

Perception of the English Phonotactics by Saudi English Majors: A Comparative Study

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Abstract

This paper investigates the perception of phonotactics by Saudi English majors, beginners and advanced. Due to the significance of pronunciation of consonant clusters, which are almost absent from Arabic, this work attempts to find the extent to which beginner and advanced English majors accept or reject permissible and impermissible sounds combinations in the onset position. It also attempts to find whether there are any intervening factors that could influence students' perception of English phonotactics. The focus was on the consonant clusters occurring in onset position. These clusters included two-sound and three-sound clusters starting the word. Most of the words were pseudowords, and the focus was on whether the students would accept or reject these sounds, and whether there was a significant difference between beginner and advanced students, male and female. The paper also considered some intervening factors that could have influenced students' performance. To this end, the researcher conducted a survey to test the perception and rejection of certain sounds in some carefully selected pseudowords. The findings showed that most advanced students scored better in permissible sounds while the results were close in the impermissible sounds. There were some factors that could have had some impact on the results, such as living in an English-speaking community, watching English TV, and listening to the news in English. Suggestions for further research would include sounds in the coda position.

Keywords: English phonotactics, impermissible combinations, onset, permissible combinations, Saudi English majors.

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Introduction

This study aims to analyze the perception of English phonotactics by two groups of students, majored in English. The first group is from a beginner level, and the second is from an advanced or graduating level. Language learners, in general, be it first or second, learn the correct and accepted arrangement of phonemes. They can gradually realize what order of sounds is accepted or unaccepted in the language they are learning. Although this can be relatively simple for first language learners, Saudi students learning English as a second language may present some discrepancy in their perception of the correct and accepted arrangement of sounds. Saudi Arabic has its own and distinctive phonotactics which can help or hinder the resetting of the new arrangement of sounds. More specifically, Saudi Arabic consonant clusters within a syllable are permissible in only rare cases at the end of a phonological unit. No more than two consonants may occur in the initial or final positions in a word (AlFeneekh, 1983).

Researchers have realized the importance of phonotactics for the pronunciation of EFL students, for whom what might be called proper pronunciation is an ultimate goal. Pronunciation could be a source of difficulty and could hinder communication in the target language. Therefore, some researchers have conducted studies on the possible combinations of sound in English compared to other languages. Al-Saidat (2010), for example, made a case study of Jordanian Arab learners of English, where he analyzed their English pronunciation in relation to the phonotactics of English. He investigated the types of declusterization process found in Jordanian learners of English and the sources of difficulties. He also suggested a new approach for teaching and learning syllable structures.

Study Rationale

Pronunciation is vital for the EFL learner in terms of intelligibility of pronunciation and understanding of oral material. It is noted that students, who can perceive and use the English phonotactics appropriately, will be able to develop their pronunciation, communicate easily and understand spoken material on TV, Podcast, etc. Saudi learners of English do, in fact, make mistakes in the production and perception of a series of phonemes that are not found in their native language, causing some potential difficulties in speaking and understanding. Therefore, current language programs need to be tested to find out to what degree students develop in their perception of the English phonotactics.

The aim of this study, as mentioned earlier, is to study the perception of some aspects of phonotactics by two groups of college students majored in English. Acceptance or rejection of some sound combinations was left to their intuitive judgments. The study included a beginner group in their first or second levels and a graduating group in their seventh or eighth. The comparison is expected to reveal some information about the teaching and learning of sounds in the English language. The study is vital for Saudi teachers and learners of English as a second language. It can help them recognize the importance of English phonotactics and apply new ways to teach and learn the set of all possible arrangements of phonemes in English. It can guide and help teachers of English to enhance their students' pronunciation and develop their perception of spoken material uttered by native speakers, which they would usually listen to on TV, Podcast, direct interaction, or any other source.

Questions of the Study

The study attempted to answer the following questions:

- 1- To what extent do beginner English majors accept or reject permissible and impermissible sounds combinations in the onset position?
- 2- To what extent do advanced English majors accept or reject permissible and impermissible sounds combinations in the onset position?
- 3- Is there a significant difference between beginner and advanced English majors in terms of the perception of permissible and impermissible sounds combinations in the onset position?
- 4- Are there intervening factors that could influence acceptance or rejection of sounds combinations in the onset position?

