

## Phonological Awareness of English among Saudi Learners: An Examination of the Role of Lexical Status and Intra-syllabic Phonological Unit

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**Abstract**

*This study explores phonological awareness ability in the second language. Although some studies have examined L2 phonological awareness, most of these studies have not provided sufficient details on the type of stimulus items employed in these studies nor considered the possible effect of some linguistic factors on the results. Thus, the study aims to explore the impact of the lexical status of the item (word vs non-word) and the preferred intra-syllabic phonological unit (onset-rime vs. body-coda) on the phonological awareness of English among Saudi university students. The participants were 48 university students majoring in English language. Two phonological awareness tasks were administered to test phonological awareness at the intra-syllabic and phonotactic levels. The tasks were an intra-syllabic segmentation task and a lexical decision task. The results showed significant effects of both linguistic factors on the participants' L2 phonological awareness. The lexical status of the test item had a significant effect on the participant's performance in the task. The participants performed significantly better in identifying real words than non-words, which reflects an advanced phonotactic awareness. Finally, the results revealed that the body-coda unit is the favoured intra-syllabic structure for Saudi learners. Therefore, the study provides evidence that the onset-rime hypothesis is not universal and is at least not applicable to Saudi Arabic speakers. The study offers theoretical and practical implications for the acquisition and teaching of L2.*

### 1. INTRODUCTION

Researchers interested in L2 acquisition have turned to cognitive psychology to explain how learners process linguistic input and how this internal mental phenomenon occurs. The role of consciousness in learning a second language was first discussed by Schmidt (1990) when he reported his own experience in learning Portuguese. One of the key findings reported by Schmidt was that he only learned what he had first noticed in the input. He also reported that he noticed the gap when he compared the non-target forms he produced to the target forms that appeared in the input (Ellis, 2015). Schmidt emphasized that noticing and noticing the gap reflects the role that consciousness and attention play in second language learning (Ellis, 2015). He later developed what has become known as the noticing hypothesis.

The noticing hypothesis is one of the leading theories in second language acquisition. The hypothesis highlights the role of consciousness, noticing, and awareness in learning a second language.

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It hypothesizes that input does not become intake for language learning unless it is noticed, that is, consciously registered (Schmidt, 2012). It is quite rational to assume that second language acquisition is mainly driven by what learners pay attention to and are aware of in the input from the target language.

Schmidt specifies three aspects of consciousness: intention, attention, and awareness. According to Schmidt (2012), consciousness in the form of intention is demonstrated in the distinction between incidental and intentional learning. Consciousness as attention encompasses diverse mechanisms that include orientation, alertness, facilitation, and inhibition (Schmidt, 2012). Finally, consciousness as awareness is often seen as closely linked to attention. Schmidt distinguishes between noticing as a technical term that refers to conscious registration of attended particular instances of language and understanding as a higher level of awareness that enables learners to make generalizations across instances of language.

Attention plays an essential role in the initial stage of information processing. Schmidt (1995) argues that not all learning is deliberate and gives the example of learning vocabulary through reading without the intention to learn new words. Moreover, he emphasizes that all learning, whether intentional or incidental, requires attention and that readers will not learn new words if they do not pay attention to these words when they encounter them.

L2 learners are often able to differentiate between L1 and L2 sounds and identify specific L2 phonetic and phonological regularities from L2 exposure, as well as their ability to detect deviations from target-like pronunciation. However, L2 learners are usually unable to verbalize phonotactic rules. This could be considered an indication of the presence of implicit metalinguistic knowledge about pronunciation (Mora et al., 2014). Following Schmidt's noticing hypothesis, awareness at the level of noticing is necessary for the acquisition of a target phonological feature. In contrast, awareness at the level of understanding is not essential to L2 phonological acquisition. In the noticing hypothesis, awareness is viewed as a continuum of levels of varying degrees of consciousness, with perceiving as the lower level and understanding as the higher one. Consequently, based on Schmidt's noticing hypothesis, the acquisition of L2 phonology requires a conscious knowledge of the phonological system in L2, either at the level of noticing or at the level of understanding.

