Word Length and Proficiency Level Effect on English Lexical Stress Production by Arab EFL Learners

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ABSTRACT

English lexical stress is a crucial feature in controlling English speech comprehension. However, EFL learners frequently experience difficulties attaining the correct placement of the primary stress in English pronunciation. Literature has consistently shown that Arab EFL learners encounter these difficulties due to the tendency to place primary stress based on Arabic stress rules. However, some scholars indicated that the interference of word length and language proficiency in producing English stress patterns affects pronunciation. Yet, no reliable evidence examines the effect of word length and proficiency. The current study aimed to determine how word length and proficiency level affect the production of English lexical stress. Data was collected by recording each participant individually to examine the production of 84 words that vary in length for disyllabic and trisyllabic words. Three samples, including English native American speakers and intermediate and advanced EFL undergraduates, participated in the study. PRAAT software was used to measure the differences between the stressed and the unstressed syllables using phonetic cues ratio, namely, vowel duration, intensity, and fundamental frequency (F0). The results of the study revealed that Yemeni EFL students performed better when determining the stressed syllables in disyllabic words compared to the trisyllabic ones. Results also indicated that for the advanced level output, the lexical stress phonetic cues became much more similar to those of an American speaker than the intermediate level. This study is theoretically and pedagogically significant to enhance the teachers' and learners' understanding of the pronunciation difficulties of the English lexical stress among Arab EFL learners.

Keywords: English Lexical Stress Production, Arab EFL learners, Word length, Proficiency level

INTRODUCTION

The production of English stress patterns has attracted researchers' attention due to their essential role in speech intelligibility and comprehensibility (Modesto & Barbosa, 2019; Ali, 2021; Maghrabi, 2021). However, correct production of the stressed and unstressed syllables is difficult for English language learners, particularly for those who speak a language with fixed stress patterns in all words (Zuraiq & Sereno, 2021). A considerable amount of literature examines the production of English lexical stress by ESL/ESL learners (Khazneh, 2015; Al-Khulaidi, 2017; Liu, 2017; Tuan, 2018; Levis, 2018; Jaiprasong & Pongpairoj, 2020; Zuraiq & Sereno, 2021; Koffi, 2021). These studies investigated the difficulties of producing English stress patterns affected by the learner's mother tongue from the phonological and phonetic perspectives. That is to say, researchers looked at where ESL/EFL learners locate the primary stress in English words. Researchers have intensively regarded the challenges of producing English lexical stress to the transfer process from the L1 stress pattern to the English production of words. For example, Jaiprasong and Pongpairoj (2020) studied the Thai learners' production of English lexical stress and found that the errors made were caused by L1 transfer as the Thai and English stress rules were different. The cross-linguistics pattern between both languages led to a negative transfer of stress rules from L1 to English lexical stress production. Arienintya (2017) reported a similar view, explaining that Indonesian EFL learners could assign the English primary stress in words that manifest the same stress rules of the Indonesian language. Thus, errors were mainly attributed to the influence of their L1 and the lack of English stress pattern knowledge.

Additionally, researchers look into how Arabic EFL students produce English lexical stress (Khazneh, 2015; Al-Khulaidi, 2017; Ali, 2021; Maghrabi, 2021; Zuraiq & Sereno, 2021). Most of these researchers concurred with other studies conducted in different contexts. They attested to a profound relationship between the Arabic language stress pattern system and learners' capacity to produce English lexical stress. The evidence for this relationship is highly regarded as Arabic-specific interference in transferring stress rules from Arabic to English lexical stress production. Nevertheless, studies in this realm have reported contradictory results concerning the preferred placement of stress patterns affected by the learners' mother tongue. For example, Ali (2021) and Al-Mugrabi (2021) reported that Arab EFL learners locate the primary stress at the penultimate syllable (syllable before the final syllable) or at closed syllables, which are manifested rules in Arabic. This result supported the old justification of encountering English lexical stress difficulties by Arab EFL learners as in the studies of Aziz (1980), Anani (1989), Younes (1984), Ghaith (1993), Youssef and Mazurkewich (1998). On the other hand, Helal (2014) and Khazenh (2015) reported different types of errors that are not always attributed to the penultimate syllable. The inconsistent results raise the possibility of other factors affecting the placement of English stress patterns produced by EFL/ESL learners. According to Ernestus and Neijt (2008) and Levis (2018), factors such as word length, language proficiency, and exposure to English phonetic rules may have an essential impact on altering the placement of English lexical stress produced by EFL learners. Guion et al. (2003) indicated that word length is a factor that can change English stress patterns, which might confuse EFL learners when pronouncing English lexical stress or attest to a different type of stress pattern that is not allowed in L1. In addition, Levis (2018) indicated that word length is a significant factor affecting the position of the primary stress in English words. However, despite the various scope of the study, the effect of word stress is poorly understood due to the limited number of studies that used different types

