



Pronunciation Problems of Final English Consonant Clusters: An Analytical Study of First-Semester EFL Learners at the Faculty of Education, Misurata

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مشكلات نطق عناقيد الصوامت الإنجليزية النهائية: دراسة تحليلية لطلبة اللغة الإنجليزية
كلغة أجنبية في الفصل الأول بكلية التربية مصراتة

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Abstract

The difficulties of pronouncing English consonant clusters are a common barrier amongst Libyan learners. Therefore, the present study is conducted to investigate the phonological phonotactics in English syllable-final consonant clusters by Libyan learners of English. The study is conducted in the Faculty of Education/ Misurata on forty Libyan students who study in the English Department, and on twelve teachers who were asked to respond to a questionnaire, and two of them were observed during their classes.

The results show that the subjects of the study seem to have difficulties in pronouncing English syllable-final consonant clusters, particularly the three consonant clusters in the English three consonant clusters and four consonant clusters in the syllable-final. Besides, the results show that Libyan learners have tendency to insert vowel sounds in the English syllable-final consonant clusters. The results further reveal interesting phenomena in the production of pronunciation in syllable-final consonant clusters produced by Libyan learners of English, such as reduction, substitution and deletion.

The results of the questionnaire as well as the classroom observation show that teachers face difficulties in their teaching of English consonant clusters. Time allocated for teaching phonetics is not enough to deal with each student' pronunciation. Teachers need to listen more to their students to encourage them to speak

Keywords: Consonant clusters, English phonology, phonological constraints, English pronunciation, Libyan EFL learners.

المخلص

تعد صعوبات نطق عناقيد الصوامت الإنجليزية من العوائق الشائعة لدى المتعلمين الليبيين للغة الإنجليزية. لذلك، تهدف هذه الدراسة الى التحقيق في القيود الفونولوجية التي تحكم عناقيد الصوامت النهائية في المقاطع الصوتية الإنجليزية كما ينطقها المتعلمون الليبيون للغة الإنجليزية. أجريت الدراسة في كلية التربية صرارة، وشملت أربعين طالبا ليبيا يدرسون في الفصل الأول لقسم اللغة الإنجليزية، بالإضافة إلى اثني عشر معلما للغة الإنجليزية. طلب من المعلمين الإجابة عن الاستبانة، كما تمت ملاحظة اثنين منهم اثناء التدريس داخل الفصول الدراسية.

وتشير نتائج الدراسة إلى أن أفراد العينة يواجهون صعوبات ملحوظة في نطق عناقيد الصوامت النهائية في المقاطع الإنجليزية، ولا سيما في العناقيد المكونة من ثلاثة وأربعة صوامت. كما تظهر النتائج أن المتعلمين الليبيين يميلون إلى إدخال أصوات صائتة داخل عناقيد الصوامت النهائية في اللغة الإنجليزية كاستراتيجيات تعويضية. وتكشف النتائج كذلك عن ظواهر فونولوجية بارزة تؤثر في انتاج المتعلمين لنطق عناقيد الصوامت النهائية في اللغة الإنجليزية .

وتكشف النتائج كذلك عن ظواهر لغوية مثيرة للاهتمام في انتاج نطق عناقيد الصوامت النهائية في المقاطع الصوتية، كما ينطقها المتعلمون الليبيون مثل الاختزال والابدال والحذف. وتظهر نتائج الاستبانة إلى جانب الملاحظة الصفية، أن المعلمين يواجهون صعوبات في تدريس عناقيد الصوامت الإنجليزية. ويعد الوقت المخصص لتدريس علم الأصوات غير كاف لمعالجة مشكلات نطق كل طالب على حدة. لذلك يحتاج المعلمون إلى الاستماع بشكل أكبر لطلابهم وتشجيعهم على التحدث.

الكلمات المفتاحية: عناقيد الصوامت، علم الأصوات، القيود الفونولوجية، نطق اللغة الإنجليزية، المتعلمون الليبيون.

1.1 Introduction:

According to definitions of consonant clusters in advanced English dictionaries e.g. Oxford as well as Longman dictionaries , these consonant clusters are a sequence of adjacent consonants, especially those occurring initially or finally in the same syllable. Pronunciation of consonant clusters is one of the challenges that face learning English as a foreign language. Speakers probably do not recognize their mispronunciation of English consonant clusters. It is common for students to feel uneasy when they hear themselves speak with the rhythm of a second language. They find that they sound foreign to themselves and this may cause troubles for them.

