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Perception of American English Allophonic Variant /ɾ/ by Arabic Speakers in an EFL Context

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ABSTRACT

This study investigates Saudi university students' perception of the allophonic variant /ɾ/ in an English as a foreign language (EFL) context. It attempts to identify the influence of this perception on the students' spoken word recognition and examine the correlation between perception and production of flapping on the one hand, and academic achievement on the other. It also seeks to provide solutions to help Arab students improve their perception of connected speech features. To achieve its objectives, the study carried out experimental tests and interviews. The results of the study show that the ability to produce the allophonic variant /ɾ/ in one's own speech has a positive correlation with its perception. In contrast, academic achievement does not significantly correlate with the perception of the allophone.

Keywords: Allophonic variants; Flapping; Perception; Spoken word recognition; Pronunciation instruction; Listening skill

INTRODUCTION

Perception is the first step towards L2 learning. If anything hinders perception, L2 learning will be affected negatively since listening is the first skill to develop. In perceiving oral communication, there are many phonological processes involved in the normal connected speech of native speakers. EFL learners should be aware of these processes to be able to recognise the utterances as they are spoken naturally in the native speech. Therefore, it is not enough to learn only phonemes of English. Allophonic variants and phonological processes can also affect perception of spoken language. Of these are the allophone /ɾ/ and the process of flapping which is the scope of the present study. This process is a prominent feature of the American English which is a considerable accent of English. Thus, perception and production of American English would be affected by EFL learners' awareness of this process. Such an issue has not received proper attention thus far. Although researchers have discussed problems of the Saudi EFL learners' pronunciation, the focus was only on single phonemes, neglecting allophones. Thus, the present study is one of the pioneering studies to investigate this issue.

WHAT IS FLAPPING?

Kuo (2012) provides a short but a comprehensive definition of flapping:

> *Flapping specifies that alveolar stops are realized as flaps in intervocalic positions. Both voiced and voiceless stops appear on the surface as voiced flaps, for example, "eat it" and "read it."* (p. 4)

As Picard (2001, p. 19) cites Carr who states that "the rule of Flapping in American English causes intervocalic /t/ and /d/ to be realised as a voiced alveolar tap ([r])n (1993, p. 178) while Wardhaugh describes the sound in question as "a quick tap of the tongue on the alveolar ridge — technically a flap" (1995, p. 203)".

Flapping is a phonemic feature which isolates British English from other varieties of English accents in which flapping occurs with different degrees. Flapping is a specifically remarkable feature of American English.

> *Despite the obvious disagreements among phoneticians and philologists as to the exact geographical distribution of Flapping, ...it is generally recognized as a quasi-universal feature of North American pronunciation.* (Picard 2001, p. 14)

Thus, absence or erroneous use of flapping means that a speaker is not speaking the English of US or she/he is a non-native speaker of English (Lee 2004). The importance of flapping in EFL/ESL classes has been highlighted by some researchers:

> *To fully comprehend a naturally pronounced sentence well, EFL/ESL learners need a basic knowledge of connected speech, including C-C linking, C-V linking, /h/-deletion, contraction, palatalization, and flapping.*
> (Kuo 2012, p. 1)

Since the present paper deals with the phonological process of flapping in the language of Saudi EFL learners and the phonemic variant /ɾ/ which is an allophone of /t/ phoneme, it needs to have a look at the phoneme /t/ in both languages, Arabic and English; although the phoneme occurs in both languages, it is not identical in terms of place and manner of articulation (Hago & Khan 2015). While the English /t/ is alveolar and aspirated in initial position, the Arabic /t/ is dental and not aspirated in the same position (Abdulwahab 2015). As for flapped /t/,i.e./ɾ/, it has no equivalence in Arabic neither in its phonetic quality nor in its phonological distribution. Nevertheless, the process of flapping does occur in Arabic but not with /t/. As Simackova (1999) states, "[Saudi EFL learners] do not need to learn how to implement flap phonetically since Arabic has a phonetic flap for /r/. What they have to learn is to substitute a flap for /t,d/" (p. 22). Thus, the issues that Saudi learners need to be aware of with /ɾ/ are as follows:

1. They need to recognise the presence of the allophone /ɾ/ as a variety of English phoneme /t/.
2. They need to know the phonological distribution of the allophone /ɾ/, i.e. it is intervocalic position.
3. They need to be aware of the way of producing /ɾ/ which is a mixture of /d/ and /r/, i.e. a soft /d/ but not fully /d/ nor fully /r/.
4. They need to be able to perceive the allophone /ɾ/ in the connected speech. This may embody the difficulty of decoding the sound /ɾ/ whether it is /t/ or /d/ or /r/.

