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**| RESEARCH ARTICLE**

# Investigating Difficulties Faced by Iraqi EFL Learners in Pronouncing the Letters 'ng' in Different Positions of English Words

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**| ABSTRACT**
The enhancement of undergraduate oral proficiency and communicative competence represents a crucial aspect of the English language learning process. This study investigates the pronunciation difficulties of Iraqi learners of English as a foreign language at the undergraduate level in producing the English letter sequence *ng* in various phonological environments. Both quantitative and qualitative methodologies are employed. Data are collected from 245 undergraduate students at University of Baghdad who were tested on the pronunciation of 20 target words representing four phonetic realisations of *ng*: /ŋ/, /ŋg/, /ng/, and /ndʒ/. Their responses are analysed in terms of accuracy rates, with results presented in tables and percentages. The findings indicate that Iraqi students consistently struggled with the correct pronunciation of *ng*, with error rates often exceeding 65% across several word items. Words such as *longish*, *language*, *ingredient* and *ranger* proved most problematic, stemming from several factors, including orthographic confusion, limited awareness of morphological structure, difficulties with stress placement and syllable division, and insufficient pedagogical support.

**| KEYWORDS**

*Pronunciation difficulties, Iraqi EFL learners, Letter sequence ng, L1 interference, Phonological and morphological interaction*

**| ARTICLE INFORMATION**

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## 1. Introduction

As the number of English learners continues to grow, the need for professionals in English language teaching has risen. This has also increased interest in the learning of English as a foreign language (EFL) (Khamkhien, 2010). The main objective of improving pronunciation is not to achieve a flawless native accent, but to enable learners to speak clearly enough to be understood by other competent speakers (Ur, 1996).

For Iraqi EFL learners, some English sounds that do not exist in Iraqi Arabic, like the sounds represented by the letter sequence *ng*, can be especially difficult to learn. These pronunciation problems often lead to misunderstanding and make communication harder. Many studies have looked at pronunciation problems in EFL learners, but there is no research that focuses on Iraqi students' pronunciation difficulties with the *ng* sequence. Because of this, teachers in Iraq may not have enough information or strategies to help their students.

This study aims to examine Iraqi undergraduate students' ability to pronounce the English *ng* letter sequence in four phonological environments: /ŋ/, /ŋg/, /ng/, and /ndʒ/. It also seeks to identify common errors, explore the reasons for these errors, and offer ideas to improve teaching in Iraqi EFL classrooms. This research is important because it fills a gap in the study of pronunciation for Iraqi learners, adds new information about the link between spelling and sound, and gives practical advice for teachers. The goal is to help undergraduate students speak English more clearly and confidently.
To achieve these aims, the study addresses the following research questions:

1. To what extent are Iraqi undergraduate students able to accurately pronounce English letter sequence *ng* in different phonological environments?

2. Which specific pronunciation of *ng* (i.e., /ŋ/, /ŋg/, /ng/, /ndʒ/) presents the greatest difficulty for learners?
3. What linguistic and pedagogical factors contribute to the mispronunciation of the letter sequence *ng* among Iraqi EFL learners?

## 2. Literature Review

The study of pronunciation in foreign language learning has gained a crucial importance in comprehensible communication. A key objective of studying pronunciation in any course is to be able to pronounce words intelligibly (Gilakjani, 2012; Varol, 2012). This section provides a description of sound systems of Arabic and English and the factors which influence learners' proficiency in pronunciation. Subsequently, some previous studies concerning English pronunciation competence of Iraqi learners are presented.

### *2.1 Sound System Differences between Native Language and Target Language*

Arabic serves as the official language of Middle Eastern countries such as Iraq, Saudi Arabia, Egypt, Libya, and the UAE. As the language of the Holy Quran, it is known to Muslims worldwide. Although numerous Arabic dialects are spoken, a single standardized form is consistently taught in schools and used by media outlets across the region (Abdelgadir & Ramana, 2016). Distinct characteristics in the sound systems of Arabic and English impact how Iraqi learners pronounce words when studying English as a foreign language.

The phonological systems of Iraqi Arabic and English differ significantly, particularly in their use of the sounds /g/, /q/, and /ŋ/. In Iraqi Arabic, the letter ق /qāf/ is pronounced as a voiceless uvular stop **/**q/ in Standard Arabic, is frequently received as a voiced velar stop /g/. This substitution is a hallmark of Iraqi Arabic, particularly in urban dialects (Blanc, 1964). For instance, the word قلب (heart) is pronounced as /galb/ in Iraqi Arabic (Holes, 2004). In addition, this phonological shift is reflected in Iraqi Arabic orthography through the use of the letter گ /ga/, a character not present in Standard Arabic (Jastrow, 1980).