To sum up, it seems plausible that noticing has a strong impact on second language learning. In fact, awareness seems to be involved in the initial phases of second language acquisition, and that learning is likely to take place when the target linguistic aspect is consciously noticed in the input (Souza, 2015). The noticing hypothesis is applicable to L2 phonological aspects that the learner notices in the input, becomes aware of, and eventually can acquire. It would not be reasonable to assume that ignoring linguistic forms in input leads to in better learning outcomes than paying attention to these forms, making generalizations, and forming hypotheses about them.

## **2. Phonological Awareness**

Phonological awareness, one area of phonological processing, has gained particular prominence in research because of its unique contribution to successful reading acquisition. It is frequently discussed in relation to concepts such as phonology, phonological processing, phonemic awareness, and metalinguistics (Gillon, 2007). Phonological processing encompasses phonological awareness as one construct in addition to two other constructs, and these are coding phonological information in working memory and retrieving information from long-term memory (Wagner & Torgesen, 1987). Therefore, phonological awareness is regarded as a subset of more general phonological processing abilities.

The term "phonological awareness" first appeared in the literature in the late 1970s and the early 1980s (Gleitman & Rozin, 1977; Zifcak, 1981). This term replaced earlier descriptors such as

“phonetic recoding” and “linguistic awareness” at the phonological level (Mattingly, 1984). Anthony and Francis (2005) define phonological awareness as the ability to parse the phonological structure of words into their constituents, which are syllables, smaller intra-syllabic units like onsets and rimes, or phonemes, and to consciously manipulate one or more of those units. Phonological awareness, therefore, is the awareness of sounds in a spoken language. It is distinct from the meaning of language and demands the ability to perceive and manipulate speech sounds separate from meaning and the representation of speech sounds by written language (Sodoro et al., 2002).

### **2.1. Phonological Awareness in L2**

The phonological awareness skills of second language learners are influenced by three types of factors: linguistic aspects, learner aspects, the degree of exposure to L2, and the amount of L2 instruction (Garrett & Cots, 2017). Some of the linguistic factors that affect learners’ performances on phonological awareness tasks include the phonologies of both L1 and L2 and the orthographies of the two languages, especially if one is alphabetic and the other is logographic. Another linguistic factor is the underlying phonological representation of the lexical item. The quality of the phonological representation of the target word might affect the learner’s explicit awareness of the word’s phonological structure (Gillon, 2007). Additionally, a fully developed phonological representation requires adequate knowledge of phonotactic constraints (Gillon, 2007). Regarding learner variables, aspects such as age, motivation, aptitude, and economic and social status all impact the development of phonological awareness abilities (Garrett & Cots, 2017). Furthermore, the learner’s previous experience of the L1 and its orthography and the learning context of the L2 influences the learner’s L2 phonological awareness (Gillon, 2007).

#### **2.1.1. Lexical Status**

Phonological representation is one of the main elements of the construct of phonological awareness. Goswami (2012) defines phonological representation as “the mental representation of the sounds and combinations of sounds that comprise words in a particular spoken language” (p. 2625). This mental phonological representation of segments acts as input to the systems responsible for articulation and production (Fernández & Cairns, 2010). The quality and integrity of this underlying phonological representation in long-term memory should impact the outcome of the phonological awareness operation (Saiegh-Haddad, 2019). Therefore, deficient phonological representation may hinder phonological awareness at three linguistic levels: phonemic, intra-syllabic, and syllabic.

The lexical status of the stimulus item is one main aspect of phonological representation. It refers to the lexical categorization of the stimulus, whether it is a word or a non-word. Russak and Saiegh-Haddad (2011) examined the influence of the lexical status of stimulus items on phonological awareness. The participants in the study were normal and reading-disabled native Hebrew college students who spoke English as their L2. The authors' hypothesis is that participants would perform poorly on phonological awareness tasks when phonemes were embedded in non-real words than within real-words, especially among reading-disabled learners and in the L2. Contrary to expectation, the findings of the study revealed that the impact of the lexical status of the test item on phonological awareness varied across both groups and both languages. In fact, only the reading-disabled group performed poorly on the phonological awareness task when the phoneme was part of a non-real word. Generally, the findings confirmed that phonological awareness in L1 is not affected by the lexical status of the word, which could be attributed to the students’ knowledge of the L1 phonological structure and their possession of a large L1 lexicon.