WHY FLAPPING?

Picard (2001) thinks that it is not enough to teach phonemes of English; rather the most prominent allophones mainly /ɾ/ should be taught as well.

> *"Since flaps are demonstrably the most salient of all NAE* [North America English] *allophones and occur as phonemes in the first language of many ESL learners, these segments should be given due consideration in any pronunciation curriculum"*
> (Picard 2001, p. 1)

Since the flapped allophone /ɾ/ occurs frequently in North American English (NAE), it must be given prominence and taught in EFL classes (Picard 2001). Flege & Port (1981) think that lack of flapping will lead to a foreign accent (a production problem) or a

misperception (a perception problem). Therefore, learning allophones like /ɾ/ will then help to avoid these problems.

Low perception of phones and allophones by EFL learners is largely related to deficiencies in the acquisition of pronunciations. Scholars have attributed this insufficient proficiency in L2 pronunciation to a number of reasons. These include pedagogy, teachers, and curriculum. EFL classes in the Arab countries underestimate the acquisition of pronunciations because they are under the influence of traditional methods of teaching such as the grammar-translation which views pronunciation as irrelevant to EFL/ESL classes. Consequently, little interest has been given to pronunciation, spoken language, listening skill, and communicative skills. Only recently, some efforts were carried out to integrate teaching pronunciation in EFL courses although the focus was mainly on production rather than perception. As reported by Tabandeh, Moinzadeh, and Barati (2018), there is a need for explicit pronunciation instruction (p. 112). Hence, problematic pronunciation areas at both segmental and supra-segmental levels like flapping should receive more attention by EFL learners/teachers. Teachers' qualification and knowledge also contribute to students' low proficiency in pronunciation (Veselovska 2016). Teachers are not able to model the accurate pronunciation since they themselves lack native accent. Moreover, they rarely allocate part of the class time to teach pronunciation (Picard 2001) and when they do, the focus was only on some consonants and vowels while "allophonic variation continues to be totally neglected" (ibid, p. 5). EFL curriculum and books also pay little attention to pronunciation in general (Hamouda 2013). An exhaustive examination of prescribed EFL/TESL books reveals that they neglect the process of flapping and the variant /ɾ/. The proportion given in the ESL and TESL textbooks to teach allophones in general and flapping in particular is not enough and is in a decrease since the last decades (Picard 2001). As suggested by Picard, the problem in general seems to lie in the belief that teaching allophones is not significant, i.e. only teaching phonemes is the main goal of teaching pronunciation since they make semantic distinction.

LITERATURE REVIEW

STUDIES ON FLAPPING

Di Pietro (1971) discusses the process of flapping with Arab speakers. He referred to flap /r/ from the angle of production not perception, making the flapped /r/ with Arab speakers a phenomenon that has not been fully investigated. The study only refers to the difference between Arabic and English in respect to the quality of /r/. Simackova (1999) also refers to the presence of a flapped variant /r/ in Arabic.

Only one study investigates the production of /ɾ/ by Saudi learners (Flege & Port 1981). It was found from the study that Saudis do not flap and it was concluded that even after long exposure to English, Saudis do not produce flapping. However, this result cannot be generalised to all Arab EFL learners since it contradicts with a study by Port and Mitleb (1980) of Arab *Jordanian* EFL speakers who were found to be able to flap. Although both groups of participants in the two studies had the same L1 and the same length of exposure, the Jordanians succeeded in acquiring and producing flap /t/ but not the Saudis.