Words may create some difficulties for the learners, when the words which are different in their phonological system are learnt. Therefore, every language has its own phonology which may be similar to other languages in some respects but at the same time may be different, in some other respects.

The ultimate goal of most foreign language learners is to attain native-like fluency. They want to be indistinguishable from native speakers. However, for many learners, this has remained a dream especially in the area of pronunciation as native interlocutors usually identify individuals as non-native interlocutors because of

their accent. Moreover, a large number of foreign language learners believe that the main difficulty they encounter when speaking the foreign language is pronunciation and consider this difficulty as the main source of their communication problems. (Lin, 2014).

The present researcher noticed that students learning English in schools, even English specialized ones, find difficulties in pronouncing English consonant clusters. This observation motivated the present researcher to undertake this study and to examine the cause of such mistakes.

1.2 Aim of the study:

The aim of this study is to identify and discuss pronunciation difficulties experienced by EFL Libyan learners regarding English final consonant clusters.

1.3 Identifying The Problem:

Since the present researcher has been teaching secondary school students in Misurata for many years, she noticed that EFL Libyan students pronounce English syllable-final consonant clusters incorrectly. This clearly refer to the negative interference of their native language.

1.4 Significance of the Study:

This study gains its significance from the importance of the mastery of pronunciation as part of oral proficiency for intelligible communication. Moreover, there are many careers in which native speaker- like pronunciation is important. Mispronunciation of English consonant clusters by EFL Libyan learners is a serious problem and I did not come across to a research has been conducted in Libya to solve this problem.

1.5 Research Questions:

To achieve the objectives, the present study attempts to address the following research questions:

1. Do Libyan learners of English at the Faculty of Education/ Misurata face difficulties in pronouncing English consonant clusters?
2. What are the patterns of phonotactics produced by Libyan learners of English at the Faculty of education/ Misurata in pronunciation of English syllable-final consonant clusters while speaking English?
3. To what extent does language transfer exist i.e. the phenomenon of vowel insertion in the pronunciation of English syllable-final consonant clusters by Libyan learners of English?
4. If Libyan learners face difficulties in pronouncing English consonant clusters, what are the strategies that they employ to simplify the pronunciation of sequences of consonants?

1.6 Methodology:

This research will be carried out in the English Department in the Faculty of Education/ Misurata within a framework of qualitative and quantitative research. There is an obvious need for the use of multiple data- collecting devices. Classroom observation, audio recording and a questionnaire for teachers. Treatment of data, questions to be given to the teachers about their experience of teaching English consonant clusters.

1.7 Context:

As pointed out earlier, this study will be carried out in the Faculty of Education /Misurata, where the phonetics course is one of the subjects taught in the English Department.

1.8 The Procedure of the Study:

In this study, some of the previous studies which are related to the difficulties of pronouncing English consonant clusters are presented in chapter two (literature review). In chapter three, some students of English Department of the Faculty of Education/ Misurata will be selected randomly and asked to pronounce words of syllable-final consonant clusters.

A questionnaire will be given to twelve teachers of English Department of the Faculty of Education / Misurata to know the difficulties that face those teachers, and the activities and techniques they use in teaching consonant clusters.

Classroom observation of two teachers will be used to obtain the methods they use during their classes. The students' test, teachers' questionnaire and classroom observation are analyzed and the results obtained are summarized and presented in chapter four.

1.9 Definition of Terms:

In this section, terms that are used later in this thesis are defined:

1.9.1 Consonant cluster:

A Consonant cluster is a group of two or more consonant sounds that come either as a syllable-initial or syllable-final. The combination /st/ is a **consonant cluster** (CC) used as *syllable-initial consonant clusters* in the word *stop*, and as *syllable-final consonant clusters* in the word *post*. There are many CC combinations permitted in English phonotactics, as in *black, books, bread, trick, twin, flat, breaks* and *throw*. . . .

1.9.1.1 Two-consonant clusters

In CCV syllables there is a sequence of two consonants without an intervening vowel. Sequences such as these are called **clusters** (sometimes known as **blends**). As one might expect, there are restrictions on which consonants can combine to create these two-consonant clusters.