Literature Review

Phonotactics

Phonotactics is a branch of phonology that discusses the restrictions in a language on the permissible combinations of phonemes (Celata & Basilio, 2015). A close description is also given by Crystal (2004): phonotactics is a branch of phonology that is related to the restrictions on the permissible combination of phonemes in a language. Therefore, phonotactics gives a description for the permissible syllable structure, consonant clusters and vowel sequences and explains what role phonotactic constraints play in defining the legality of the sounds sequence. Each language has its own constraints on permissible sequences which may interact with other languages (Smolensky & Prince, 1993). Bernard (2017) says that human brain is able to track and learn phonotactics and can generalize at different levels that include word boundaries and syllable positions, stating that “phonotactic knowledge leads to enhanced speech processing enables us to use phonotactic learning and generalization as a means to better understand how humans represent speech sounds and sound sequences” (p. 138).

Languages are subject to phonotactic constraints, which are restrictions on sound sequences (Goldrick, 2004). According to Goldrick, these constraints could be acquired through exposure to a set of syllables which he described as an implicit learning paradigm. These constraints can apply to nonsense words, too. In his work, Hammond (2004) mentioned that experimental work suggests the frequency of the phonological elements of the form and by the number of actual words could help subjects judge the phonological well-formedness of nonsense forms, particularly if nonsense forms are similar to actual words. In other words, subjects would accept sounds combinations that comply with their phonotactic knowledge, and would reject those that do not.

However, there are other notions such as accidental and systematic gaps. Simply put, accidental gaps are words that do not exist in a language and are not part of its lexicon, but its sounds sequence is legal and does not violate its phonotactic. Systematics gaps, on the other hand, refer to segments that cannot exist because the sound system does not allow it (Iverson & Salmons, 2005). An example of this systematic gap is the sequence ‘bn’. English does not allow this sequence, and native speakers of English would notice that immediately. To explain this, the sequence /fɪ/ in the

word ‘flip’ is permissible, and it exists in the English lexicon, while the same sequence in the pseudoword ‘fleep’, for example, does not exist in English, at least at the time of writing this paper. The sequence /fli:p/ constitutes an accidental gap in English because it is allowed but does not currently exist. It may exist someday because it complies with naturalness and well-formedness of the sequence.

Another related issue is the presence of natural and unnatural constraints, which were discussed by Hayes, Siptár, Zuraw, and Londe (2009) who classified them as being natural or unnatural. Natural constraints are founded in the Universal Grammar principles while unnatural constraints are arbitrary and can be learned inductively using the language data. In addition, Hayes and White (2013) believed that phonological constraints can be either typological or phonetic. Satisfying any of these two constraints makes them natural while any violation renders them as unnatural. For them, if a constraint holds true of a language’s lexicon, but it is not part of the phonotactic knowledge of native speakers, it can be referred to as natural and is accidentally true. On the other hand, a constraint is unnatural if it is suspected of being accidentally true.

Onishi, Chambers, and Fisher (2002) assert that listening can contribute largely to acquisition of phonotactics and phonotactic constraints. Sometimes knowledge of one aspect of phonotactics can transfer to another (Pater & Tessier, 2006). For example, the last consonant of the words influences the plural morpheme. The consonant /g/ in the word *dog* is voiced and thus takes a voiced morpheme /z/. This influence transfers to the past tense morpheme where the voiced consonant /b/ requires a voiced past tense morpheme /d/. (Souza, 2017) stated that L2 phonotactics can also be learned “through initial conscious noticing” of the input learners are exposed to, which shows how frequent sounds distributions are (p. 187). Another task that can serve the teaching and learning of L2 phonotactics is the use of a judgment task together with word transformations, which Halicki (2010) described as “a powerful tool to probe L2 knowledge of target language phonotactics” (p. 178).

Factors Affecting Pronunciation

There are several factors which promote or impede the acquisition of proper pronunciation of a second language. Among these factors are age, mother tongue and the learner's personality.

The Age Factor.

Age can play a significant role in language learning since children between the age of two and thirteen appear to be better language learners than adults. In this regard, the Critical Period Hypothesis (CPH) was introduced in 1959 by Penfield and Roberts. This theory, which was refined eight years later by Lenneberg (1967), suggests that there is a period in one's life in which language learning is more successful, and in which the native accent and fluency are acquired. CPH is explained by Chiswick and Miller (2007) as the sharp decline in the outcome of language learning, and that the language should be learned before the end of that period. However, and in response to this view, Johnson and Newport (1989) argued that they do not find a strong relationship between performance and age of learning throughout childhood with a sharp decline in performance

marking the end of the critical period. They say that the performance of the language learner's starts to decline only after the critical period. This idea is emphasized by DeKeyser (2013) who stated "It is often assumed that as long as immigrant children arrive before the age of approximately 15, they will acquire the L2 perfectly from natural exposure" (p. 54). Accordingly, pronunciation is affected by the age of the learner and becomes, in most cases, impossible to acquire a native accent. However, there will still be some gaps in learners' linguistics competence, as explained by Abrahamsson and Hyltenstam (2009).