It has been noticed that some EFL learners have managed to acquire the allophonic variant /ɾ/ while others have not. This motivates scholars to investigate the factors that facilitate its acquisition, especially for adult EFL learners. It is found out that the acquisition of flapping correlates positively with length of exposure to L2 (Laeufer 1996) and early exposure (Lee, 2004). As for the role of instruction, Lee (2004) stresses its importance as a remedial solution to the absence of sufficient exposure to L2. The link between the

acquisition of flapping and level of proficiency in L2 has also been examined. Unexpectedly, there is no proven significant correlation between them. In fact, it has been found out that flapping is a problematic area for EFL learners which affects comprehensibility and hinders perception regardless of their proficiency in L2 (Fan 2003).

STUDIES ON PERCEPTION

Alshangiti (2015) investigates the perception and production of contrasted problematic English consonants and vowels in the language of young Saudi school students with varying proficiency levels. The study shows that perception positively correlates with both the proficiency in L2 and explicit instruction. The finding concurs with Kuo (2012) who cites three studies claiming a significant influence of proficiency in L2 on perception and listening comprehension of connected speech. As for the relation between perception and production, Alshangiti (2015) suggests that there is a strong correlation between the two: the "perception of English vowels was better in Saudi learners who also had more accurate production of these vowels" (Alshangiti 2015, p. 82).

In contrast, Almbark (2010) examines the production of vowels for 10 EFL Arab Syrians who have learnt English for at least 10 years but have never been to an English speaking country. One of the results is that accurate perception of L2 vowel contrasts does not necessarily lead to accurate production of such contrasts. Similarly, Buali (2010), in his study on perception and production of /p/ by Saudi EFL learners, has also reported a poor relation between perception and production.

There are two opposing views regarding the mutual influence of perception and production. On the one hand, some researchers claim a strong correlation between perception and production (e.g. Liberman & Mattingly 1985, Derwing & Munro 2005, Thompson 2011), as cited in Veselovska (2016). They believe a skill production is affected by perception. Therefore, if the perception skill of non-native learners improves their word recognition, comprehensibility and production skill will also improve. They emphasise the importance of perception skills to the extent that they believe FL learners should receive intensive training on perception prior to production which in turn will be automatically improved. On the other hand, other researchers think there is no correlation between them. They claim that there could be a production problem with a child, for example, but he/she can perceive an intended word (Berko & Brown 1960).

In a relevant study, Hamouda (2013) deals with listening comprehension, finding that Saudi EFL university learners face difficulty in listening comprehension due to speech rate, unfamiliar vocabulary and foreign accent. Consequently, they cannot perceive spoken language of the native speakers because they cannot figure out the connected speech. This is attributed to their low proficiency in pronunciation and low mastery of the phonological processes. Exposure to pronunciation, which is deviant from native speech in EFL classes, hinders their listening comprehension when they are exposed to authentic materials. They are unfamiliar with the different accents and the features of connected natural speech. Therefore, it is suggested that Saudi learners need to be more aware of the different accents by English native speakers.

STUDIES ON ALLOPHONIC VARIANTS IN THE INTERLANGUAGE OF ARAB EFL SPEAKERS

Although there is a number of papers discussing the area of pronunciation of Arab EFL learners, none of them discusses the perception or production of allophones. Those studies examine issues such as the *production* of some consonants (Aziz 1974a, Ahmad 2011, Baagbah, Jaganatha & Mohamad 2016, El Said 2013, Hassan 2014), some vowels (Aziz

1974b), stress (Aziz 1980, Anani 1989, Parker & Riley 2009), intonation pattern (Khalil 1987), stress and intonation (Wahba 1998), consonant cluster (Al-Saidat 2010, Na'ama's 2011), and consonants, schwa, and consonant cluster (Mirza 2015, Hago & Khan 2015). It is worth mentioning that these studies focus on production, not perception.

With the exclusion of the two studies by Flege and Port (1981) and Port and Mitleb (1980), none of the previous English pronunciation research of Arab learners tackles the phonological process of flapping. In fact, these studies discuss the issue from a different angle than the present study. Most studies in the area of pronunciation overlook the influence of perception of flapping on a speaker's comprehension. Investigating the phonetic variants in the language of Arab learners is rare, if any. In fact, such an issue is very rare in the phonetics research worldwide as Dalton (2010) claims "relatively little attention has been paid to the acquisition of non-contrastive sounds or allophones" (p. 95).