In Arabic, the consonant like **/**n**/** is commonly used, while the velar nasal **/**ŋ**/** does not exist in language's sound system. This absence may cause difficulties for Arabic-speaking learners when they encounter English words that include this sound (Al-Ani, 1970). In English, the sound /ŋ/ is often represented by the group of letters *ng*, is a voiced velar nasal consonant. It is produced by raising the back of the tongue to make a contact with the soft palate while allowing air to pass through the nose as the vocal cords vibrate. This consonant is commonly found at the end of words like *king* /kɪŋ/ and *song* /sɒŋ/, as well as when the letter 'n' precedes the sounds /k/ or /g/, as in *ink* /ɪŋk/ and *finger* /fɪŋgə/ (Roach, 2009; Ladefoged & Johnson, 2015). Additional examples include words like *singer* /sɪŋə/, *anchor* /æŋkə/, and *younger* /jʌŋgə/, where the velar nasal occurs naturally.

When the letter combination *ng* appears in the middle of words, the pronunciation of /ŋ/ varies depending on the structure of words. For instance, /ŋ/ appears in words formed by adding the suffixes *-er* or *-ing*, such as *singer* /sɪŋə/ and *hanging* /hæŋɪŋ/. However, in cases where the prefix *con-* is followed by /k/ or /g/, the nasal sound may alter. When the following syllable is unstressed, /ŋ/ is typically pronounced, as in *congress* /ˈkɒŋ.gres/ and *congregation* /kɒŋ.grɪˈgeɪ.ʃən/. Conversely, if the syllable is stressed, /n/ is used, as in *concur* /kənˈkɜː/ and *congratulation* /kənˌgrætʃ.əˈleɪ.ʃən/. Prefixes such as *en-*, *in-*, and *un-* are never pronounced with /ŋ/ in English; instead, they retain /n/, as seen in *engage* (/ɪnˈgeɪdʒ/) and *ungrateful* /ʌnˈgreɪt.fəl/ (Jones, 1922; Ladefoged & Maddieson, 1996). In contrast, this sound is entirely absent in Arabic sound system, including Iraqi Arabic, where nasal sounds like /n/ are prevalent. As a result, Iraqi Arabic speakers often substitute /ŋ/ with /n/ when learning English, leading to pronunciation difficulties. For example, the word *sing* might be pronounced as /sɪn/, reflecting this phonological gap (Al-Ani, 1970).

These differences emphasize areas where learners may substitute or mispronounce sounds due to their first language's influence. Understanding these contrasts is crucial for developing effective teaching strategies that address these specific challenges (Swan & Smith, 2001).

### *2.2 Factors Affecting EFL Learners' Pronunciation*

Mastering accurate pronunciation of a language involves a complex process shaped by various interrelated factors. Although the learners have similar instructional environments, they often display significant differences in how they pronounce words (Gilakjani, 2012; Hassan, 2014; Alqunayeer, 2016). In this section, some of these factors are discussed, exploring the challenges the learners may face. They are as follows:

*2.2.1 Motivation and Attitude*

Motivation is often defined as the internal drive that leads individuals to begin and maintain goal-directed behaviour (Harmer, 1983). In terms of language learning, the level of persistence and dedication of learners' effort in acquiring a second language relies on their motivation. Motivation is generally categorized into two accepted types: instrumental and integrative (Gardner & Lambert, 1972). Attitude, closely linked to motivation, refers to feelings and general outlook of learners toward the language they are studying, its speakers, and the overall learning experience. Positive attitudes correlate strongly with greater language achievement and more accurate pronunciation. Researches by Suter (1976) and Moyer (1999) highlight that learners who hold a welcoming attitude toward English and its speakers tend to demonstrate a better pronunciation performance.

*2.2.2 Exposure to Target Language*

Generally, language exposure refers to the contact that learners have with the language they are trying to learn, whether inside or outside the classroom. Inside the classroom, instructors play a key role in exposing a learner to the target language through varied and practical comprehensible input, such as books, media, and other authentic content. However, successful language learning also depends greatly on exposure beyond the academic environment (Al-Zoubi, 2018).