of methods to collect data. For instance, Altmann (2006) reported that EFL learners encounter less difficulty placing the English primary stress in trisyllabic words than in disyllabic words.

On the other hand, Helal (2014) examined the effect of word length in producing English compound words by Egyptian English language learners. Helal (2014) concluded that the difficulty rate increased when the number of syllables increased. That is because learners need clarification about selecting the stressed syllable in words that contain more than one syllable. Helal (2014) used a list of real compound words written in order where the participants pronounced the compound words as sunglasses. Nevertheless, Altmann (2006) used a list of nonce words segmented based on the word syllable as /do.dee.ree/. Altmann (2006) also suggested studying the production of the English lexical stress by Arabic speakers using nonce words that consist of closed and open syllables. That is because the Arabic language extensively allows closed syllables. Nevertheless, Altmann (2006) used stimuli with only open syllables to ensure the phonetic constraints of the languages examined in the study of Altmann (2006). Thus, further investigation of the effect of word length in words that contain open and closed syllables and are not compound words arises to investigate the effect of word length.

Furthermore, it has been concurred that the primary stress of English can be changed in position by adding some affixation (Koffi, 2021). However, stress patterns in Arabic follow the same rules regardless of the number of syllables added to the word. Thus, adding syllables might increase the difficulty of assigning English lexical stress to Arab EFL learners. Indicating the effect of the word length may help anticipate the difficulties EFL learners encounter in producing English lexical stress.

The study also considers the effect of proficiency level on lexical stress placement to get precise measurements produced by the Yemeni EFL learners at intermediate and advanced levels. According to previous studies, researchers have also debated the effect of the level of proficiency, yet it needed to be accurately controlled, as in the studies of Altmann (2006) and Zuraiq and Sereno (2021). Therefore, the current study utilises stimuli comprising disyllabic and trisyllabic real and nonce words to investigate the cruciality of word length. The study also involves a placement test to gauge the level of the participants who live in the same context and do not study in a different language background to examine the effect of proficiency level in producing English lexical stress patterns by Arab EFL learners to analyse the two research questions below:

1- To what extent does word length affect the assigning of the English primary stress by Arab EFL undergraduates?
2- To what extent does English proficiency level affect the production of the English lexical stress phonetic cues?

LITERATURE REVIEW

WORD LENGTH

Word length in English is associated with the number of consonants and vowels combined to construct syllables in words. The word length becomes longer when the number of syllables increases (Al-Thalab, 2018). The effect of word length in assigning stress patterns may be a minor parameter in some languages. In Arabic, for example, the primary stress falls in heavy

syllables no matter the length of the word (Helal, 2014; Al-Thalab, 2018). On the other hand, words in English manifest non-fixed rules for placing lexical stress (Al-Thalab, 2018). Some words do not change the location of the primary stress due to the addition of affixation, as in words assume /əˈsuːm/ and assumption /əˈsʌmp.ʃən/. By contrast, other words change the location due to affixation, as in photo /ˈfəʊ.təʊ/ and photographic /ˌfəʊ.təˈɡræf.ɪk/. Therefore, EFL learners face difficulties because the rules of L1 interfere with the production of English lexical stress. Studies regarding the production of English lexical stress tested the production of real English words as affected by L1 stress rules in disyllabic words (Aziz, 1980; Anani, 1989; Younes, 1984; Ghaith, 1993; Youssef & Mazurkewich, 1998; Altmann, 2006; Helal, 2014; Zuraiq &Sereno, 2021). Khazneh (2015) and Al-Khulaidi (2017) investigated stress production in polysyllabic words. However, they did not indicate if there was any difficulty in placing the word that contained more than two syllables. All results were interpreted based on L1 stress rule effects.