The only study which investigates a phonemic variant among Saudi students, even though from the *production* side only, is that of Hago and Khan (2015). The study investigates, among other consonants, one allophone: the dark /l/ =/ɬ/. It was found that one of the sounds that represented a major difficulty for the majority of the participants of the study is the dark (velarized) sound /ɬ/, which is an allophone of the voiced alveolar lateral sound /l/. Most errors were related to the participants' difficulty to pronounce the velarized / ɬ /, especially when the sound occurs in a final position e.g. people /pi ːp ɬ/".

The author of the present study notices that the students have been encountering difficulty in decoding the natural connected speech by native speakers as their speech involves many phonological processes as opposed to the careful and comprehensible speech the students hear in class. This begs the question of whether or not the perception of such phonological processes, including flapping, will have serious effects on their recognition of spoken language.

The present study was carried out with the following objectives:

1. Investigating the ability of the Saudi female students to perceive the allophonic variant /ɾ/ in the speech of American English native speakers
2. Examining the influence of perceiving flapping on word recognition
3. Tracing the influence of production of the phonetic variant /ɾ/ and academic achievement on the perception of flapping and word recognition
4. Suggesting solutions to improve perception of allophones

The study poses the following questions:

1. Is there a difference in the recognition of flapped vs. non-flapped English words by Saudi students?
2. Is there a correlation between perception of flapping and its production?
3. Is there a correlation between perception of flapping and academic achievement?

The current study derives its significance from the idea that in spite of the importance of acquiring allophonic variations and distinguishing the varieties of accents to auditory perception and L2 proficiency this issue has not received a proper attention. A large portion of phonological processes like flapping and aspiration has been unexplored in the EFL and ESL research (Simackova 1999). The research on flapping as a phonological process and a feature of American English in the language of EFL learners has been limited. Although there is a number of studies on pronunciation of EFL learners, specifically Arabs, most of them focus on segmental features including some consonant and vowel phonemes or suprasegmental features including stress, consonant cluster, assimilation and elision.

Moreover, studies in Arab EFL phonetics mainly focus on production neglecting the role of perception. After reviewing related literature, a shortage in the scientific research in the area of phonological processes like flapping has been noticed. There is a complete neglect of this allophone and other allophones as well.

METHODS

SUBJECTS

119 female university students took part in this empirical study. Their age was between 19 and 20 years old. They speak Arabic as their mother tongue and they did not receive natural exposure to English as a second language. They graduated in public secondary schools where Arabic was the medium of instruction and English was taught in one course as a foreign language for 4 hours per week. They enrolled in the English language programme at a public university in Saudi Arabia. They studied 6-7 courses via English-medium instruction. Naturally, they were subject to LI interference while learning English both in school and university.

DATA COLLECTION AND DATA ANALYSIS

Quantitative and qualitative data were gathered in this study. Two major tools were used: 3 experimental tests and informal interviews. To determine the participants' academic achievement as indicated by their cumulative GPA, their official records were accessed. Following the guidelines of the university, students who obtain 3.80 and above are grouped as "high achievers" while those with lower than 3.80 are grouped as "low achievers". Thus, the students' perception of flapping could be compared to their academic achievement to trace any mutual influence between them. The SPSS version 22 was used to analyse the quantitative data.

INSTRUMENTS

EXPERIMENTAL TESTS OF PERCEPTION

To test the students' ability to perceive the variant allophone /ɾ/, 2 dictation tests, prepared by the researcher, were used to dictate words and utterances (phrases, sentences and questions). Each utterance included one or more phonological environment of flapping, within a word or in word-boundaries. The test consisted of 25 words and 28 sentences. There were two versions of the test. One version was read in the presence of flapping while the other one without flapping. Both versions were recorded with the help of a native speaker, an English language teacher. The face validity of the tests was determined by distributing them to 5 university professors and necessary modifications were made. To estimate the test reliability, the instruments were administered to a pilot sample of 30 students. The calculated reliability using Split-half was 0.90 which indicates that the test was reliable.