Stephen Krashen (1985) suggests that the best way to acquire a second language through exposure to language that is both understandable and slightly above the learner's current level of linguistic competence. This comprehensible input enables learners to acquire new linguistic structures naturally, eliminating the need for direct instruction or forced output.

In contrast, Merrill Swain proposed the *Output Hypothesis*, which highlights the role of language production in learning. Swain argues that speaking and writing helps learners to identify gaps in their linguistic knowledge and think critically about language form. This active participation enhances learners' awareness and contributes meaningfully to their language development (Swain, 2000).

*2.2.3 First Language Influence*

The impact of a learner's first language (L1) on the learning or acquisition of a second or foreign language (L2) is explored by *Transfer Theory*. Positive transfer occurs when the degree of similarity between the two languages can facilitate learning. However, negative transfer, also known as interference, can hinder learning and cause persistent errors in the target language (L2) (Odlin, 1989).

The roots of Transfer Theory can be traced back to the Contrastive Analysis Hypothesis, proposed in the mid-20th century by scholars such as Robert Lado (1957). This hypothesis maintains that comparing learners' native and second or foreign languages could help predict potential areas of learner difficulty due to interference. The impact of a learner's native language shapes their ability to articulate sounds in the target language.

Terence Odlin's (1989) influential research on Transfer Theory remains central to both linguistic theory and practical classroom application, especially in the teaching of English as a foreign language.

*2.2.4 Instruction Quality*

Several studies support the idea that structured and explicit pronunciation instruction positively affects learners' production and intelligibility. Despite this, pronunciation is considered as a neglected area in many EFL and ESL programs.

Derwing and Munro (2005) argue that although exposure to the language may contributes to some degree of pronunciation improvement, guided and structured instruction significantly enhances learners' ability to produce accurate sounds and keep natural speech patterns. Their research demonstrates that learners who receive targeted pronunciation instruction are rated as higher in intelligibility than those who do not receive such instruction.

However, in many EFL and ESL classrooms, insufficient teacher preparation and lack of time allocated in curricula can impede learners' pronunciation improvement. To achieve better instructional outcomes in pronunciation, teacher education programs should incorporate effective instructional techniques in pronunciation pedagogy (Celce-Murcia et al. 2010; Saito, 2012).

### *2.3 Previous Related Studies*

Numerous studies in phonetics and phonology have addressed the challenges Arabic learners of EFL face in acquiring accurate pronunciation. Some of these studies identify problematic areas and suggest valuable practical insights that contribute to improving learners' pronunciation abilities and skills.

A significant contribution to the field is provided by Al-Ahdal et al. (2015), who investigate the effect of targeted pronunciation training among EFL students at Qassim University. The marginal role of pronunciation in EFL curricula is the subject of much criticism. The researchers have devised an intervention programme involving two groups of students, focusing on prosodic features such as stress, rhythm, and intonation. The findings indicate an enhancement in pronunciation accuracy, suggesting that prosodic training has a substantial impact on enhancing learners' competence and intelligibility. The study calls for a reform of the curriculum and emphasises the necessity for greater teacher training that prioritises pronunciation in language instruction. Moreover, while the researchers highlight the importance of curriculum reform, their study provides limited attention to the interaction between morphology and pronunciation areas or fine-grained phonological processes that are often critical for Arabic learners of EFL.

Adding a more empirical perspective, Alqunayeer (2016) examines pronunciation difficulties associated with the letter *G* in different phonological contexts. The study involved 90 female learners of EFL from Saudi Arabia and 12 English language instructors at Qassim University. The findings reveal significant difficulties with soft and hard 'g' sounds (e.g. /ʒ/, /ʤ/, /g/), particularly in contexts involving the nasal /ŋ/ sound, such as in the words 'singer' and 'anger', as well as in letter combinations such as *ng*, *gg*, and *gh*. Although this paper brings attention to consonant clusters involving velar, alveolar and palatal sounds, its scope is rather limited to specific problem contexts and does not explore the broader phonological realizations or the pedagogical factors behind such errors.

Building on this line, Abdelgadir and Ramana (2016) expand the discussion by exploring phonological obstacles faced by Saudi EFL undergraduates at Majmaah University. Their study identifies several root causes from the fact that the reliance on English spelling as a guide to pronunciation—problematic due to English's irregular orthographic system. To address these

issues, the research underscores the need for initiative empowered teachers to receive training in articulatory phonetics and to use the best motivational strategies to foster learner engagement.