#### **2.1.2. Syllable Structure**

The unique structure of the syllable in a specific language is an essential factor in the development of phonological awareness of the syllable in L1 and L2. According to Saiegh-Haddad et

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al. (2010), the syllable structure of a specific language determines, to some extent, the way learners phonologically process the syllable and their ability to access and manipulate initial and final phonemes. Moreover, Kim (2007) points out that L1 speakers' awareness of the phonological units, namely syllable, onset-rime, and phoneme, develop sequentially. Kim also illustrates that, when phonologically processing a syllable, speakers of Indo-European languages have the tendency to split a syllable into onset-rime units. While onset-rime is a salient intra-syllabic unit of processing in many languages, the universality of this phonological unit of processing is questionable. Kim (2007) argues that onset-rime analysis is not universal and that studies on Korean adults report that their phonological processing of syllables shows a tendency to link vowels with the preceding consonant rather than with the following consonant, which indicates a preference for a body-coda sub-syllabic structure over the onset-rime structure. Kim (2007), moreover, examines a salient intra-syllabic phonological unit in Korean. The participants are Korean-speaking, monolingual, beginning readers. The findings show that the body-coda boundary is more salient for Korean children than the onset-rime boundary. Such results support Kim's (2007) argument that onset-rime analysis is not universal in all languages.

Research on the phonological representation of the syllable structure has been led by the rime-cohesion hypothesis. Based on this hypothesis, a syllable consists of phonemes that are structured hierarchically into two constituents: the onset and the rime (Russak & Saiegh-Haddad, 2017; Saiegh-Haddad, 2007a, 2007b). The main assumption of this hypothesis is that all language speakers tend to break any syllable at the boundary into onset and rime (Russak & Saiegh-Haddad, 2017). This hypothesis has been successful in explaining the effect of the performance of native English speakers, among other native speakers, on phonological awareness tasks testing intra-syllabic phonological processing in certain languages; this led to the authors claiming the universality of this hypothesis. However, the results from studies on languages other than English seem to indicate that the rime cohesion hypothesis might be an English-specific rather than a universal feature (Russak & Saiegh-Haddad, 2017). Studies that examine phonological awareness of Arabic and Hebrew speakers (Saiegh-Haddad, 2007a; Share & Blum, 2005) report that in syllable splitting tasks and in phoneme isolation tasks, the CV body is more accessible to the speakers of these languages than the VC rime. In other words, the speakers show a tendency to split syllables at the body-coda boundaries rather than the onset-rime boundaries. This preference is due to the strong cohesion of the CV body unit than the VC rime in both Arabic and Hebrew. They also find it more difficult to isolate and delete initial phonemes in comparison to final phonemes.

### **2.2. The Present Study**

The present study aims to explore phonological awareness ability in L2, specifically the phonological awareness of English as L2 among adult Saudi students. It examines the effect of the lexical status and the intra-syllabic phonological unit on the level of phonological awareness of Saudi learners of English. The study seeks to enhance our understanding of the nature of and relationship between phonological awareness constructs in L1 and L2 and offers a better understanding of the acquisition of L2 speech. Further, the study has important practical implications and could be beneficial to both L2 learners and instructors by offering valuable insight into the way underlying L2 phonological knowledge is organized.

The current study aims to address the following research questions:

- 1- Is there an effect of the lexical status of the stimulus item on Saudi university students' phonological awareness of English?
- 2- Is the body-coda intra-syllabic division more salient than the onset-rime division for Saudi university students?

