vowels in the MA vocalic system. This suggests that there is strong L1 interference in Moroccan beginner EFL learners' production of English vowel sounds. This is evidenced by the inter-language errors. Still, an additional theme of intra-language errors emerged. That is, errors caused by the nature of the English language itself; namely, errors due to sound-spelling inconsistency, as in the case of the letter 'a' pronounced [a] in {trade} while it should be articulated /ei/. The participants overgeneralized a → [a] (MA equivalent of /æ/ as in cat) rule to environments where a → /ei/ applies. A particular type within this sound-spelling error category is mispronunciation of the schwa /ə/ resulting from vowel reduction or weakening. Vowels in unstressed syllable position undergo the phonological phenomenon of reduction (or neutralization), which ensures that only one syllable in polysyllabic words is given highest prominence (primary stress). Let us consider the verb *occur*. The letter 'o' in *occur* is pronounced as the weak vowel sound /ə/ because stress falls on the second syllable (*oCCUR*).

Markedness Differential Hypothesis (MDH), as a means of accounting for the areas of difficulty in learning the vocalic system of the English language by MA native speakers, further indicates the degree of such difficulties. *Markedness* means that "a phenomenon A in some language is more marked than B if the presence of A in a language implies the presence of B; but the presence of B does not imply the presence of A" (Eckman, 1977, p. 320). Marked features are, as defined by Van Patten (1992), features specific to a particular language or few languages while unmarked features are universal or present in most languages. Put in more tangible terms, marked features are less common, more specific, more complex in structure, and are harder to articulate (Rice, 2007). MDH stipulates that "(1) the areas of the target language which differ from the native language and are more marked than the native language will be difficult and (2) the relative degree of difficulty of the areas of the target language which are more marked than the native language will correspond to the relative degree of markedness" (Eckman, 1977, p. 321). Accordingly, the degree of difficulty with regard to the English language vowel sounds for beginner Moroccan EFL learners can be illustrated as follows:

/ɪ, ʌ, ʊ/ > /ə, e, æ, ɒ/ > /i:, ɜ:, ɑ:, ɔ:, u:/ > /eɪ, aɪ, ɔɪ, aʊ, əʊ, ɪə, ʊə/

(> : Increasing difficulty)

These insights may have important practical implications for teaching English as a foreign language in the context of Morocco. The findings may help instructors determine what sounds to focus on, the aspects of pronunciation where learners may need scaffolding, and the specificities of the English language sound system that need highlighting.

CONCLUSION

The aim of this study was to attempt to enrich our collective knowledge with respect to the factors contributing to the subpar speaking and pronunciation skills among EFL learners, particularly vowel sound mispronunciation causing unintelligibility. In the context of Morocco, specific sounds among the phoneme inventory of the English language appear to be problematic for beginner EFL learners. These challenges stem from differences between English and Moroccan Arabic (MA) in terms of the vowel sound inventory and the sound-spelling (in)consistency. Tasked with performing novel sound track configurations while trying to articulate English sounds, these learners resort to substitution, shortening, reduction, or alteration of features of English sounds that have no MA counterparts.

In light of the findings, emphasizing instruction of areas where there is no correspondence between the MA and English vocalic systems would prevent pronunciation error and, ultimately, help improve Moroccan EFL learners' speech intelligibility. This instruction should reflect the degree of difficulty established by MDH in syllabus design and lesson planning. Moreover, teaching the sounds of English along with their IPA (International Phonetic Alphabet) symbols at the outset of EFL instruction at the beginner level would also be decisive in countering errors induced by the sound-spelling inconsistency in the English language. In addition, in order to improve pronunciation, cognitive comparison should be encouraged. This involves increased input exposure, which involves comparing what the learners have noticed in the input with what they produce in their own output.

This can be fostered by drawing learners' attention to the kinds of errors learners typically make (Ellis, 1995b). Finally, teachers ought to have both theoretical and practical knowledge of phonetics and English phonology and sound pedagogical strategies to be able to teach pronunciation and devise effective approaches to enhancing pronunciation and to students' errors correction and feedback.

Data for this research was collected at one high school with regard to vowel pronunciation. Similar research targeting different populations and other pronunciation aspects (consonants, stress, and intonation, for example) would be welcomed. Future work in this line of research would add to the knowledge base regarding pronunciation and speaking in EFL contexts.

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