Mother Tongue Influence.

The syntactic system of the learner's first language has a powerful effect on the system of the second language, especially when learned after the age of puberty. Odlin (1989) thought that the phonetics and phonology of one's native language had a strong influence on the second language pronunciation. This may require some comparison between the two languages to find the similarities and differences and also to predict potential difficulties. In this regard, the Contrastive Analysis Hypothesis (CAH), which was first proposed Lado (1957), claims that learning elements in L2 which are similar to those in L1 is simpler for the learner than learning new, different elements. In other words, learning new elements which are not found in L1 will prompt the learner to transfer the features of L1 into L2. In support of this claim, Ehrlich (1992) proposed that learners of a foreign language tend to transfer phonological patterns from their first language into their second language, producing pronunciation errors which distinguish non-native accent. She says that the sound system of L1 does influence the pronunciation of the target language. The learner may not be able to produce sounds that are not present in the sound inventory of their native language. In relation to this, considering the sounds combination rules called phonotactics, which can be different from one language to another, so pronunciation errors or even misperception are inevitable, too. Ehrlich adds that the rhyme and melody between the two languages can be different, which can lead to the transfer of the rhymes of the learner's native language, resulting in different stress patterns and intonations, which at the end can interfere with, and probably, communication of ideas. The types of pronunciation difficulties and errors that can happen in language learning can be connected to the extent to which the sounds are marked or unmarked. Eckman (1985) proposed the Markedness Differential Hypothesis (MDH) in which he explained the areas of difficulty in second language acquisition. MDH says that common sounds are unmarked, while less common ones are marked, and the latter type represents an area of difficulty for EFL learners. In this regard, (Rahuman, 2017) emphasizes that the mother tongue influence is inevitable but can be minimized with the proper guidance. He adds that identifying the areas where interference occurred could improve the quality of teaching and learning strategies.

Personality.

Personality is one of the non-linguistic factors that include the learner's own objectives, attitude, culture, motivation, etc. which can all contribute to language learning in general and acquisition of good pronunciation in particular. They can either support or impede pronunciation development. Ehrlich (1992) argues that an outgoing, confident learner who is self-motivated to interact with

native speakers is more likely to acquire good pronunciation than that who refrains from using the language orally because he or she is too self-conscious and too careful not to get 'caught up' committing mistakes in pronunciation. Kaufman et al. (2010) found that there was a strong relationship between personality implicit learning ability, and they suggested that personality could interact considerably with the learning and production of L2. In this respect, many studies have been conducted to analyze and account for pronunciation errors made by EFL learners. Barros (2003) analyzed the difficulties encountered by Arabic speakers when pronouncing the English consonants. The samples of his study represented students from different backgrounds; they spoke different colloquial Arabic and learned the English language after the age of puberty. The result showed that there were eight English consonants which could be the main cause for pronunciation problems for Arabic speakers of English. These consonants are /ŋ/, /p/, /v/, /d/, /l/, /dʒ/, /ð/, and /r/. Another study was conducted by Al-Shuaibi (2009) who studied English initial and final sound cluster made by 30 Yemeni students and found that the pronunciation process of these initial and final sound clusters involved deletion, insertion, substitution, or reduction.

Other Factors.

There are certain factors that can influence language learning. One of which is living in an English community where there is sufficient and direct interaction with native speakers verbally and audibly. This can justify why most children from immigrant families can speak the language of their new community with native or native-like accent and fluency (Candlin & Mercer, 2001). In an English speaking community, students would hear the target language more than their native language, and this could make the difference. Lightbown and Spada (2013) say that “if one language is heard much more often than the other or is more highly valued in the community, that language may eventually be used better than, or in preference to, the other” (p. 79). They also believed that larger communities have a bigger and stronger impact on second language learning and have the ability to shape “opportunities for education, employment, mobility, and other societal benefits” (p. 79).

Watching English material on TV is another factor that can impact language learning. Language teachers and language learners will find both TV and computer-based activities as highly rewarding, motivating and successful learning experiences (Underwood, 2002). Underwood emphasizes, however, that watching television is divided into interactive and non-interactive practice, and there is a difference between watching and doing. He explains that teachers can turn TV material into a more active learning experience than just watching, which he considered a passive experience. However, passive learning does exist, and while learning is generally considered as active and purposive behavior, passive learning depends on what is caught instead of what is taught (Krugman & Hartley, 1970). They explain that passive learning is usually effortless and responsive to what they described as animated stimuli. These can provide relaxation and facilitate casual learning; thus, they can potentially be a good source of knowledge that can be freely welcomed or criticized.