In discussing the effect of word length, Al-Thalab et al. (2018) explained the impact of word length on the perception of English lexical stress by Arabic and Chinese speakers. The results indicated that Iraqi and Chinese learners of English recorded fewer errors in disyllabic words than in trisyllabic words. Al-Thalab et al. (2018) inferred this result because participants can place the primary stress in trisyllabic words more than in disyllabic words. Altmann (2006) reported that participants scored higher in trisyllabic words than disyllabic words. The results of Altmaan (2006) might be related to the simple structure of the nonce words that contain only open syllables. Therefore, the penultimate syllable will always be preferred in trisyllabic rules as a preference for most Arabic words. Thus, Altmann (2006) recommended studying the production of English lexical stress by Arabic speakers using stimuli that contain open and closed syllables due to the nature of the Arabic language. As mentioned previously, findings of the previous studies have reported inconsistent results about the production of English lexical stress as affected by Arab EFL learners phonologically. This inconsistency might be related to the theoretical grounds that the previous researchers deepened to explain the difficulties of producing English lexical stress by Arab EFL learners. That is to say, when explaining these challenges based on the assumption of the Sound Pattern of English, research examines the differences and similarities between English and Arabic stress patterns, as in the studies of Al-Khulaidi, 2017, Ali (2021) and Al-Mugrabi (2021).

On the other hand, studies such as Helal (2014) and Khazneh (2015) attempted to explain the difficulties of producing English lexical stress using the concept of the Metrical Theory. Although Helal (2014) and Khazneh (2015) showed constructive explanations towards the difficulties of producing English lexical stress, some findings remained unclear, which opens the existence of other variables that may contribute to the existing knowledge and enhance the grounds of the Metrical theory. According to Levis (2018), word length is one of the crucial variables that change the location of the primary stress. However, it is not a manifested variable in Arabic.

ENGLISH PROFICIENCY LEVEL

As mentioned, research on the acquisition of lexical stress emphasised the evidence linking the ability to produce L2 lexical stress to the effect of L1. Particularly, it was approved that speakers of different mother tongues show distinction in success rates producing pattern lexical stress (Altmaan, 2006). Moreover, Yu and Andruski (2010) reported that the correct production of L2

lexical stress is associated with the stress patterns of L1. Most of the phonological studies supported the crucial role of L1 stress in the production of lexical stress (Jong, 2004; Altmaan, 2006; Jangjamras, 2011; Chrabaszcz et al., 2017; Tuan, 2018; Al-Thalab et al., 2018; Lin, 2018; Albadar, 2019). However, the various results of English lexical stress production English lexical stress among learners of different levels were not statistically significant, as the studies have shown. Archibald (1992) explained that Polish learners of English showed no improvement in producing primary stress among participants of different language proficiency levels.

Researchers after Altmann (2006) debated the effect of proficiency, making it an arguable issue among them from 2006 until now. Aghai and Sayer (2016) tested the effect of proficiency on the pronunciation of segmental and supra-segmental English features by Iranian EFL learners. Aghai and Sayer (2016) reported that results indicated that students' production of segmental features improves as they become more proficient in English; however, the errors made in producing supra-segmental features were mostly shared among all proficiency levels. However, it should be noted that Aghai and Sayer (2016) involved 18 participants in their study; only 4 of them were categorised as advanced learners. On the other hand, Modesto and Barbosa (2019) stated that Brazilian Portuguese speakers utilised the same acoustic parameters as American English speakers to produce English stress patterns. Moreover, the production gets closer to the native speakers when the proficiency increases. Furthermore, Liu (2018) indicated that a lack of knowledge of English stress rules is a significant factor contributing to L2 lexical stress problems by L2 learners.