### 3. METHOD

#### 3.1. Participants

The participants in this study were 48 Saudi university students (Female = 42, Male = 6) enrolled in the English program at the Department of English Language and Literature at Prince Sattam bin Abdul Aziz University. All participants needed to be familiar with the English sounds and pronunciation. Consequently, only students who were enrolled in level five or above in the program and who had successfully completed the phonetics and phonology course were selected for participation. Also, the participants did not report any difficulty in speech or hearing. The age range of the participants is between 20 and 23 years. All participants have spent at least seven years learning English in a formal school setting and are currently completing their Bachelor of Arts (BA) degree in the English language. Their level of proficiency varies from beginner to intermediate and advanced levels. Table 1 presents demographic information.

Table 1 :Demographic Data of the Participants

Age	No. of hours of speaking English per day		Gender
<i>M</i>	21.5	2.9	
<i>SD</i>	0.89	1.6	87.5 % Female 12.5 % Male

#### 3.2. Design

A repeated measure design was used, which included a within-subject design. Two phonological awareness measures were employed in the study. One measure examined phonological awareness in production. The other measure examined phonological awareness ability in perception.

##### *Phonological Awareness Tasks*

The data in the study was elicited using phonological awareness measures. These measures were presented in the forms of phonological awareness tasks, one of which focused on production (i.e., the segmentation task), and the other one focused on perception (i.e., the lexical decision task).

##### *The Segmentation Task*

The task that measured phonological awareness in production was segmentation. This task was designed to test phonological awareness at the syllable level to assist in identifying the salient intra-syllabic phonological unit for the participants. Two practice items were presented to the participants to help them understand the difference between onset-rime and body-coda divisions (see Table 2). In this task, the participants were asked to listen to a list of words (see Table 3) and were asked to segment the stimulus item into the onset-rime units. The participants listened again to the same list of items and were asked to segment the items into the body-coda units. The task consisted of 14 items, including the practice items.

Table 2: Practice on Segmentation into Onset-rime Versus Body-coda Units.

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Practice item	Onset-rime units	Pronunciation	Body-coda units	Pronunciation
flat	fl.at	fl.æt	fla.t	flæ.t
test	t.est	t.ɛst	te.st	tɛ.st

*Table 3: Word Segmentation into Onset-rime Versus Body-coda Units.*

Test item	Onset-rime units	Pronunciation	Body-coda units	Pronunciation
soon	s.oon	s.un	soo.n	su.n
brain	br.ain	br.eɪn	brai.n	breɪ.n
last	l.ast	l.æst	la.st	læ.st
black	bl.ack	bl.æk	bla.ck	blæk
night	n.ight	n.aɪt	nigh.t	naɪ.t

The effect of the intra-syllabic phonological unit of processing on the level of phonological awareness was examined in the segmentation task. The participants' responses to the segmentation of stimulus items into onset-rime and body-coda helped to determine if they preferred onset-rime or body-coda structures, which in turn helped test the universality of the rime-cohesion hypothesis. Based on this hypothesis, the mental representation of the syllable does not contain a string of linearly ordered sounds. Rather, phonemes are hierarchically grouped into two constituents: the onset and the rime. Essentially, the rime-cohesion hypothesis assumes that a singleton consonant at the beginning of a syllable could be easier to access because it forms a unit of its own. By contrast, a singleton consonant at the end of a syllable may be difficult to extract from the syllable because it forms a phonological unit with the preceding vowel, namely the nucleus (Uhry & Ehri, 1999). This representation of the syllable assists in making predictions about learners' ability to access the initial onset as opposed to final coda phonemes.

***The Lexical Decision Task***

This task measured phonological awareness in perception. It focused on implicit rather than explicit knowledge. Typically, this kind of knowledge is manifested in the learners' ability to identify anomalies or sequences of sounds that are not allowed in the target language but are not able to verbally express the rules that govern these sequences. The task was designed to measure learners' phonotactic awareness. In this task, the participants listened to English words and non-words and then decided whether the presented item was a real English word or not. The response accuracy of the stimulus items was measured, and each participant was given a score, which was considered as an indication of the participant's phonotactic awareness. The following tables present stimulus items that were orally presented to the participants to test their phonotactic awareness. The participants were presented with practice items first, as seen in Table 4, to allow them to get familiar with the task. Next, Table 5 shows the test items that the participants listened to and decided if the lexical item they heard was a word or a non-word. The task consisted of 14 test items, including two practice items.