Adopting a more empirical approach, Al-Zoubi (2019) provides a thorough comparison of the phonological systems of Arabic and English. The study reveals that several English sounds, such as /p/, /v/, /ʒ/ and /ŋ/, are absent in Arabic, which causes learners considerable difficulty in achieving accurate pronunciation. Furthermore, Al-Zoubi concludes that understanding both the positive and negative transfer effects through contrastive analysis between Arabic and English can guide teachers in developing effective and motivational pedagogical strategies.

Building on these studies, the current study contributes a more comprehensive and systematic examination of the letter sequence *ng* across four phonological realizations (/ŋ/, /ŋg/, /ng/, /ndʒ/) that have received limited attention in previous researches. Unlike earlier research that either generalised pronunciation challenges or focused on limited segmental contrasts, the present study adopts mixed-methods integrating quantitative accuracy rates with qualitative error analysis to explore the roles of orthographic impact, restricted morphological awareness, misperception of syllable boundaries, and insufficient exposure to authentic spoken English.

## 3. Methods

The present study adopts both quantitative and qualitative approaches to identify the challenges that Iraqi learners of English as a Foreign Language (EFL) learners face when pronouncing the letter sequence *ng*. The quantitative method involves a test designed to evaluate learners' precision in identifying the pronunciation of *ng*. The qualitative method involves error analysis based on linguistic theory to provide a deeper understanding of the underlying causes of these pronunciation difficulties.

In this study, the participants in this study comprise 245 Iraqi EFL undergraduate students, aged 20–21, who were randomly selected from the English Language Departments of three colleges (College of Education for Women, College of Education – Ibn Rushd for Humanities and College of Languages) at University of Baghdad in 2024. They were selected on the basis of their willingness to engage and their varying levels of English proficiency. The research instrument was a test containing 20 words that presented the letter combination *ng* in different phonetic environments. This combination is articulated in four distinct ways, represented phonemically as /ŋ/, /ŋg/, /ndʒ/, and /ng/.

To contextualise the participants' prior exposure to pronunciation instruction, it is important to consider the curriculum used in the English Language Departments at University of Baghdad. The College of Education for Women and College of Education – Ibn Rushd for Humanities use *Better English Pronunciation* by O'Connor for first-year students, as well as *English Phonetics and Phonology: A Practical Course* by Peter Roach for second-year students. However, the College of Languages uses *Better English Pronunciation* in the first year and *Ship or Sheep: An Intermediate Pronunciation Course* by Ann Baker in the second year. These textbooks are the main instructional materials used to teach English phonetics and phonology. As part of the curriculum, learners are introduced to the phonetic properties of the letter sequence *ng*, its occurrence in different word positions and how it contrasts with related sounds, such as /n/ and /ŋ/. This ensured that all participants had received some formal instruction in the target sound prior to the study, allowing the investigation to focus on the effectiveness of this knowledge in practice.

**Table 1**

*Participant and Instrument Information*

| Category | Description | |
|---|---|---|
| **Number of participants** | 245 (from 3 colleges at University of Baghdad) | |
| **Age range** | 20–21 years | |
| **Qualifications** | Second-year undergraduate students | |
| **Language background** | Native Iraqi Arabic speakers | |
| **Years of experience** | 13 years (general experience) | |
| **Curricula studied during the bachelor's program** | - College of Education for Women and College of Education – Ibn Rushd for Humanities use "*Better English Pronunciation*" by O'Connor in first year and "*English Phonetics and Phonology: A Practical Course*" by Peter Roach in second year.<br>- College of Languages uses "*Better English Pronunciation*" in first year and "*Ship or Sheep: An Intermediate Pronunciation Course*" by Ann Baker. | |
| **Instrument (Test)** | | Four phonemic realisations of the letter sequence *ng*: /ŋ/, /ŋg/, /ndʒ/, and /ng/ |
| | Written test | 20 selected words: *singer*, *hanger*, *belong*, *strong*, *longish*, *living, swing*, *finger*, *anger*, *hungry*, *language*, *ingredient*, *engagement*, *congratulate*, *conglomerate*, *ranger*, *engine*, *challenge*, *stranger*, and *revenge*. |

**4. Data Analysis and Results**

This section presents both quantitative and qualitative evaluations of how Iraqi EFL learners pronounced the letter sequence *ng* across different phonological contexts. The test was performed by 245 participants. The test comprised twenty words selected to assess the pronunciation the *ng* in different phonetic environments, where it is pronounced as /ŋ/, /ŋg/, /ng/ or /ndʒ/. Statistical analysis was conducted in terms of the percentages of correct and incorrect participants' responses for each word and to rank the level of difficulty across contexts. The aim is to identify specific phonetic environments in which where the letter combination *ng* presents challenges.