Among the Arabic studies, Al-Thalab et al. (2018) studied the perception of English lexical stress by Iraqi Arab learners. Al-Thalab et al. (2018) asserted the effect of the Iraqi syllable structure on the English lexical stress perception. Al-Thalab et al. (2018) mentioned that a partial effect of proficiency was shown in the results among participants when assigning English lexical stress. On the other hand, Albadar (2019) asserted that proficiency does not affect the perception of English lexical stress by Saudi Arab EFL learners. More recently, Zuraiq and Sereno (2021) proved that the level of proficiency affects producing English lexical stress by Arab speakers. However, Zuraiq and Sereno (2021) studied the production of only eight real minimal pairs in English, increasing their results' familiarity effect.

Apparently, participants involved in the previous studies tested the production participants of different proficiency levels; however, most of the participants lived in countries where English is the native or the official language (among others, Zuraiq, 2005; Altmann, 2006; Lai, 2008; Jangjamras; Tuan, 2018; Al-Thalab et al., 2018; 2011; Albadar, 2019; Modesto & Barbosa, 2019; Zuraiq & Sereno, 2021). This shows that proficiency affects participants' performances in studies that use familiar words. In other words, learners produced real words based on their memorisation. Likewise, studies that used nonce words as stimuli reported insignificant differences among participants' performances from different levels.

THEORETICAL UNDERPINNINGS

Investigating the phenomenon of Lexical stress went through two phases: linear and non-linear phonology. The second phase came to shift the directions of linear phonology because of the linear phase drawbacks. The manifestation of stress patterns among languages was firstly dominated by the assumption of Chomsky and Halle (1968), The Sound Pattern of English (SPE), which was introduced on the grounds of the Contrastive Analysis Hypotheses. The SPE

theory proposed a comprehensive analysis based on comparing L1 and L2. It assumes that speech is a precise series of segments and boundaries. According to Abu Salim (1982), several studies of stress based on the SPE method of stress assignment viewed stress as a feature [_ + stress] attached to segments as a result of applying the effects of word length and level of proficiency in the language's stress rules to segmental sequences. Within the SPE system, syllables are ignored, and vowels are assigned stress based on factors such as distance from the right edge of the word and the number of consonants following these vowels (Al-Abdely, 2011). However, it could not explain the stress patterns of all languages. For instance, Sampson (1975) argued that Chomsky and Halle (1968) had considered only individual segments without their syllabification in explaining these patterns of primary stress. The non-linear phonology was then presented as a response to criticism that the SPE theory received at that time in a construct called the Metrical Theory by Liberman (1974) and Liberman and Prince (1977) and later developed by Hayes (1980).

The development of the Metrical phonology by Liberman and Prince (1977) is regarded as a refinement of earlier works that dealt with stress as a phonetic property related to specific segments. According to Frawley et al. (2003), Metrical Phonology is a set of generative phonology sub-theories designed to characterise the features of stress and stress rules insightfully. The basic claim of Metrical phonology is that stress is represented as relative prominence among syllables rather than a degree of absolute prominence attached to each vowel in the underlying string. Metrical phonology is concerned with categorising segments based on their relative prominence. The innovative feature of Metrical Theory is defining the prominence of a unit relative to other units in the same utterance. According to Metrical phonology, segments are divided into syllables, syllables into metrical feet, feet into phonological words, and words into larger units. According to Liberman and Prince (1977), stress is a hierarchy of rhythmic units in which syllables are organised to form feet and feet to form words. The foot comprises two parts: the head, which attracts stress, and the second, which is always less prominent and located to the right of the head. Metrical trees and metrical grids formally represent the hierarchical organisation of metrical structures.