1.9.1.2 Three-consonant clusters:

In CCCV syllables the restrictions are even greater. English syllable-final consonant clusters are more varied than syllable-initial consonant clusters. This mainly happens because /-s/or /-z/ for plural, and /-d/ or /-t/ for the past simple tense. The sound /θ/ is used also to form nouns like *twelfths* /twelfθs/.

1.9.2 Epenthesis:

Epenthesis is the insertion of a vowel between two consonants.

1.9.3 Language transfer:

Language transfer is the influence resulting from similarities or differences between the target language and any other language that has been acquired. Richards et al (1992: 205) define it as "the effect of one language on the learning of another".

1.9.4 Phonotactics:

This term, according to Dobrovolsky and Katamba (1996: 84), means "the set of constraints on how sequences of segments pattern; form part of a speaker's knowledge of the phonology of his or her language". Richards, et al (1992: 275), on the other hand, define it as "the arrangements of the distinctive sound units (PHONEMES) in a language".

1.9.5 Syllable:

Kreidler (2004) defines the syllable as "a unit of spoken language that is bigger than speech sound and consists of one or more vowel sounds alone or of a syllabic consonant clusters alone".

According to the advanced Oxford Dictionary (2016) the definition of syllable in English is "A unit of pronunciation having one vowel sound, with or without surrounding consonants, forming the whole or a part of a word; for example, there are two syllables in *water* and three in *inferno*." A syllable is a unit of organization for a sequence of speech sounds. For example, the word *water* is composed of two syllables: *wa* and *ter*. A syllable is typically made up of a syllable nucleus (most often a vowel) with optional initial and final margins (typically, consonants). The structure of the syllable of words *cat* and *sing* can be illustrated by the following figure:

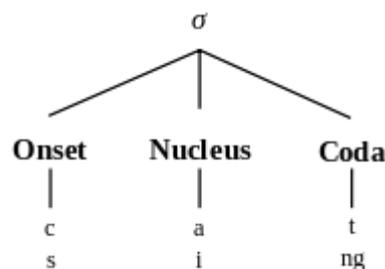


Figure One1.9.5.1 Coda

The coda is the part of a syllable that follows the vowel sound. This term is defined by Richards et al (1992: 367) as "the end" of the syllable. For instance, *texts*, *except* and *term*; the coda is /ksts/, /pt/ and /m/ respectively. Crystal (1997:66) defines it as "a term used in phonetics and phonology to the element of a syllable which may follow the vowel, e.g. /p/ of /tɒp/".

1.9.5.2 Nuclues:

The nucleus is the central part of the syllable, in most languages it is a vowel. In addition to nucleus, a syllable may begin with an onset and end with a coda.

1.9.5.3 Onset:

This word means, according to Richards, et al (1992: 367), "the beginning" of the syllable. For instance in *stress*, *star* and *pen*; the onset is /str/, /st/ and /p/ respectively.

1.9.5.4 Rime:

A rime refers to the part of a syllable which follows the onset and consists of nucleus and the coda.

This introductory chapter has described the aim of the study. It has introduced the statement of the problem of the study, the significance of the study and the hypothesis of the study. The methodology and context as well as the procedure of the study have been explained. The terms involved in the study have been explained and research questions have been stated. The next chapter will review the previous studies related to the difficulties of pronouncing English consonant clusters.

Literature Review

This chapter deals with the works which are related to the difficulties of pronouncing English syllable-final consonant clusters and whether these difficulties are encountered because of the differences of the syllable structure of the speaker's first language and target language which is called the effect of mother tongue of the learner.

Despite the fact that nowadays most human beings have writing systems to record their languages, people still communicate through speaking more than they do through writing. Therefore much attention is to be paid to pronunciation, as it contributes to conveying the right message in oral discourse. If the message is not properly articulated, communication might be hindered or it may lead to misunderstanding of what is said. However, many English language learners (ELLs) confront difficulties when learning English pronunciation (Gilakjani, 2011). Problems in pronunciation weaken their communicative competence (Guma 2003).

In phonology, consonant clusters are sequences of two or more consonants at the beginning or end of a syllable. Swan & Smith (1987) and Alkhuli (1989) state that in English, two or more consonants may cluster in the same syllable, but in Arabic this cannot occur. For example, a Saudi student will pronounce "first" with two vowels, i.e. /frist/. Al-samawi, (2014), for instance, made a comparison between Arabic and English syllable structure. According to him, an Arabic syllable may start with a consonant or a vowel and also ends with a consonant or a vowel. In Standard Arabic, the onset of any syllable, however, should only have one consonant, while a coda may have up to two consonants only, Alkhuli gives an example as in /kalb/ (dog). But these rules are different in Arabic vernaculars as in Libyan colloquial language as we will see in chapter three.