**Table 2**

*Pronunciation of the letter sequence 'ng' as /ŋ/*

| Words | Number of participants with correct pronunciation | Percentage of participants with correct pronunciation | Number of participants with incorrect pronunciation | Percentage of participants with incorrect pronunciation |
|---|---|---|---|---|
| *singer* | 97 | 40% | 148 | 60% |
| *hanger* | 54 | 22% | 191 | 78% |
| *belong* | 91 | 37% | 154 | 63% |
| *strong* | 87 | 36% | 158 | 64% |
| *longish* | 51 | 21% | 194 | 79% |
| *living* | 135 | 55% | 110 | 45% |
| *swing* | 119 | 49% | 126 | 51% |

*Note*. Percentages are averages across 245 Iraqi EFL learners.

Table 2 outlines participants' performance based on their correct and incorrect responses in identifying the pronunciation of *ng* as /ŋ/. Of the 245 Iraqi students, 97 (40%) pronounced *ng* in the word *singer* accurately as /ŋ/, in line with the phonological rule that /ŋ/ occurs without a following /g/ when it appears at the end of a morpheme. Because *singer* consists of two morphemes (*sing* + *-er*), the correct form is /sɪŋə/. In contrast, 148 students (60%) produced it as /ŋg/.

Furthermore, Table 2 shows that 54 students (22%) pronounced *ng* in *hanger* correctly as /ŋ/ in other contexts, whereas 191 students (78%) produced it incorrectly, most frequently as /ŋg/ and, in some cases, as /ndʒ/. Similarly, when *ng* occurred in a final position as in *strong*, 158 participants (64%) mispronounced it by inserting the sound /g/ after /ŋ/. In addition, the word *longish* was mispronounced by 194 students (79%), who articulated *ng* as /ŋg/ or /ng/ instead of /ŋ/. This error likely stems from a misunderstanding of morphological boundaries, since *longish* is composed of two morphemes (*long* + *-ish*), yet the correct pronunciation requires /ŋ/ without a following /g/.

On the contrary, the letter sequence *ng* in *living* was pronounced accurately as /ŋ/ by 135 students (55%), while in the word *swing* it was also realised correctly by 119 students (49%). Qualitatively, this suggests that learners find it easier to produce /ŋ/ sound correctly in familiar, high-frequency words, particularly where the morphological structure is transparent and familiar (e.g., the frequent suffix *-ing* in *living*) or when no morphological boundary is involved (e.g. the monomorphemic word 'swing'), thereby reducing the sound /g/ insertion.

From a broader qualitative standpoint, these findings highlight the considerable influence of orthography and the misunderstanding of morphological boundaries on Iraqi EFL learners' phonological output. The presence of the letter *g* in the spelling of such words appears to prompt the insertion of a consonant that does not exist in English phonology. At the same time, the accurate productions in words such as *living* and *swing* demonstrate that successful pronunciation is attainable when exposure, frequency, and phonological transparency help to counteract orthographic interference. This indicates that both orthographic influence and misinterpretation of morphological boundaries play significant roles in shaping learners' pronunciation patterns.

**Table 3**

*Pronunciation of the letter sequence 'ng' as /ŋg/*

| Words | Number of participants with correct pronunciation | Percentage of participants with correct pronunciation | Number of participants with incorrect pronunciation | Percentage of participants with incorrect pronunciation |
|---|---|---|---|---|
| ***finger*** | 84 | 34% | 161 | 66% |
| ***anger*** | 65 | 27% | 180 | 73% |
| ***hungry*** | 120 | 49% | 125 | 51% |
| ***language*** | 64 | 26% | 181 | 74% |

*Note*. Percentages are averages across 245 Iraqi EFL learners.