Consequently, Hayes (1995) introduced five feet parameters, namely, feet dominance, feet boundedness, feet directionality, quantitative sensitivity and extrametricality, to explicate stress patterns across languages. However, some limitations also existed in the findings of the previous studies where errors could not be explained through the feet parameters of the Metrical theory as in the study of Khazneh (2015). These errors were mostly found in words that contain more than two syllables. However, previous studies did not focus on the effect of word length or level of proficiency, which might affect the production of English lexical stress, as Al-Thalab (2018) and Levis (2018) suggested.

METHOD

DESIGN

The current study follows a causal-comparative design where data are collected and analysed quantitatively. The causal-comparative studies identify a causality relationship between independent and dependent variables (Creswell, 2015; Patten & Galvan, 2019). This design determines the cause for an existing difference among groups of individuals caused by

unmanipulated variables. In this design, the researcher investigates the differences in producing English lexical stress between advanced and intermediate proficiency group levels.

PARTICIPANTS

Regarding the design applied in this study, the Non-Equivalent Sampling technique was used to find samples of the current study. Brewer and Kuhn (2010) explained that sampling in causal-comparative research is selected following the non-equivalent method. That is because samples are selected based on specific characteristics. The study involved 69 Arab EFL learners. The Arab EFL learners are undergraduate students from Yemen who have studied English as a main subject in primary and secondary schools in Yemen. The Yemeni participants were selected from those who qualified upon completion of a placement test to identify their level of proficiency. The Interchange Third Edition Placement Testing was used to determine the optimal level for the participant in the current study. The test consists of three parts: An Objective Placement Test, including a recorded listening section, a Placement Conversation, and a Placement Essay. The placement test results showed that 38 learners achieved the intermediate level, and the other 28 students comprised advanced learners.

STIMULI

The study adapted stimuli from Al-Thalab (2018), who investigated the perception of English lexical stress among Iraqi ESL learners. Al-Thalab's (2018) stimuli included 88 English real and nonce words that match and mismatch the Iraqi Arabic stress patterns. These stimuli were examined by an evaluation panel comprising two University Professors. Accordingly, four words were excluded from the stimuli. Therefore, the study adapted 84 words which were inserted in carrier phrases to control the phonetic cues during production, such as "I say (thunder)" again or I say (merchandise) again. All the test words are of various lengths and different syllable structures; 42 were disyllabic real and nonce words, and 42 were trisyllabic real and nonce words. Appendix A shows the stimuli of the study.

MEASUREMENT

Following the method of Saha and Mandal (2018), the study used the PRRAT software measurements to indicate the stressed syllable's placement. Each test word was divided into syllables. The study measures only the vowels in each syllable using acoustic cues, namely duration, F0, and intensity. The duration of the stressed and unstressed vowels was measured in milliseconds. The intensity measures were calculated as the mean of multiple intensity values extracted and smoothed over several time points in decibels. F0 measures were taken over the entire vowel, where the pitch range for female speakers was from 100-500 Hz and 75-350 Hz for male speakers. Table 2 presents an example of duration measurement in disyllabic words where the stress is located at the penultimate syllable. However, the study used the ratio of the stressed vowel by the unstressed vowel l (V1/V2) for intensity and F0 cues.

RESULTS

Table 1 presents a summary of the responses as affected by word length. The differences between disyllabic and trisyllabic words are highlighted in this table. It can be noticed that Yemeni EFL undergraduates encounter more challenges in trisyllabic words than in disyllabic words. A total of 27 incorrect responses were attained in disyllabic words. Meanwhile, 44 words were scored in producing English lexical stress as incorrect responses in trisyllabic words.

Table 1

Summary Results of word Length Effect

			Score incorrect	Score correct	Total
Length	Disyllabic	Count	27	57	84
		% within Length	32.1%	67.9%	100.0%
		% within Score	38.0%	58.8%	50.0%
		% of Total	16.1%	33.9%	50.0%
	Trisyllabic	Count	44	40	84
		% within Length	52.4%	47.6%	100.0%
		% within Score	62.0%	41.2%	50.0%
		% of Total	26.2%	23.8%	50.0%
Total		Count	71	97	168
		% within Length	42.3%	57.7%	100.0%
		% within Score	100.0%	100.0%	100.0%
		% of Total	42.3%	57.7%	100.0%

The study also conducted Pearson Chi-Square and Cramer's V tests to show the association value between both variables, as illustrated in Tables 2 and 3.