*Table 4: Practice Stimuli for the Lexical Decision Task.*

Word	Non-word
strong /strɒŋ/	stlak
strain /streɪn/	sbrd

*Table 5: Test Stimuli for the Lexical Decision Task.*

Lexical item	Words	Non-words
brag /bɹæɡ/	✓	
sræn		✓
tlen		✓
flake /fleɪk/	✓	
zblit		✓
truth /truθ/	✓	
sgæl		✓
dlet		✓
place /p <sup>h</sup> leɪs/	✓	
skin /skɪn/	✓	
stlen		✓
scrub /skrʌb/	✓	

### 3.3. Procedure

Each data collection session began with the researcher introducing herself and briefly explaining the goal of the study as well as the organization of the participation session. First the participants signed a consent form that confirms that they agreed to participate in the study. Next, the phonological awareness tasks were administered individually in a quiet room by the researcher. The production task was administered first, followed by the perception task. All the stimulus items were pre-recorded on mp3 files. The researcher briefly explained what was required in each task and played the practice words first to ensure that the participants understood each phonological awareness task. Then, the test items were presented to each participant using Media Player on a computer. The participants' answers were recorded and assessed later by the researcher. Each participant was given a sub-score for each task and then a total score. Each session of data collection took around 15 – 20 minutes.

## 4. RESULTS

### 4.1. Segmentation of Intra-syllabic Units

The task that measured phonological awareness in production was segmentation. The task was designed to test the rime-cohesion hypothesis. Participants were required to segment a syllable into onset-rime and body-coda units. They were asked to divide lexical items first into onset and rime and then into body and coda units. The mean, median, and standard deviation of scores in the two categories of task are summarized in Table 6.

Table 6: Mean, Median, and Standard Deviation of the Scores in the Segmentation Task.

	Syllable division units	
	Onset-rime	Body-coda
<i>M</i>	3.23	3.79
<i>Md</i>	4	4
<i>SD</i>	1.65	1.33
<i>N</i>	48	48

Visual examination of the data using histogram and p-p plots showed that data were not normally distributed as expected in second language research. In fact, data for the onset-rime and body-coda tasks showed some departures from normality in having a negatively skewed distribution. Additionally, the Shapiro-Wilk test of normality was statistically significant ( $p < .001$ ), which confirmed that data was not normally distributed in both categories of the segmentation task. Therefore,

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a non-parametric Wilcoxon signed-rank test was selected to run the statistical analysis. The test revealed a statistical significance ( $v = 221.5$ ,  $p = 0.04$ ), CI [-1.5, -0.0]. Although the confidence interval did not go through zero, indicating that the difference was statistically significant, it was relatively wide. Therefore, some caution is required for the interpretation of this result. This is clear when comparing the means of the two scores. The mean score of the body-coda subtask is ( $M = 3.79$ ,  $SD = 1.33$ ), which is barely higher than the mean score of the onset-rime subtask ( $M = 3.23$ ,  $SD = 1.65$ ).

#### **4.2. The Lexical Decision Task**

Phonological awareness in perception was measured using a lexical decision task. The task was aimed to examine the participants' phonotactic awareness and the effect of lexical status of the item on their level of awareness. The participants listened to a number of lexical items and were required to decide if the item was a real word or a non-real word. The mean, median, and standard deviation of the participants' scores in the two categories are shown in Table 7 below.