Table 3 displays the participants' pronunciation of the letter sequence *ng* as /ŋg/ in the words *finger*, *anger*, *language*, and *hungry*. Quantitatively, 84 (34%), 65 (27%), and 64 (26%) of the 245 students articulated this consonant cluster correctly in *finger*, *anger*, and *language*, respectively, in accordance with the phonological rule that /ŋg/ occurs in the medial position of a morpheme. However, 161 (66%), 180 (73%), and 181 (74%) participants mispronounced this cluster as /ŋ/. In contrast, in the word *hungry*, 120 students (49%) pronounced the *ng* correctly, showing higher accuracy compared with the other words.

From a qualitative perspective, the findings indicate an inconsistency in participants' pronunciation patterns. While medial cluster /ŋg/ in *finger*, *anger*, and *language* were frequently simplified to /ŋ/, almost half of the students correctly articulated the cluster /ŋg/ in *hungry*. This suggests that the pronunciation accuracy influenced by word-specific characteristics, such as phonetic context or frequency of exposure, as well as potential interference from the learners' native language. On the whole, the results highlight a recurring challenge with the medial cluster /ŋg/ and the need for targeted instruction to improve articulation.

**Table 4**

*Pronunciation of the letter sequence 'ng' as /ŋg/*

| Words | Number of participants with correct pronunciation | Percentage of participants with correct pronunciation | Number of participants with incorrect pronunciation | Percentage of participants with incorrect pronunciation |
|---|---|---|---|---|
| ***ingredient*** | 59 | 24% | 186 | 76% |
| ***engagement*** | 84 | 34% | 161 | 66% |
| ***congratulate*** | 86 | 35% | 159 | 65% |
| ***conglomerate*** | 80 | 33% | 165 | 67% |

*Note*. Percentages are averages across 245 Iraqi EFL learners.

As illustrated in Table 4, the participants' pronunciation of the letter sequence *ng* as /ŋg/ and /ng/. In the word *ingredient*, only 59 participants (24%) produced the correct pronunciation /ng/, while the majority (186 participants; 76%) mispronounced it as /ŋg/. Similarly, in the words *engagement*, *congratulate*, and *conglomerate*, the letter combination *ng* was mispronounced by approximately 34% of participants.

When considering the qualitative aspect, the findings reveal that most Iraqi students struggle to differentiate between stressed and unstressed syllables. This limitation affects their ability to pronounce the letter sequence *ng* as /ng/ correctly. Since accurate pronunciation of these words depends on both the correct identification of syllable count and the placement of stress. Failure to apply these prosodic features frequently results in the substitution of /ng/ with /ŋg/.

**Table 5**

*Pronunciation of the letter sequence 'ng' as /ndʒ/*

| Words | Number of participants with correct pronunciation | Percentage of participants with correct pronunciation | Number of participants with incorrect pronunciation | Percentage of participants with incorrect pronunciation |
|---|---|---|---|---|
| ***ranger*** | 67 | 27% | 178 | 73% |
| ***engine*** | 110 | 45% | 135 | 55% |
| ***challenge*** | 109 | 44% | 136 | 56% |
| ***stranger*** | 73 | 30% | 172 | 70% |
| ***revenge*** | 102 | 42% | 143 | 58% |

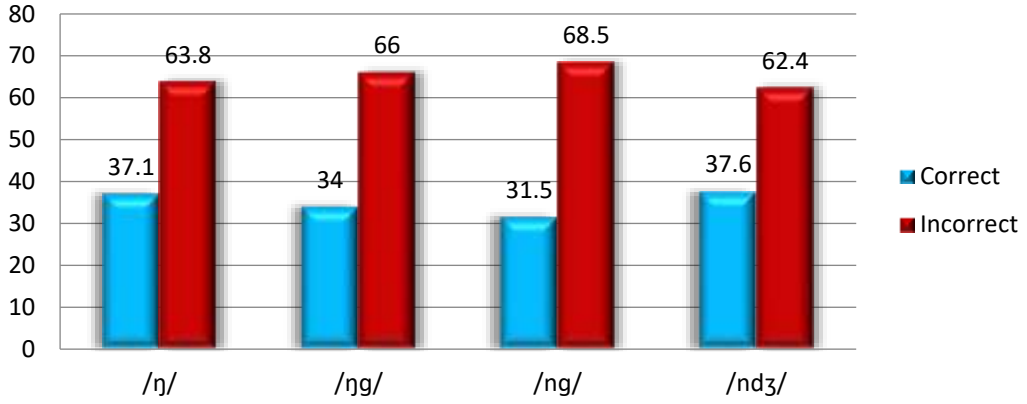
*Note*. Percentages are averages across 245 Iraqi EFL learners.