AN EXPERIMENTAL TEST OF PRODUCTION

To trace any influence of production on perception, the students' ability to produce the variant allophone /ɾ/ was tested by using a researcher-developed reading test. It consisted of a list of 10 words, including the allophonic variant /ɾ/, and a paragraph including 15 flapped words.

The same scientific conventions, used with the perception test, were followed to prove validity and reliability of the production test.

INFORMAL INTERVIEW

Informal interviews were conducted with a representative sample of the subjects. The goal of these interviews was to elicit information about the following issues:

1. The subjects' awareness of their phonetics competence and the phonological processes like flapping.
2. Their experience with the English language in school and in university.
3. Their experience with the English language inside and outside the classroom.
4. The factors that have positive and/or negative influence on their perception and production of the phonetic system of English.

Therefore, the following questions were asked:

1. When did you start learning English? What kind of school did you attend?
2. How do you acquire pronunciation of English language?
3. How do curriculum, teachers, and textbooks in school help to acquire pronunciation?
4. How do curriculum, teachers, and textbooks in university help to acquire pronunciation?
5. Do you practise speaking English outside class and at home?
6. Have you been in L2 community and had direct exposure to English?
7. Have you studied or worked abroad?
8. How do you improve your pronunciation accuracy?

PROCEDURE

Sheets were distributed among the students to write the dictated words. They were briefed about the goal of the test. A detailed instruction was given before the tests. They were asked to write the words they heard on the sheet. The test's first version record of flapped words was played. When the students had finished, sheets were collected. A week later, a similar procedure was followed for the second version of the test of non-flapped words. An appropriate time was given to the students to finish all the dictation tests. All other variables were under control across both tests. These included the rate of speech, familiarity of words, and noise. The researcher collected the sheets and compared the data in tables. The numbers of perceived /ɾ/ for each student in each version of the test were arranged in tables. A comparison was made between the two types of dictation to assess the subjects' ability to perceive flapped /t/.

Two days later, the production test was set. The students were asked to read the list of words and the paragraph individually and the number of produced /ɾ/ was recorded in tables. The researcher arranged the data of each student which included the number of flapped words perceived, the number of non-flapped words perceived, the number of flapped words produced, and the academic level in terms of the students' GPA.

In the light of the data arranged in these tables, a sample was selected for the interview. The sample included:

8 students who were high achievers
8 students who were low achievers
8 students who poorly scored in perception of flapping

8 students who poorly scored in production of flapping
8 students who highly scored in perception of flapping
8 students who highly scored in production of flapping

FINDINGS

THE FIRST QUESTION

IS THERE A DIFFERENCE IN THE RECOGNITION OF FLAPPED VS. NON-FLAPPED ENGLISH WORDS BY SAUDI STUDENTS?

To answer this question, the researcher used a t-test for two related samples to detect the difference in recognising flapped vs. non-flapped words.

TABLE 1. t-test for two related samples in recognising flapped vs. non-flapped words

	Mean	N	Std. Deviation	Df	T	Sig.
Flapped	20.092	119	8.101	118	14.664	0.000
Non-flapped	35.319	119	12.95			

The t-test indicated that there was a statistically significant difference at (0.000) between students' scores in the first version and the second version of the test. This denotes a significant difference in the recognition of flapped vs. non-flapped words, in favour of the application of the non-flapped version of the test.

THE SECOND QUESTION

IS THERE A CORRELATION BETWEEN THE PERCEPTION OF FLAPPING AND ITS PRODUCTION?

To answer this question, the researcher used a Pearson correlation coefficient to find the correlation between the perception of flapping and its production.

TABLE 2. A Pearson correlation coefficient between perception of flapping and its production

	Production	
Perception of flapping	Pearson Correlation	0.322**
	Sig. (2-tailed)	0.000
	N	119

***Correlation is significant at the 0.01 level (2-tailed)*

The table shows that there was a positive correlation between the perception of flapping scores and the degree of its production by the participants.

THE THIRD QUESTION

IS THERE A CORRELATION BETWEEN PERCEPTION OF FLAPPING AND ACADEMIC ACHIEVEMENT?

To answer this question, the researcher used a Pearson correlation coefficient to find the correlation between perception of flapping and academic achievement.