*Table 7: Mean, Median, and Standard Deviation of the Scores in the Lexical Decision Task*

Lexical decision task	Mean	Median	Std. Deviation
Real words	4.90	5	0.93
Non-real words	3.67	3	1.36

The test of normality for the data in the two categories showed that the data were not normally distributed. The examination of the mean and the median of scores reported in Table 7 indicated that there was positive and negative skewness in the data. Additionally, the normal distribution of the data was checked using the Shapiro-Wilk test, and the result was significant ( $p < .001$ ), which also indicated that the data were not normally distributed. Consequently, a non-parametric Wilcoxon signed rank test was implemented for data analysis. The statistical test found a significant difference between the two categories of the task. The analysis revealed a statistically significant difference between the participants' scores in the two categories,  $z = -4.36$ ,  $p < .001$ , with a medium effect size ( $r = 0.45$ )<sup>1</sup>. The participants performed better in the real word category ( $M = 4.9$ ,  $SD = .93$ ) than in the non-real word category ( $M = 3.67$ ,  $SD = 1.36$ ).

## **4. DISCUSSION**

An intra-syllabic segmentation task was carried out to identify the preferred intra-syllabic unit of division for Saudi English learners. It is hypothesized that the participants would be more accurate in phonologically segmenting a word at the body-coda boundary than the onset-rime boundary because of the stronger cohesion of the CV phonological unit in Arabic than the VC rime unit (Saiegh-Haddad, 2004; Saiegh-Haddad, 2007a).

The analysis reveals a statistical significance of the intra-syllabic unit of division. The participants' scores on the body-coda segmentation are slightly higher than their scores on the onset-rime segmentation. The result indicates that the body-coda boundary is more salient than the onset-rime boundary for Saudi speakers. They exhibit a tendency to link vowels with the

<sup>1</sup> The effect size was based on Cohen's guidelines for effect size and was calculated using the formula

$$r = \frac{z}{\sqrt{Nx + Ny}}$$

observations.



preceding rather than the following consonant, favoring a body-coda structure. Although the analysis reveals a statistical significance in favor of the body-coda unit, the mean difference in the segmentation scores between the two units of division is not as large as hypothesized. In addition, the analysis shows a considerably wide confidence interval. Therefore, caution is required for the interpretation of the current result.

The present result does not reveal a large difference between the segmentation of the two phonological structures, which might question the reliability of this result as evidence that the body-coda unit is the more accessible intra-syllabic phonological unit of processing for Saudis. However, considering previous studies that reported similar results from Arabic and Hebrew, which is also a Semitic language that is written in an abjad (Saiegh-Haddad, 2007a; Share & Blum, 2005), it is quite acceptable to consider that this result provides statistical evidence that Saudi learners tend to break syllables in English at the body-coda boundaries. In addition, the ability the participants had shown in dividing the syllable at the onset-rime boundary could be a result of their regular exposure to the English language due to their major in university that enabled them to identify and split syllables at the onset-rime boundary similar to native English speakers.

The participants' preference for body-coda divisions over onset-rime divisions is in line with a previous finding (Saiegh-Haddad, 2007a), which concludes that the body-coda boundary marks a salient intra-syllabic phonological unit in Arabic. The result of the present study also extends previous findings on Hebrew (Share & Blum, 2005), Russian (Saiegh-Haddad et al., 2010), Korean (Kim, 2007; Yoon et al., 2002; Yoon & Derwing, 2001), and Dutch speakers (Geudens & Sandra, 2002, 2003). On the other hand, the current result contradicts findings reported by other previous studies that mainly tested English speakers (Treiman & Kessler, 1995; Treiman et al., 1995; Treiman & Zukowski, 1991).

The participants' slightly lower performance on the segmentation of the onset-rime units suggests that the onset-rime boundary is not marked for Saudi learners of English. This particular result is supported by evidence from previous research on Arabic and other Semitic languages. In addition, the salience of the body-coda phonological unit challenges the rime-cohesion hypothesis. Most of the research in this area has been dominated by this hypothesis. Advocates of this rime-cohesion hypothesis claim that onset-rime units are universal syllable constituents (Fudge, 1969; Goswami, 2002; Treiman & Kessler, 1995). However, the results of the current study, along with some earlier studies that provided evidence for a body-coda intra-syllabic structure, question the universality of the rime-cohesion hypothesis. In fact, the results reported from studies on different languages confirm that the rime-cohesion hypothesis is a linguistic-specific property rather than a universal hypothesis (Yoon et al., 2002).