Epenthesis is the insertion of a vowel or a consonant segment within an existing string of segments. Many scholars have discussed this strategy of epenthesis. Celce-Murcia, et al: (2003:164,165) raise an example of internal epenthesis in words like "film"/filɪm/; "please" /pili:z/ or word-external epenthesis as in "sport" /ispɔ:t/ by Arab speakers. Learners insert a

short vowel to break down the long consonant clusters. This insertion of vowel could be before or within the syllable.

Parker & Riley (2009) explain the external epenthesis, that Arab students learning English will insert the vowel /i/ in the following forms: *floor* /iflɔ:/, *snow* /isnəʊ/ and *plane* /ipleɪn/. The Arabic language allows more simple syllables than complex ones.

This kind of insertion at the beginning of a syllable (external epenthesis) clearly occurs when the stems have onset consonant clusters for the purpose of making the articulation conform to Arabic syllable structure. Na'ama (2011:146) states that "Arab students usually tend to follow the strategy of epenthesis in English clusters, it is the insertion of a vowel within an existing string... English consonant clusters are the most difficult aspect in pronunciation that Arab students face."

El Zarka (2013:33) says "vowel insertion occurs when a learner inserts a vowel within consonant clusters. The word *documents* is a good example. The proper pronunciation is /'dɒkjʊmənts/, while some learners pronounce it as /'dɒkjʊmɪntɪs/ adding the short vowel /i/ to split the final consonant clusters".

As mentioned above, many scholars have studied the strategy of epenthesis. Aquil (2013: 261) states that "Arabic does not allow a cluster of three consonants; therefore, if such a cluster is generated through concatenation of words, an epenthetic vowel is inserted."

The issue of pronouncing consonant clusters whether syllable- initial consonant clusters or syllable-final consonant clusters in a target language when such forms may not be permitted in the native language has been explored by some studies. Other studies exploring how English consonant clusters are pronounced by native speakers of other languages have been conducted by numerous linguists. Karimi (1987), for example, found that, Farsi speakers use epenthesis to break up word-initial clusters; when Karimi compared between Farsi speakers with Cairene Arabic speakers' pronunciation, he demonstrated that Farsi speakers, like Cairene speakers, use epenthesis within clusters.

Fatemi and Sobhani (2012: 70) state that Chang (2004) studied the errors which happened in processing consonant clusters of Chinese learners of English as a foreign language. The data were collected from the subjects who were involved in six phonological processing tasks such as syllable deletion and phoneme deletion. The subjects were recorded. The study gave results that Chinese syllable structure contains only one consonant in the onset but English syllable structure includes three consonants in the onset. Because of this syllable complexity, Chinese learners encounter problems as a consequence of interference from the native language. Based on the results of this research, six types of errors were observed such as epenthesis and omission of the second of an initial two-element cluster. Moreover, some errors were found which were caused by some developmental factors rather than interference from the native language.

Byrd and Tan (1996) studied the increasing speech rate due to consonant clusters. In their research, the displacement of consonants was investigated. They reported that each component of a sequence or individual consonant was reduced. Also it could be considered as a mechanism of quick speech rate. Moreover, the coarticulation or the overlap of articulations would be another mechanism. Furthermore, it was illustrated that some other factors such as manner and place of

The difference of syllable structure as well as the effect of mother language of Libyan learners all may affect the way English consonant clusters are pronounced. Therefore, consonant sequences in English syllables are adjusted to meet consonant sequences in Arabic syllables by Libyan learners of English. So, the mispronunciation of English words experienced by Libyan learners of English may be syllable-based, and due to the interference of L1.

articulation of a consonant influenced the speech rate. (Fatemi, Sobhani: 2012)

Methodology

3.1 Introduction:

This chapter begins with a detailed description of the participants of this study, and the instrumentation which will be used in this study (test, classroom observation and questionnaire). Procedures and data collection are explained and followed by the data analysis of the study.

3.2 Participants:

The sample in this study includes thirty female and ten male EFL learners studying English at the Faculty of Education/ Misurata. They have been learning English for 7-10 years. These students are aged between eighteen and twenty three and selected from a whole population of 660 students who were initially asked to participate in the study. They were students with different English pronunciation abilities and have never been to any of the English speaking countries, so they do not have any kind of exposure to a native English environment except perhaps English spoken on TV and videos on the Internet.