TABLE 3. A Pearson correlation coefficient between perception of flapping and academic achievement

	Academic Achievement	
Perception of flapping	Pearson Correlation	-0.376**
	Sig. (2-tailed)	0.000
	N	119

*** Correlation is significant at the 0.01 level (2-tailed)*

The results show that there was an inverse correlation between the students' scores of perception of flapping the academic achievement by the participants.

DISCUSSION

THE TESTS

FLAPPED WORDS

The t-test revealed a significant difference between the scores of the first version of the test (flapped words) and those of the second one (non-flapped words). The mean of second version was higher, i.e. the participants scored higher when asked to recognise the non-flapped words but had a significant difficulty in recognising the flapped words. While the participants recognised the words and utterances when pronounced with the basic phoneme /t/, they failed to recognise the same set of words and utterances when pronounced with the allophonic variants /ɾ/. This suggests that they had a problem in perceiving flapping and it denotes how the problem in acquisition impedes the recognition of the natural spoken words by the native speakers. The participants encountered a difficulty in perceiving the allophonic variant /ɾ/ even though it is a remarkable feature of many native speakers, particularly Americans. This finding concurs with Hamouda (2013) who revealed that Saudi learners face difficulty in figuring out connected speech of native speakers.

This problem could be attributed to the type of input in classes, which does not equip the learners with the natural pronunciation that enables them to perceive the normal language of native speakers. This emphasises the importance of exposing students to authentic speech. Acquiring phonological system only from teachers who do not speak with the native accent hinders EFL learners' recognition of the native pronunciation. In addition, focusing only on the basic phonemes and isolating phonological processes in English lessons have its disadvantages. The pronunciation the students were used to hear in class does not include allophonic variants as they are found in the normal speech of any native speakers of American English. Therefore, when the students hear natural speech, they encounter difficulty in decoding the allophonic variant /ɾ/ and consequently cannot recognise the words well. The answer to the first question of the study stresses the fact that acquiring allophonic variants is basic and imperative to EFL learners. Otherwise, their recognition of natural input is hampered.

PERCEPTION AND PRODUCTION

The research findings also revealed a positive correlation between the perception of flapping and its production. The student's ability to perceive flapped words increased as they were able of producing flapped words. Therefore, the more percentage of flapped words produced in the speech of a student, the more she was able to perceive them in the speech of others. This result contradicts with the finding of Almbark (2010) in which the correlation between the perception and production of vowels by Syrian EFL learners was not significant. In line with this finding, Alshangiti (2015) reveals a strong correlation between the perception and production of vowels by Saudi EFL learners.

The answers to the second research question indicate that students who produce native-like pronunciation are deemed to master phonological processes and apply them in their spoken production. Consequently, those students are capable of perceiving such processes in the normal spoken language. This sheds light on the importance of raising students' awareness of the actual pronunciation of native speakers of American English. It is

also crucial to train EFL learners in mastering the allophonic variants and not only limiting themselves to the basic phonemes. Such training is demanded since it affects not only intelligibility of their speech but also their recognition and comprehension of spoken language.

PERCEPTION AND ACADEMIC ACHIEVEMENT

The correlation between the perception of the allophonic variant /ɾ/ and academic achievement was found to be weak. Although some of the participants obtained a high GPA, they were less successful in perceiving the allophone in the speech of native speakers. In contrast, some of the students with low GPA were successful in perceiving it. This finding is in line with Fan (2003) who concludes that flapping forms are an obstacle to EFL learners regardless of their proficiency in L2.

Academic achievement in the English language is not a reliable indicator of proficiency in recognising spoken word. It does not predict the ability of learners to perceive allophonic variants. Knowledge of the allophones is not enough to perceive them in the actual speech of natives. Development of both the listening skill and ability to perceive flapping requires stimulating subconscious acquisition through intensive exposure to native pronunciation.