The second research question addresses the effect of the phonological representation of the lexical item on the learners' phonological awareness abilities. As high-quality phonological representations facilitate phonological awareness, the participants are expected to show advanced levels of phonological awareness when processing real words compared to non-words. Consistent with this prediction, the findings showed that the response accuracy was higher when responding to real words on the lexical decision task. The participants scored higher in identifying word items than non-word stimuli.

Higher scores on the task in identifying real words than non-words are the result of familiarity with real words, which are likely to have adequate phonological representation in long-term memory than non-words. This finding is supported by findings from earlier studies (e.g., Asadi & Abu-Rabia, 2019; Russak & Saiegh-Haddad, 2011; Saiegh-Haddad, 2004; Saiegh-Haddad, 2019; Saiegh-Haddad & Ghawi-Dakwar, 2017) which all conclude that

phonological awareness decisions are related to phonological representational quality. The lexical status, frequency, and familiarity of the word all affect the quality of the phonological representation. More accurately, real words are expected to have better phonological representations and are perceived more accurately than non-real words.

## **5. CONCLUSION**

The present study has examined the understudied area of L2 phonological awareness. Although the aspect of language awareness has been extensively studied, awareness about phonology in L2 has received little attention. Furthermore, the existing studies about L2 phonological awareness have been mostly concerned with its connection to reading skills and L2 literacy. Only a few studies have considered the linguistic factors that affect and contribute to L2 phonological awareness ability. In addition, most of the previous studies on L2 phonological awareness have focused on English speakers and speakers of other European languages. Most of the existing studies have not examined the L2 phonological awareness of Arabic speakers, or at least adult Arabic speakers. Therefore, the present study was set out to examine the L2 phonological awareness of adult Saudi learners of English.

Two phonological awareness tasks were employed in the study: an intra-syllabic segmentation task and a lexical decision task. These two tasks have been employed in previous studies on phonological awareness in various languages. Results from the phonological awareness tasks revealed that both the lexical status of the test item and the intra-syllabic phonological unit of division influenced the participants' level of L2 phonological awareness. The results of the current study were in line with previous studies. In addition, the results of the examination of the lexical status of the stimulus item on the L2 phonological awareness ability showed that real words were perceived more accurately than non-real words. The findings revealed that this factor influenced the Saudi learners' level of L2 phonological awareness.

The result of the segmentation task, which examined the intra-syllabic phonological unit of processing for Saudi learners of English, revealed a preference for a body-coda structure. The Saudi L2 learners showed a tendency to break syllables at the body-coda boundary rather than at the onset-rime boundary. This finding was in contrast with previous studies that mostly examined English native speakers. It also clearly questioned the universality of the rime-cohesion hypothesis. On the other hand, this result was in line with other previous studies that examined this issue in Arabic and other Semitic languages like Hebrew.

The present study offers theoretical and methodological implications. The findings of this study point out the importance for researchers to consider the effect of some aspects, such as the type of the task, to reach a valid comprehensive assessment of phonological awareness skills in L2. In addition, the current findings, as well as findings from previous research, indicate that aspects such as targeted phonological units, language-specific features such as syllable structure, and the type of phonological awareness task used all result in differences in the obtained findings. Future research should account for the variations in the nature of the syllabic structures used in the different studies such as the complexity, and the length of the syllable (Asadi & Abu-Rabia, 2019).

One important aspect that needs to be addressed in research on phonological awareness of a second language is the type and design of the phonological awareness task. Task development is a central research line the field of L2 phonological awareness. It is crucial to design new tasks that take into account the exact nature of L2 phonological awareness which can increase the reliability of the findings. In fact, task type and design have a major influence on the results obtained; therefore, a lot of

effort must be made to develop suitable tasks. In addition, tasks should not only focus on production; on the contrary, they should focus more on perception, hence avoiding any effect of motoric limitations being confused with poor phonological awareness abilities. However, the current study included both perception and production tasks, and this could be seen as a limitation since it is more reliable to examine phonological awareness only in perception, especially in L2, to eliminate the effect of motoric limitations.

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