Listening to the news in English is a third factor that can influence language learning in terms of vocabulary, pronunciation and even grammar. The news comes into two types; audio news on the radio, and audiovisual on TV. Language-wise, both can improve pronunciation and perception of spoken material. The second one, however, can help in the crystallization of meaning since

visual events accompanied by audio comments from different perspectives can play a big role in making sounds and meaning impressed upon the listeners' minds. Murphy (1991) says that pronunciation is a subset of listening and speaking skills, which are often dealt with as integrated skills. This integration will make more sense if pronunciation is thought of as directly related to speaking, while the perception of sounds is directly related to listening. Speaking does not usually exist in an isolated vacuum (without listening). However, both skills need vocabulary and grammar as infrastructure, so to speak.

Methods

This section explains the procedures followed in an attempt to answer the questions of the study and test its hypotheses. It includes the design, participants, instruments and procedures for data collection and analysis.

Design

This study is descriptive-analytic in design since the researcher is especially interested in describing English majors' situation in terms of the perception of the English phonotactics. It is a design intended to gather, analyze, and present collected data in a way that gives room for providing insights into phonotactics. This descriptive design helped in guiding the researcher to deal with the problem of the study and answer its questions.

Participants

Due to the nature of the work and class circumstances, the number of subjects could not be decided upon before the test. The researcher tested male and female students from two different groups; all were English majors. The first group included sophomore students from levels one and two. The second group included graduating students from levels seven and eight. The level of the second group was expected to be quite high since they were graduating students who had taken many English courses including listening and speaking, phonetics and phonology, where the language of instruction was English. Both groups were Saudi students who came from different regions and universities in Saudi Arabia and had Arabic as their mother tongue, although they had slightly different accents.

Instruments

The main instrument used in this study was an online test that included a 66-word list with two consonants (blue, sky, etc.) and three consonants (strong, screw, etc.), all occurring in the onset position. The list included 66 pseudowords, some of which conformed with the sounds of real words and some of which included sounds combinations that were not acceptable. This test aimed to make sure whether the students accepted or rejected the sounds combinations, and whether sophomore and graduating students would show noticeable differences, taking into account some other variables such living in an English-speaking community, watching English stuff on TV, and listening to the news in English. For the sake of easier analysis, the male students were divided into two groups, which were labelled M1 and M2, whereas the female students were labelled F1 and F2. M1 and F1 represented beginner students from levels one and two, while M2 and F2 represented graduating students from levels seven and eight.

Procedures

The test was electronic, and it included 66 words, as mentioned earlier. The respondents had the choice of whether or not to write their names. It was optional. They indicated their universities, gender, and level. They answered the multiple-choice and Yes/No questions and then submitted their answers electronically. The data collected was exported to Excel sheets for analysis and description. The data was classified into male and female, beginner (M1, F1) and advanced (M2, F2). The results were also classified into permissible and impermissible sounds combinations.

ResultsTable 1. *Overall results (Males)*

Groups	Impermissible	Permissible	Average
M1	66.67%	35.0%	50.9%
M2	65.81%	69.8%	67.8%

M1 Group

The figures in Table one above show that male students in M1 group from levels one and two had an overall score of 50.9%. A detailed description of the most noticeable results revealed the highest scores included the impermissible sequences /bk/, /ps/, /vr/ and /stp/ which had 100% rejection by male participants from levels one and two. Other impermissible sequences such as /dh/, /gb/, and /kb/ scored 83% rejection. The least rejected sound sequence was /fw/ and /θm/ which, for some reason, was accepted by 87% and rejected by only 13% of the male participants from levels one and two. The students in this group scored only 35% in the permissible combinations, with 65% rejection of the suggested pseudowords given in the test.

M2 group

The figures in Table one above reveals that male students in M2 group from levels seven and eight had an overall score of 67.8%. They gave 38 correct responses out to the 56 given in the test. Closer examination of the most noticeable results revealed the highest and lowest scores. The highest scores included the permissible sequences /pl/, /sp/, and /tr/ which were accepted by 94% of male participants from levels seven and eight. Other impermissible sequences such as /bk/ and /gb/ were rejected by 88% of the M2 Group. The least rejected sound sequence /sb/ was, for some reason, accepted by 65% and rejected by only 35% of the male participants from levels seven and eight. The students in this group scored 69.8% in the permissible combinations, with 30.2% rejection of the suggested pseudowords given in the test.

M1 and M2 Intervening Variables

There are some variables that could have affected students' perception of sounds combinations. These variables are: having studied in an English-speaking community, watching English material on TV, and listening to the news in English. Examining these variables in line with the results of each group indicated that these variables had some influence on the students' performance and perception of some aspects of phonotactics.