SECOND: INFORMAL INTERVIEWS

The participants across categories as indicated in 2.4 shared some common features. They started learning English as a foreign language in a formal education setting of public schools at the age of 11 or 12. They had no prior exposure to English and they had not travelled abroad. Their only contact with the language was through English lessons as they learnt the language for four hours a week. The participants had a common belief that textbooks mention nothing worthy about pronunciation or phonological processes. Their teachers were non-native speakers who frequently resorted to Arabic in teaching English. The main source to acquire pronunciation was their teachers. Thus, their proficiency was low and their pronunciation was not native-like. Generally, the focus of the English curriculum at public schools is on grammatical rules and memorisation of vocabulary. As they pursued their studies at a public university, the focus of the English curriculum is similar, that is on memorising vocabulary and collecting grades to pass exams rather than acquiring skills and developing proficiency. They acknowledged that their speaking ability and pronunciation were below the required level and they had problems decoding the spoken language by native speakers. They noticed a difference between the speech of native speakers and the speech they used to listen to at school and university. Sometimes, they were confused with the pronunciation of some words and when recognizing native-like pronunciation, the participants admitted to having missed many words. They could only recognise the words when spoken by their teachers in a slow and deliberate manner. They believed that they did not benefit as much as they hoped to concerning the pronunciation accuracy, in particular, from their teachers either in school or university. The analysis of each group of the sample brings about the following results:

STUDENTS WHO WERE HIGH ACHIEVERS

They shared a number of traits mainly:

1. Having a good ability to absorb grammatical rules and apply them
2. Having a good ability to learn a large number of words

3. Paying attention in class to their teachers' delivery and spending considerable time to study at home

In spite of this, they lacked the chance to listen to authentic audio materials or to communicate with native speakers outside the classroom setting. Interestingly, not all of them were capable of perceiving flapping.

STUDENTS WHO WERE LOW ACHIEVERS

The students had difficulty in understanding grammatical and phonological rules. They did not like to memorise a large number of words and their focus was mainly on studying to pass exams to get to the following level. However, there were some individuals in this group, capable of perceiving good proportions of flapped words. Such students expressed their love to watch English movies and sometimes they imitated the pronunciation they heard even though they were unaware of the phonological processes involved. They developed enough confidence to claim "this is how native speakers talk".

STUDENTS WHO SCORED POORLY IN BOTH PERCEPTION AND PRODUCTION OF FLAPPING

Students who had poor ability to perceive and produce the allophonic variant /ɾ/ were found to not be practising language inside or outside class. They rarely listened to speakers of English other than their teachers. They were neither interested to improve their spoken language nor their pronunciation accuracy.

STUDENTS WHO SCORED HIGHLY IN BOTH PERCEPTION AND PRODUCTION OF FLAPPING

Students who were superior to others in perceiving the allophonic variant /ɾ/ shared the following features:

- They made maximum use of online resources. Some of them joined websites to learn spoken English while the rest benefited from online sites and software. They made personal efforts to improve pronunciation and listening comprehension.
- They listened to authentic audio materials by native speakers on the Internet and attempted to imitate them.

In addition to the previously mentioned practices, those who produced flapping accurately not only managed to perceive it but also had the following features:

- They seized opportunities to practise language outside the class.
- They were encouraged by their families to speak the language even at home.
- They forced themselves to speak fluently by being engaged in volunteering activities that require them to use the language, such as oral translation and by talking to people with different accents.
- More importantly they aimed at improving their pronunciation and listening skill by chatting with native speakers on the Internet to improve their oral communication.

These students had succeeded in developing their pronunciation and perceiving native speech which is marked with rapid and fluent speech that includes many phonological processes like flapping. They approximated the native-like pronunciation although they did not acquire English at an early age or have the chance for authentic exposure before puberty. The case of these students suggests that improving pronunciation and learning phonological

processes (perceiving as well as producing) is possible even at an older age. A key point in the findings is that not all of them were high academic achievers as some had a low GPA. To sum up, the participants can be grouped into three categories:

No.	Characteristics	Causes
1	Students who could neither perceive nor produce the allophonic variant /ɾ/ with both high and low GPA.	They restricted themselves to the materials presented in class.
2	Students who could only perceive the allophonic variant /ɾ/ but not produce it with both high and low GPA.	They exposed themselves to spoken English outside the class whether via YouTube clips, net sites, or movies.
3	Students who could both perceive and produce the allophonic variant /ɾ/ with both high and low GPA.	In addition to being exposed to authentic material, they engaged themselves in conversations with native and near-native speakers.