Table 5 statistically presents the participants' pronunciation of the letter sequence *ng* as /ndʒ/, in the words *ranger, engine, challenge, stranger,* and *revenge*. The consonant cluster /ndʒ/ in *ranger* was mispronounced by 73% of the 245 students, while in *stranger* the error rate was approximately 70%. In contrast, the letter sequence *ng* in *engine, challenge,* and *revenge* was pronounced correctly by about 44% of the students, which indicates that more than half of the participants continued to substitute the incorrect sounds.

Qualitatively, these findings suggest that the mispronunciation of *ng* may stem the orthographic influence of spelling patterns likely contributed to the confusion, as Iraqi EFL learners may have analogized the pronunciation of letter sequence *-nge* in words like *change* or *orange*, where the consonant cluster /ndʒ/ is the correct pronunciation.

**Figure 1**

*Average Percentage of Correct and Incorrect Ponunciation of 'ng'*




*Note*. Percentages are averages across 245 Iraqi EFL learners.

In the present study, the findings indicate that the majority of Iraqi undergraduate students exhibit a lack of proficiency in English as a foreign language (EFL), and are unable to identify the correct pronunciation of the sounds.

The quantitative results reveal consistently high error rates across the sound or cluster types: /ŋ/ (62.8% incorrect), /ŋg/ (66 % incorrect), /ng/ (68.5% incorrect), and /ndʒ/ (62.4% incorrect). These averages highlight and emphasize that learners performed less than 50% accuracy in all cases, underscoring the systematic and widespread nature of this challenge.

Several linguistic and pedagogical factors play a crucial role in how the letter combination *ng* is mispronounced. A key factor contributing to these errors is orthographic influence. Many Iraqi learners tend to rely heavily on the spelling of words, which leads them to produce an audible /g/ even in cases where it should be silent. This reliance on orthography rather than phonological rules emphasizes the role of spelling in shaping pronunciation errors.

Another factor is negative transfer from the native language to the target language. Iraqi Arabic lacks the velar nasal /ŋ/, leading learners frequently substituted it with nasal sounds that are more familiar in their native language system. This substitution illustrates the broader issue of first language interference, a recurring challenge in second language learning. Additionally, the results point to the limited morphological awareness among Iraqi EFL learners. Many students struggled to recognise when the consonant /g/ should be realised after /ŋ/, particularly in the words that have more than one morpheme. This reveals a gap in understanding of morphology in English.

Other important factors are illustrated in stress placement and syllable boundaries. Iraqi learners often failed to realise the syllabic context of pronunciation of the letter sequence *ng*, especially when they appeared across syllable divisions, resulting in inappropriate substitutions. A further difficulty is limited exposure to English, particularly authentic spoken input. Restricted opportunities to practise EFL reduced Iraqi learners' familiarity with natural pronunciation, consequently reinforcing inaccurate sound production. Finally, the study indicates that insufficient instructional emphasis is placed on the link between morphology and phonology to recognize English pronunciation accurately. Without targeted pedagogical strategies, Iraqi students are unable to produce the correct pronunciation of the letter sequence *ng*.

Thus, these findings reveal that Iraqi EFL learners exhibit systematic difficulties with the pronunciation of the letter combination *ng*. The mispronunciations stem from several linguistic and pedagogical factors. It is therefore recommended that pronunciation instruction incorporate explicit training in the phonological and morphological rules mastering *ng* pronunciation, supported by increased exposure to authentic English input.

## 5. Conclusion

This study investigates Iraqi undergraduate students' pronunciation of the English letter combination or sequence *ng* across four phonetic realizations: /ŋ/, /ŋg/, /ng/, and /ndʒ/. The analysis of 245 participants and 20 test words reveals a consistent pattern of mispronunciation, with error rates frequently exceeding 65% across several items. Iraqi students demonstrate particular difficulty with words such as *longish*, *language*, *ingredient* and *ranger*. These errors are largely due to interrelated linguistic and pedagogical factors, comprising first language transfer, orthographic effects, restricted morphological awareness, identifying syllable boundaries, realising stress placement, limited exposure to the target language, and inadequate instructional attention. Together, these factors and influences hinder students' ability to produce the target sounds accurately. By strengthening instruction and exposure, Iraqi EFL learners can gradually overcome these pronunciation difficulties and enhance their overall communicative competence effectively.

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