Looking at the first variable, attending a school in an English-speaking community, one can find that there is some difference in the overall results. The M1 group who attended a school in an

English-speaking community scored 59.6% of the pseudowords, while the ones who did not score 46.4%.

Table 1. *M1 studying in an English community*

Response	Unacceptable	Acceptable	Average
No	64.7%	28.2%	46.4%
Yes	70.4%	48.7%	59.6%

The second variable is the watching of English material on TV. The ones who did this scored 67.0% versus 41.3% for the ones who did not.

Table 2. *M1 watching TV (English)*

Response	Unacceptable	Acceptable	Average
Less than 3 hours	60.8%	21.8%	41.3%
More than 3 hours	72.5%	61.5%	67.0%

The third variable considered in this study is listening to the news in English. The results also showed some difference between those who listened to the news in English for more than three hours a week (score = 59.7%), and those who listened for less than three hours a week (score = 50.3%). The one who did not listen to the news in English scored 35.1%.

Table 3. *M1 listening to the news*

Response	Unacceptable	Acceptable	Average
Less than 3 hours	70.6%	29.9%	50.3%
More than 3 hours	70.6%	48.7%	59.7%
Not at all	47.1%	23.1%	35.1%

As for the advanced group M2, examining the first variable, attending a school in an English-speaking community, there is some difference in the overall results. The ones who attended a school in an English-speaking community scored 71.4% of the pseudowords, while the ones who did not score 65.9%.

Table 5. *M2 studying in an English community*

Response	Unacceptable	Acceptable	Average
No	63%	69%	65.9%
Yes	72%	71%	71.4%

Another variable is watching English material on TV. The ones who did this scored 72.4% versus 55.1% for the ones who did not.

Table 4. *M2 watching TV (English)*

Response	Unacceptable	Acceptable	Average
Less than 3 hours	58%	52%	55.1%
More than 3 hours	71%	74%	72.4%

The last variable is listening to the news in English. The results also showed some difference between those who listened to the news in English for more than three hours a week (score = 76.6%), those who listened less than three hours (score = 64.0%), and those who did not (score = 59.7%).

Table 5. *M2 listening to the news*

Response	Unacceptable	Acceptable	Average
Less than 3 hours	64.8%	63.2%	64.0%
More than 3 hours	69.8%	83.3%	76.6%
Not at All	60.4%	59.0%	59.7%

M1 and M2 Compared

Table one above demonstrates that comparison between M1 and M2 reveals that after a period of about two years, which is the time difference between levels 1-2 and 7-8, students' perception of acceptable sounds combinations has generally improved by 16.9% with an overall score of 67.8% for the M2 Group versus 50.9% for the M1 Group. Acceptance of allowed combination appears to have improved by 34.8%, which tipped the scale towards the M2 Group. Both groups, however, tended to show similar rejection of impermissible sounds combinations.

Table 6. Overall results (Females)

Groups	Impermissible	Permissible	Average
F1	66.67%	67.66%	67.17%
F2	68.69%	75.52%	72.10%

1.8.5 F1 Group

The results show that female students from levels one and two had an overall score of 67.17%. They gave 37 correct responses out to the 56 given in the test. A detailed description of the most noticeable results revealed the highest scores included the impermissible sequences /bk/ and /ps/, which were rejected 94% of the female participants from levels one and two. Other impermissible sequences such as /gb/, /mk/ and /θm/ had a rejection of 83%, 89% and 89% respectively by the same group. The least rejected sound sequences were /nb/ and /sb/ which, for some reason, were accepted by 6% and rejected by 44% of the female participants from levels one. The students in

this group scored 67.66% in the permissible combinations, with 62.34% rejection of the suggested acceptable pseudowords given in the test.

1.8.6 F2 Group

The results also revealed that female students from levels seven and eight had an overall score of 72.10%. They gave 40 correct responses out to the 56 given in the test. Closer examination of the most noticeable results revealed the highest scores included the impermissible sequences /bk/, /gb/, and /kb/ which were rejected by more than 90%% of female participants from levels seven and eight. Other impermissible sequences such as /mk/, /nb/, and /stp/ were rejected by 83%, 83%, and 81% respectively by the F2 Group. The least rejected sound sequences were /hl/, /sb/ and /vr/ which, for some reason, were accepted by 61% and rejected by only 39% of the female participants from levels seven and eight. The students in this group scored 75.52% in the permissible combinations, with only 24.48 % rejection of the suggested acceptable pseudowords given in the test.

F1 and F2 Intervening Variables

Same as for the male students' groups, there are some variables that could have affected students' perception of sounds combinations. These variables, as mentioned above, are: having studied in an English-speaking community, watching English material on TV, and listening to the news in English.