Obviously, the acquisition of the allophonic variant /ɾ/ could be achieved largely via intensive exposure to natural spoken English. It also requires interaction to be fully mastered.

CONCLUSION

The research participants were found out to be able to recognise set of words and utterances when pronounced without flapping, but encountered difficulty doing so when the words were flapped. While the ability to flap during spoken production was shown to have a positive influence on perception of /ɾ/, academic achievement was not. Analysis of the interviews shows that the continuous exposure to native pronunciation and actual normal speech plays a considerable role in perceiving the allophonic variant /ɾ/. Unfortunately, the context of the students does not provide such a possibility. Thus, the study suggests these strategies for EFL teachers to consider. Teachers are required to provide EFL learners with intensive exposure to native pronunciation. They can make use of CDs and movies and introduce YouTube clips to the students to compensate for the shortage of input. This study also implies that it is not enough for students to learn only the basic phonemes of English but they should also be trained with the most frequent allophones like the flap /t/ since this can affect comprehension and intelligibility.
Further suggested pedagogical procedures include:

1. Introducing classes of English and phonology with authentic speech by native speakers while students are directed to induce the allophones and elicit the words. It is important to raise their awareness to the differences in producing phonemes and distinguishing flapped and non-flapped words.
2. Focusing on the practical aspects of lessons and not merely learning about phonological process.
3. Devoting more attention to improve pronunciation since the perception of flapping correlates with production. Students should be encouraged to individually practise the articulation of allophones and imitate native production.
4. Adding oral tests as part of students' evaluation.

Future EFL research should focus on allophonic variation and not restrict itself only to phonemes because emphasis on phonemes, in terms of meaning rather than allophones, would lead to the neglect of allophonic variations which influence perceiving actual speech. Further studies may also cover the perception of other allophones and the case of learners at other universities can be also investigated as the present study was limited to one university in Saudi Arabia.

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APPENDIX A

THE DICTATION TEST

Instructions:

In a moment, you will hear 25 words and 28 sentences, phrases and questions. Listen to the record and write them **directly** in the appropriate space of the sheet in the **same** order as you hear them. You will hear each of them only once. If you are not sure about some words, or if you miss some of them, try to write as much as you can and put a question mark (?) in its slot, then jump to the following words.

Sentences	**Words**
1. She is really beautiful.	1. little
2. The table is made of metal.	2. battle
3. Later I'll be writing a letter.	3. bottle
4. The waiter brought a kettle of water.	4. hospital
5. She bought some pretty pottery for her chatty daughter.	5. title
6. But I got an email from someone recently.	6. capital
7. I've noticed this myself.	7. total
8. I've altered the staff.	8. metal
9. I've read that article.	9. subtle
10. They'll sign a charter tomorrow.	10. middle
11. I was mortified.	11. model
12. We sorted it out.	12. pedal
13. Please, draw a vertical line.	13. noodle
14. It's part of the problem.	14. cuddle
15. It's sort of got out of hand.	15. paddle
16. He is an expert in pronunciation.	16. sitting
17. I want to get to the airport on time.	17. writing
18. That tree is so pretty.	18. attitude
19. It is such a pretty day in the city.	19. betty
20. No, that is ok. It doesn't matter.	20. photograph
21. I just thought of another.	21. better
22. What is it?	22. letter
23. get it	23. greater
24. out of here	24. cutting
25. but it's ok	25. totally
26. Started over	
27. I get to go.	
28. What am I going to?	

APPENDIX B

THE READING TEST

Q1) Read the following words.

1.	bottle	2.	computer
3.	shelter	4.	little
5.	liberty	6.	individuality
7.	identity	8.	daughter
9.	battery	10.	native

Q2) Read the following paragraph.

I have lived in the village for twenty years, but I have to move to the city after I graduated. I found a local university. I think the city fits my personality though it is greater than the village. Living there has its negative aspects as well. Anyway, I stayed in a nice motel. I spend time in writing. I like shopping in a little shop that sells beautiful dresses. I bought a dress which I will wear in a party on Saturday. I also like eating in its restaurant where the waiter is very nice and provides good services.