Table 2

Pearson Chi-Square Test of Words Length Effect

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.050[a]	1	.008		
Continuity Correction[b]	6.245	1	.012		
Likelihood Ratio	7.105	1	.008		
Fisher's Exact Test				.012	.006
N of Valid Cases	168				

As seen in Table 2, the test suggests a significant relationship between word length and stressing the primary stress in producing English lexical stress by Yemeni EFL undergraduates. The Chi-Square value is stress (= 7.050, df =1, P<0.05). Thus, it can be concluded that the longer

the English words, the more difficulties in producing the English lexical stress for Yemeni EFL undergraduates. The approximate significance in Cramer's V provides the same result with a P value of less than 0.05, as presented in Table 3.

Table 3

Cramer's V Test of Words Length Effect

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.205	.008
	Cramer's V	.205	.008
N of Valid Cases		168	

Figure 1 shows this result in a bar chart to illustrate the differences in word length between disyllabic and trisyllabic words in the production of the English lexical stress by Yemeni EFL undergraduates.

Figure 1

Word Length Bar Chart
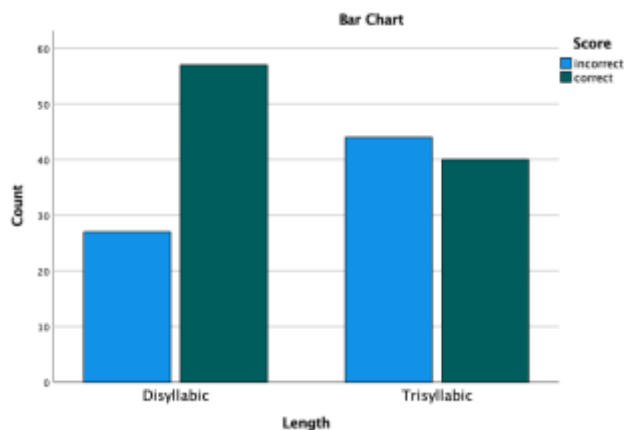
The above bar chart reveals fewer differences between the correct and incorrect responses in trisyllabic words. However, strong evidence can be seen between the correct and the incorrect responses in disyllabic words. Within length, 32 % of incorrect responses were recorded in disyllabic words. On the other hand, 52% of incorrect responses were scored in trisyllabic words.

The results of the second question indicate that the proficiency level affects the correct production of English lexical stress. The advanced Yemeni EFL undergraduates recorded 29 incorrect responses and 55 correct responses. The intermediate Yemeni undergraduates recorded 45 incorrect responses and 39 correct responses, as shown in Table 4. Table 5 shows the results of the Pearson Chi-Square test to show if there is any relation value between groups' levels of proficiency.

Table 4

Summary Results of Proficiency Level Effect

		Score		Total
		incorrect	correct	
Level	Adv	29	55	84
	Inter	45	39	84
Total		74	94	168

Table 5

Pearson Chi-Square Test of Level of Proficiency

Chi-Square Tests

|	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.183[a]	1	.013		
Continuity Correction[b]	5.434	1	.020		
Likelihood Ratio	6.224	1	.013		
Fisher's Exact Test				.019	.010
N of Valid Cases	168				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 37.00.

b. Computed only for a 2x2 table

Results of the Pearson Chi-Square test show a significant association between the learner's level of proficiency and assigning English primary stress, with a value (= 6.183[a], df =1, $P<0.05$). This result can also be seen in Figure 2 below.