Looking at other the first variable, attending a school in an English-speaking community, Table nine below shows that there is some difference in the overall results. The ones who attended a school in an English-speaking community scored 70.3% in the pseudowords survey, while the ones who did not score 62.2%.

Table 7. *F1 studying in an English community*

Response	Unacceptable	Acceptable	Overall
No	57.3%	67.1%	62.2%
Yes	71.4%	69.2%	70.3%

Another variable is the watching of English material on TV. The ones who did this scored 80.4% versus 56.0% for the ones who did not.

Table 8. *F1 watching TV (English)*

Response	Unacceptable	Acceptable	Average
Less than 3 hours	49.2%	62.9%	56.0%
More than 3 hours	80.7%	80.0%	80.4%

The last variable considered in this study is listening to the news in English. The results also showed some difference between those who listened to the news in English for more than three hours a week (score = 92.8%), and those who listened for less than three hours a week (score = 65.7%).

Table 9. *F1 listening to the news*

Response	Unacceptable	Acceptable	Average
Less than 3 hours	65.4%	65.9%	65.7%
More than 3 hours	88.2%	97.4%	92.8%
Not at All	NA	NA	NA

As for the advanced group (F2), examining the first variable, attending a school in an English-speaking community, Table 12 shows that there is a minor difference in the overall results. The ones who attended a school in an English-speaking community scored 72% in the survey, while the ones who did not scored 73%. Very close results.

Table 10. *F2 studying in an English community*

Response	Unacceptable	Acceptable	Average
No	70.7%	75.3%	73%
Yes	69.6%	74.2%	72%

The other variable is the watching of English material on TV. The ones who did this for more than three hours a week scored 70.9% versus 57.9% for the ones who did not do it at all. The ones who watched English stuff on TV for less than three hours a week scored 66.7%.

Table 11. F2 watching TV (English)

Response	Unacceptable	Acceptable	Average
Less than 3 hours	62.1%	71.2%	66.7%
More than 3 hours	61.8%	80.1%	70.9%
Not at All	51.0%	64.7%	57.9%

The last variable considered in this study is listening to the news in English. The results also showed some difference between those who listened to the news in English for more than 3 hours a week (score = 92%), and those who listened for less than 3 hours a week (score = 67.3%). The one who did not listen to the news in English at all scored 64.6%.

Table 12. *F2 listening to the news*

Response	Unacceptable	Acceptable	Average
Less than 3 hours	60.5%	74.2%	67.3%
More than 3 hours	88.2%	95.7%	92.0%
Not at All	56.7%	72.5%	64.6%

F1 and F2 Compared

Table 8 above shows that comparison between F1 and F2 reveals that after a period of about two years, which is the time difference between levels 1-2 and 7-8, female students' perception of acceptable sounds generally improved by 8% with an overall score of 75.52% for the M2 Group versus 67.66% for the M1 Group. Rejection of impermissible combinations also turns out to be similar for both groups with a minor difference.

Discussion

The questions of the study were related to the extent to which CLT students accept or reject permissible and impermissible sounds combinations. The results revealed that beginner and advanced students had a similar-scale rejection of impermissible combinations such as /bk/ and /bg/ and the difference was minor. However, advanced students appeared to accept permissible pseudo sound combinations more than beginner students. Rejection of impermissible pseudo sounds seems logical and could be justified by the presence of two elements: lack of knowledge and weird-sounding words. However, the rejection of permissible combinations requires some investigation. Beginner students rejected a big number of the permissible combinations in the pseudowords while advanced students rejected only a smaller number of the same permissible combinations. The assumption is that advanced students do have more ability to perceive permissible sounds combinations, whether they know the words or not. They can judge better if the combination sounds English or not, be it real or not. For instance, they know that the sounds /ʃ/ and /r/ can cluster at the onset to form the English word 'shrink'. At the same time, they would accept the same cluster in the pseudoword 'shrindow', which sounds right to the English ear and by no means violates the English phonotactics. Another interesting example is the acceptance of the combination of /θ/ and /r/ in the word 'throap'. It was intended to look and sound as a pseudoword, which was accepted by a big number of the students. However, they accepted it simply because it sounded English to them, not because it is an English word, which was coined for a specific and limited purpose. Although the pseudowords used in this study had no meaning, they required some phonological knowledge, and that knowledge increased as the students went further in their study, and it helped them use what Miellet and Sparrow (2004) phonological codes. The study conducted by Hernández, Costa, and Arnon (2016) indicated that language users could develop a type of sensitivity to distributional properties of language units at a level that approaches that of a native speaker. The assumption now is that it is that sensitivity to distributional properties that contributed to the advanced students' acceptance of the pseudowords in this study. This leads to the inference that beginner student assembled phonology is still weak, which justifies their low score on this part of the test.