The other participants of this study are twelve teachers in the Faculty of Education/ Misurata. Those teachers have been teaching English for more than ten years. The teachers were given a structured questionnaire, which contains various stimulations of teaching English consonant sounds and consonant clusters. Two of those teachers agreed to be observed in their classrooms. They teach a course in phonetics . Classes which were observed are : Phonetics 1. Briefly, teachers of the English department teach in phonetics 1 the articulatory phonetics, in phonetics 2 they teach articulatory and auditory phonetics. Phonological rules are studied in phonetics 3, while acoustic phonetics is taught in phonetics 4.

Observation of two teachers is crucial in this study, in order to recognize how teachers work in their classes, to know if teachers give a model in pronouncing English consonant clusters either if the teachers use appropriate teaching aids or not.

3.3 Instrumentation :

A pronunciation test is one of the instruments used in this study. The aim is to see whether the selected sample had vowel insertion while pronouncing the English words with initial or final consonant clusters and if yes whether the amount of vowel insertion is the same in such clusters. The statistics performed on this test could help the researcher decide whether the students' native language (Arabic) has any effect on their pronunciation of the initial or final consonant clusters. The test includes twenty-five words, they cover different final consonant clusters. The words are chosen to be not difficult for the participants, and they are familiar with. Therefore, the researcher can be sure that the words' level of difficulty is in accordance with the participants' knowledge of the English language. The students are asked to read the words aloud while they are voice-recorded. The test is by no means difficult for the students to read as no word is new and unfamiliar to them. However, before each test is given to them, they are asked to carefully scan the words to see whether or not they know their meanings.

The words chosen for the test consist of the following consonant clusters:

1- Words of two final consonant clusters: *gift, blocked, dreamed, passed, terms, booked, stops, missed, sold, fact, risk, laughs, film, sixteenth, silk, act, linguistics* and *box*.

2. Words of three final consonant clusters : *tempt, amongst, attempt, products* and *distinct*.

3. Words of four final consonant clusters: *texts* and *twelfths*.

3.3.1 Tool one (Test):

Students are given a list of twenty five words. Students are asked to read those words and their voices are recorded. Each student is recorded separately.

3.3.1.1 Setting of the Study

As was pointed out in chapter one, this tool of the present study is carried out in the Faculty of Education/ Misurata. The researcher found that there are Libyan speakers of English of different majors in this university, who can represent the population for the present study. The interview sessions are held in a quiet room in the main library of the Faculty. This is to avoid any kind of distraction that could affect the recording. Consequently, the data collection is obtained from the subjects.

3.3.1.2 Procedures of the test:

The test sessions are held in a quiet room. They are four sessions; in each session ten subjects are interviewed. Each subject is interviewed individually. Reading the two word list tests (word lists), they took approximately two minutes and the subjects are asked to read them as loudly and clearly as they can to elicit good speech data. The subjects were told to take time while reading the word list and passage. Most subjects asked to have a look before reading the material tests (word list). The researcher approved their request and gave them sufficient time. Each test session lasted approximately ten to fifteen minutes for each subject. Before the interview sessions started, every subject was given a briefing regarding the aim of the interview session, and prior permission to record their voices was obtained. They were told that the interviews held to collect data to know the way they pronounce rather than to test them. They were also assured that their particulars and obtained data would be strictly confidential.

3.3.2 Tool Two (Teachers' Questionnaire):

The questionnaire contained twenty items to reflect the objectives of the research about the difficulties of pronouncing English consonant clusters in final position. In the questionnaire each responder was asked to choose one answer according to the Tri Regression Measurement which contains four levels (strongly agree-agree-disagree-strongly disagree), or (very often-often- sometimes- rarely).

3.3.3 Tool three (Classroom Observation):

The main goal of the classroom observation is to support the teachers' questionnaire and to get more information about the teachers' role in teaching pronunciation, and activities and techniques used by those teachers. Hopkins (1996) described classroom observation as a 'pivotal activity,' which played crucial role in classroom research.

In this study, two teachers were visited for two hours each. All of them participated in answering the teacher's questionnaire. All of them are Libyans. The duration of the observation took place over the span of three weeks in March 2025.