Figure 2

Proficiency Level Bar Chart
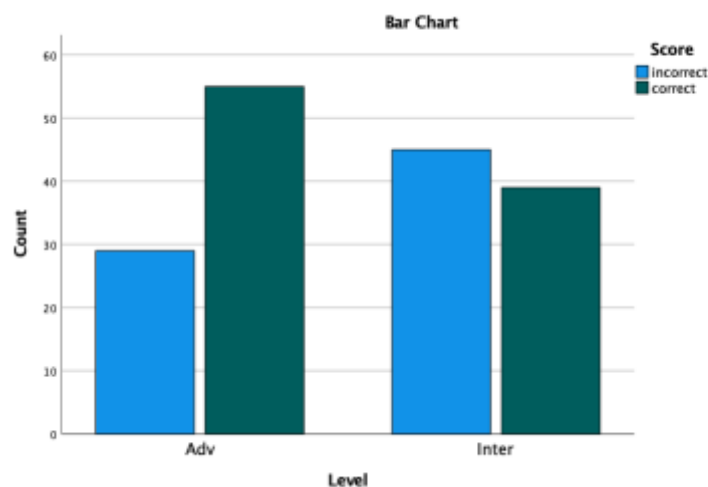
DISCUSSION

The first question addressed in this study aims to investigate the effect of word length in producing English lexical stress by Yemeni EFL undergraduates and English native speakers. The results indicate that word length affects the English lexical stress in the two groups of participants. That is to say, the two groups performed better in disyllabic words than in trisyllabic words. Literature (Ernestus & Neijt, 2008) explained the effect of word length on changing the stress placement in words that contain more than one syllable of English lexical stress by Arabic and Chinese speakers. The results of Al-Thalab et al. (2018) indicated that Iraqi and Chinese English learners achieved fewer mistakes in trisyllabic words than in disyllabic words. This result can be explained as participants have more possibilities to place the primary stress in trisyllabic words than in disyllabic words.] By contrast, Altmann (2006) found that participants scored higher marks in correctly producing the English lexical stress in trisyllabic words than in disyllabic words. The current study's findings are consistent with the results of Al-Thalab et al. (2018), who regarded that Iraqi and Chinese ESL learners face more difficulties perceiving the stressed syllables in trisyllabic words. However, the word length impact in the present study does not align with Altmann's (2006), who concluded that English learners' performance in longer words was significantly better than in disyllabic words at stress production. Altmann (2006) recommends a justification for her findings. In other words, producing stress in a structure of different syllables offers 'a contrast background', making stress identification noticeable.

Nevertheless, identifying lexical stress in longer sequences could be challenging because additional linguistic matters, such as secondary stress, could impact stress placement in words). The results of Altmaan (2006) might be related to the simple structure of the nonce words that contain only open syllables. Therefore, the penultimate syllable will always be preferred in trisyllabic rules as a preference for most Arabic words. Altmann (2006) recommended studying the production of English lexical stress by Arabic speakers using stimuli that contain open and closed syllables due to the nature of the Arabic language. Results of the present study can also help in explaining the contradicted findings among the studies of Helal (2014), Khazenh (2015), Ali (2021) and Al-Mugrabi (2021). That is because different word stimuli were used

without indicating the effect of word length. Further research can study this factor to enhance the theoretical perspective by considering the effect of word length.

The results of the second question indicate that proficiency level affects the production of English lexical stress. This effect is clearer in disyllabic words rather than in trisyllabic words. The findings of the current study lend support to the results of Modesto and Barbosa (2019), who stated that Brazilian Portuguese speakers utilised the same acoustic parameters as American English speakers to produce English stress patterns. On the other hand, the results contradict that of Aghai and Sayer (2016), who reported that errors in producing supra-segmental features were mostly shared among all proficiency levels. The results of the second question show that proficiency level affects the production of English lexical stress. This effect is more apparent in disyllabic words rather than trisyllabic words. The findings of the current study lend support to the results of Modesto and Barbosa (2019), who stated that Brazilian Portuguese speakers utilised the same acoustic parameters as American English speakers to produce English stress patterns. On the other hand, the results contradict that of Aghai and Sayer (2016), who reported that errors in producing supra-segmental features were mainly shared among all proficiency levels.