Although considered relatively minor (male 17%, female 4.94%), the overall difference between beginner and advanced students did exist. Male students from the advanced levels seven and eight performed better, and their perception of permissible combinations in pseudowords was evident (34.8%). In contrast, female students from the advanced levels seven and eight performed slightly better than female students from beginner level, and their perception of permissible combinations in pseudowords was (7.85%). However, there might be some intervening variables that could have impacted the results in general and caused the results to be close when it came to the rejection of impermissible combinations. Those variables may have also caused their acceptance of permissible combinations in pseudowords not show that big difference.

The first variable to be considered is 'studying in an English-speaking community'. This item was to be answered Yes/No but did not request how long the study continued. It could be a short-term language program or regular schooling. Advanced students had more chances to study in an English-speaking community. For the male student, the difference was 18% since 52% from the beginner level (M1) versus 70% from the advanced level (M2) had the chance to study in an English speaking community. For female students, the difference was 10.1% since 62.2% (F1)

versus 70.3% (F2) had the chance to study in an English speaking community. This small difference between F1 and F2 in this aspect could justify the slight variation in the overall female results. In other words, since F1 and F2 had close chances in studying in an English-speaking community, they consequently had close results.

Let us consider another factor that could have affected our results, watching English material on TV. Again, advanced students seemed to have dedicated more time than beginner students to watching English material on TV; 57% (M1) versus 71% (M2), and 56% (F1) versus 80.4% (F2) were in the habit of watching English material on TV. The last factor that could have impacted the results, listening to English news. Similarly, advanced students seemed to have dedicated more time than beginner students to listening to English news. 52% (M1) versus 72% (M2), and 65.7% (F1) versus 92.8% (F2) were in the habit of watching English material on TV. Those students, beginners and advanced dedicated more than 3 hours a week for watching English material on TV and listening to English news, and despite the fact that the time dedicated for these practices could have largely varied from one student to another, the influence on the results was noticeable. The results appeared to respond to the question raised above as to the potential influence of intervening factors.

Conclusion

Saudi EFLs have difficulty pronouncing and perceiving consonant clusters due to the absence of these clusters from Arabic. They show slightly weak ability to perceive and differentiate permissible and impermissible sounds combinations. However, EFLs' perception of permissible and impermissible sounds combinations, which relate to the English phonotactics, can be affected and improve by several factors. The first factor is concerned with the length of time students study the language. The longer they study the language, the better their perception of permissible combinations becomes. Advanced students, both male and female, showed better perception of permissible sounds combinations than beginner students. Other factors had variant impacts on students' perception. The most important factor which contributed largely to the improvement of students' performance in this study was 'studying in an English-speaking community'. That factor had the biggest impact, which was verified by F1 and F2 results. They had close chances to study in an English-speaking community, and they scored close results in the perception of permissible sounds combinations, although they were from beginner and advanced levels. The length of study time caused that minor difference between the two groups.

Other factors such as watching TV and listening to English news also had some influence on the results and positively, though slightly, contributed to the students' perception of what pseudowords were acceptable or not acceptable. The permissible sounds combinations can create what was referred to earlier in the study as accidental gaps by Iverson and Salmons (2005). Those pseudowords could become real words someday simple because the sound sequence is legal, and the sound is acceptable to the ear. Therefore, the permissible combination /pl/ exists in the real words 'play, plow, plumb, etc.' and in the pseudowords 'plac' and 'ploka'. Those pseudowords could find their way into existence someday because they are acceptable to the ear and, most importantly, they do not violate the English phonotactics.

This study focused on the perception of sounds combinations that occurred in the onset position, so it is highly recommended to do more investigation with sounds combinations that occurred in the coda position. The study may also be reduplicated and done in another environment which could give more insight into EFLs' perception of the English phonotactics.