In preparing the observation, the investigator provided a checklist to write notes during the class lessons. The data collected are presented in five tabular forms as follows:

- The way teachers act at the beginning of their pronunciation lessons.
- The teachers' use of classroom pronunciation activities.
- Evaluation of the teacher's pronunciation and their care about students' pronunciation.
- The use of teaching aids by the teacher .
- The teacher's method of correcting the students' mistakes.

The present researcher's own experience of teaching English in Secondary School is ten years. She has observed the pronunciation in the classes at all levels. She used to take notes about some particular sounds that were problematic for students which were pronounced incorrectly. In other words, classroom observation gave the researcher reasons for doing this research and then it helped her to test the validity of the data collected from the questionnaire.

3.4 Data Analysis:

The data of the current study is analyzed both quantitatively and qualitatively. First, the data obtained from the students' test as well as from the teachers' questionnaire is analyzed quantitatively with the use of percentage procedure. The researcher assigned the transcription of the English syllable-final consonant clusters produced by the subjects and the answers of samples of the questionnaire. These are then calculated. After that, the percentages and mean scores are calculated and tabulated. The formula which is used for finding out the percentage score and mean score are as follows:

- **Percentage score:**

$$\frac{\text{The number of accurate pronunciation produced by the subjects}}{\text{The total number of tested pronunciation}}$$

For example, student1 scores 3 (three) accurate answers out of 25 (twenty five). Therefore, the percentage score of the accurate pronunciation of the subject is calculated as follows:

$$\frac{3}{25} \times 100 = 12\%$$

The percentage score is followed in the teachers' questionnaire to obtain the percentage of teachers' responses.

- **Mean score:**

$$\frac{\text{The total of percentage score}}{40}$$

Secondly, the classroom observation was analyzed by explaining what was going on in the classes according to the provided checklist which was mentioned above.

Results and Discussion

4.1 Introduction:

As pointed out earlier, the purpose of this study was to identify and discuss pronunciation difficulties experienced by EFL Libyan learners regarding final English consonant clusters. This chapter presents and discusses the results of the data collection of the syllable-final consonant clusters. The chapter proposes to transcribe and analyze the raw speech data obtained from the subjects. The chapter discusses and demonstrates the accurate/inaccurate production by the subjects as well as the responses of teachers' questionnaire. The percentage and mean scores were calculated and highlighted using the tool of descriptive statistics. Moreover, description and analysis of classroom observation. Finally, the chapter concludes the discussion of the study.

Before presenting tables and discussing the results, it is expedient to demonstrate the formula which is used for finding out the percentage score and mean score of accurate and inaccurate pronunciation of syllable-final consonant clusters produced by Libyan learners of English. The formulae of percentage score and mean score are as follows:

- **Percentage score:**

$$\frac{\text{The number of accurate pronunciation produced by the subjects}}{\text{The total number of tested pronunciation}}$$

- **Mean score:**

$$\frac{\text{The total of percentage score}}{40}$$

4.2 The Presentation and Discussion of the Results of Students' Test:

The percentage scores of accurate production of English final consonant clusters are presented in **Table One** below.

Table 1: The percentage score of accurate production of syllable- final consonant clusters.

subjects	Syllable- final consonant clusters %
S1	32%
S2	32%
S3	40%
S4	32%
S5	32%
S6	48%
S7	44%
S8	64%
S9	36%
S10	44%
S11	40%
S12	44%
S13	36%
S14	36%
S15	36%
S16	36%
S17	48%
S18	52%
S19	48%
S20	36%
S21	40%
S22	40%
S23	40%
S24	32%
S25	40%
S26	32%
S27	36%
S28	40%
S29	40%
S30	28%
S31	36%
S32	36%
S33	28%
S34	32%
S35	32%
S36	36%
S37	40%
S38	32%
S39	32%
S40	36%