The findings also show a strong relationship between learners' proficiency levels and ability to produce English lexical stress correctly. Compared to the advanced group, the intermediate group had lower accuracy rates. This implies a progressive path for stress production, in which learners increasingly comprehend the rules and patterns of stress placement as their language ability improves. Advanced learners' higher accuracy may be due to a better knowledge of the language's phonological complexities and more exposure to English speech.

Furthermore, results of proficiency level indicate that it is really important to control the proficiency level when collecting data to examine the production of English vowels; otherwise, the results will not be normalised nor accurate to be generalised. Furthermore, previous studies used beginners and advanced levels, as in Zuraiq and Sereno (2021). However, they are native speakers of Arabic who have been living in the UK for several years. Therefore, it is important to control the proficiency level to gain better insights into the effect of L1 when producing English stress patterns.

CONCLUSION

The current study examined the effect of word length and level of proficiency in stressing the primary stress in English real and nonce words by Yemeni EFL advanced and intermediate undergraduates. The results of the study showed that participants' Proficiency level showed more effect in the production of the trisyllabic words, where advanced Yemeni undergraduates performed better than Yemeni intermediate undergraduates. This result emphasises the effect of the word length in the study. The Yemeni EFL undergraduates scored higher in disyllabic words than in trisyllabic words. Identifying lexical stress in longer sequences is challenging because additional linguistic matters, such as secondary stress, impact word stress placement. The current study's findings provide evidence of the need for teachers to understand English stress patterns while teaching in an EFL Yemeni classroom. It also sheds light on the theoretical and pedagogical implications. Theoretically, word length can be added as an extra parameter in MT theory to provide a wider understanding of the different manifestations of languages' stress patterns. Likewise, from the pedagogical viewpoint, the study offers further insights for

emphasising the utilisation of English supramental features in the Yemeni EFL curriculum and calls for further sensitisation for the teachers about appropriate pronunciation teaching practices in classrooms.

However, it is important to acknowledge the limitations of the study. This study focused specifically on Arab EFL learners, and the findings might not be fully generalisable to learners from other linguistic backgrounds. The study also examined the effect of word length within words containing two and three syllables. It is recommended to study the effect of word length in words that comprise more than three syllables.

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APPENDIX

The Stimuli of the Production Task

Carrier Phrases			
I say valley again	I say bamtain again	I say leadership again	I say synopsis again
I say money again	I say valomes again	I say scenery again	I say komsensus again
I say rocket again	I say danfuard again	I say merchandise again	I say dedanfer again
I say nitrate again	I say degict again	I say signature again	I say keybease again
I say data again	I say defect again	I say pesticide again	I say vacapsy
I say thunder again	I say sardine again	I say valentine again	I say synoksuf again
I say nursing again	I say darceal again	I say pharmacy again	
I say racing again	I say success again	I say fortunate again	
I say caffeine again	I say campaign again	I say dignity again	
I say captain again	I say nineteen again	I say melody again	
I say melting again	I say machine again	I say galaxy again	
I say valance again	I say campoyed again	I say septiride gain	
I say keyboard again	I say noilteen again	I say Sobsature again	
I say vanguard again	I say rarsine again	I say bargary again	
I say Journey again	I say deskus again	I say detsity again	
I say Raba again	I say peroxide again	I say benefit again	
I say Pitrade again	I say defender again	I say perefy again	
I say sozet again	I say recording again	I say ferculate again	
I say Kagiene again	I say byzantine again	I say feederchip again	
I say Jeelney again	I say magnetic again	I say rarchandise again	
I say zomey again	I say nosila again	I say nolentide again	
I say nerbing again	I say subnetic again	I say semofy again	
I say mabing again	I say rerarging again	I say bameset again	
I say mufting again	I say mamigic again	I say vanilla again	
I say luncer again	I say byhontide again	I say pacific again	
I say Janey again	I say pelognide again	I say consensus again	