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References

- Abrahamsson, N., & Hyltenstam, K. (2009). Age of onset and nativelikeness in a second language: Listener perception versus linguistic scrutiny. *Language Learning*, 59(2), 249-306.
- Al-Saidat, E. M. (2010). Phonological analysis of English phonotactics: A case study of Arab learners of English. *The Buckingham Journal of Language and Linguistics*, 3, 121-134.
- Al-Shuaibi, A. (2009). Phonological analysis of English phonotactics of syllable initial and final consonant clusters by Yemeni speakers of English. *Language in India*, 9(11), 195-328.
- AlFeneekh, A. H. (1983). *Non-phonetic prerequisites to phonological rules*. University of Washington.
- Barros, A. M. d. V. (2003). Pronunciation difficulties in the consonant system experienced by Arabic speakers when learning English after the age of puberty.
- Bernard, A. (2017). Novel phonotactic learning: Tracking syllable-position and co-occurrence constraints. *Journal of memory and language*, 96, 138-154.
- Candlin, C., & Mercer, N. (2001). *English language teaching in its social context: A reader*: Psychology Press.
- Celata, C., & Basilio, C. (2015). Introduction to phonotactics: Cross-linguistic perspectives from acquisition, speech production and corpus studies.
- Chiswick, B. R., & Miller, P. W. (2007). *The economics of language: International analyses*: Routledge.
- Crystal, D. (2004). *The Cambridge encyclopedia of the English language*: Ernst Klett Sprachen.
- DeKeyser, R. M. (2013). Age effects in second language learning: Stepping stones toward better understanding. *Language Learning*, 63, 52-67.
- Eckman, F. R. (1985). Some theoretical and pedagogical implications of the markedness differential hypothesis. *Studies in Second Language Acquisition*, 7(3), 289-307.
- Ehrlich, S. (1992). *Teaching American English pronunciation*: New York, Oxford University.
- Goldrick, M. (2004). Phonological features and phonotactic constraints in speech production. *Journal of Memory and Language*, 51(4), 586-603.
- Halicki, S. (2010). *L2 Knowledge of Target Phonotactics: Learner Judgments of French Re-suffixation*. Paper presented at the Selected Proceedings of the 2008 Second Language Research Forum.

- Hammond, M. (2004). Gradience, phonotactics, and the lexicon in English phonology. *International Journal of English Studies*, 4(2), 1-24.
- Hayes, B., Siptár, P., Zuraw, K., & Londe, Z. (2009). Natural and unnatural constraints in Hungarian vowel harmony. *Language*, 822-863.
- Hayes, B., & White, J. (2013). Phonological naturalness and phonotactic learning. *Linguistic inquiry*, 44(1), 45-75.
- Hernández, M., Costa, A., & Arnon, I. (2016). More than words: multiword frequency effects in non-native speakers. *Language, Cognition and Neuroscience*, 31(6), 785-800.
- Iverson, G. K., & Salmons, J. C. (2005). Filling the gap. *Journal of English Linguistics*, 33(3), 207-221.
- Johnson, J. S., & Newport, E. L. (1989). Critical period effects in second language learning: The influence of maturational state on the acquisition of English as a second language. *Cognitive psychology*, 21(1), 60-99.
- Kaufman, S. B., DeYoung, C. G., Gray, J. R., Jiménez, L., Brown, J., & Mackintosh, N. (2010). Implicit learning as an ability. *Cognition*, 116(3), 321-340.
- Krugman, H. E., & Hartley, E. L. (1970). Passive learning from television. *Public Opinion Quarterly*, 34(2), 184-190.
- Lado, R. (1957). *Linguistics across cultures: Applied linguistics for language teachers*: Univ of Michigan Pr.
- Lenneberg, E. H. (1967). The biological foundations of language. *Hospital Practice*, 2(12), 59-67.
- Lightbown, P. M., & Spada, N. (2013). *How languages are learned 4th edition-Oxford Handbooks for Language Teachers*: Oxford university press.
- Miellat, S., & Sparrow, L. (2004). Phonological codes are assembled before word fixation: Evidence from boundary paradigm in sentence reading. *Brain and language*, 90(1-3), 299-310.
- Murphy, J. M. (1991). Oral communication in TESOL: Integrating speaking, listening, and pronunciation. *Tesol Quarterly*, 25(1), 51-75.
- Odlin, T. (1989). *Language transfer: Cross-linguistic influence in language learning*: Cambridge University Press.
- Onishi, K. H., Chambers, K. E., & Fisher, C. (2002). Learning phonotactic constraints from brief auditory experience. *Cognition*, 83(1), B13-B23.
- Pater, J., & Tessier, A.-M. (2006). L1 phonotactic knowledge and the L2 acquisition of alternations. *Inquiries in linguistic development: Studies in honor of Lydia White*, 115-131.
- Rahuman, M. (2017). A study of mother tongue influence on learning English as a second language by Tamil speaking students.
- Smolensky, P., & Prince, A. (1993). Optimality Theory: Constraint interaction in generative grammar. *Optimality Theory in phonology*, 3.
- Souza, H. K.-d. (2017). The relationship between phonotactic awareness and pronunciation in adult second language learners. *Revista Brasileira de Linguística Aplicada*, 17(1), 185-214.
- Underwood, J. (2002). Language learning and interactive TV.