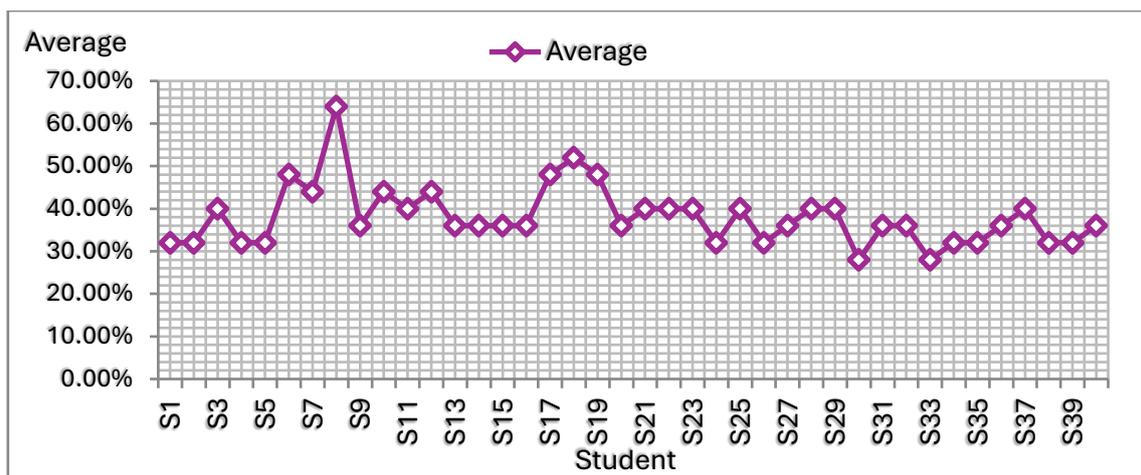


Figure Three

Table One also illustrates the percentage scores of accurate production of English syllable-final consonant clusters produced by the subjects of the study. The table shows that eleven students (S9, S13, S14, S15, S16, S20, S27, S31, S32, S36 and S40) have got (36%) in pronouncing English final consonant clusters. According to the results, ten subjects (S1, S2, S4, S24, S26, S34, S35, S38 and S39) have 32%, another ten subjects (S3, S11, S21, S22, S23, S25, S28, S29, S30 and S37) have 40%. The table shows that six subjects three of them (S6, S17 and S19) get 48% and the other three (S7, S10 and S12) get 44% in pronouncing final consonant clusters. Two students (S30 and S33) get 28%, a subject (S8) have 64% and a subject (S18) has 52%.

In syllable- final consonant clusters, the results clearly show that there is a vowel insertion in the syllable- final consonant clusters produced by Libyan learners of English in the Faculty of Education/ Misurata. This is clearly noticed in the subjects' performance of the target words i.e. 'twelfths', 'linguistics' and 'terms' in the test (see **Appendix One**). The vowel was /i/. For the target word 'twelfths', it is interesting to note that some subjects i.e. S8, S10 and S17 reduced the consonant cluster of the coda by omitting /θ/ i.e. [twelfiz] while S21 (3.33%) substituted the second consonant i.e. [twelviθz].

With regard to the word 'linguistics', for instance subjects S14, S18 and S26 reduced the consonant cluster of the coda by deleting the final consonant e.g. [læŋgwistik] whereas S12, S21 and S37 reduced the pre-final consonant sound of the coda i.e. [liŋgistis].

While S23, S38, S18, for instance inserted vowel /i/ between the coda of the final consonant clusters i.e. *terms* [tɜ:mis] [tɜ:rmis], some subjects e.g. S3 and S19 reduced the consonant cluster of the coda by omitting the final consonant e.g. [tɜ:rm]. Moreover, most of the students pronounced words like *missed* /misid/. It is thought that this is because what is referred to as the students' overgeneralization by a lot of researchers. Students do not recognize that the /-d/ sound has to be pronounced /t/ if it is preceded by the voiceless sound /s/. They believed that it should be pronounced like *played* /pleid/ and some other verbs. As for the words *rest* /rest/, *fact* /fækt/, only few students failed to pronounce them. It is obvious that they have no difficulty in pronouncing final-consonant clusters of two consonants. This may be because this type of consonant cluster is common in both English and LA.

So to sum up, we can say that the mean score of syllable-final consonant clusters produced by the samples is (38.1%).

4.2.1 Summary of the results from the students' test:

1_ The results of students' test show that the participants made a variety of errors in pronouncing English consonant clusters which can be said to be the effect of their mother tongue, Arabic.

These errors mainly happen because of the negative transfer, in a way that there are major differences between Arabic and English.

2_ EFL Libyan learners face many difficulties in realizing the accurate pronunciation of English consonant clusters because they alternate consonant and vowel sounds and try to force vowels in between the consonants as in *laughs* /la:fiz/.

3-In acquiring the syllable structure of English, the syllable structure rules which govern Arabic prosodic structure are transferred to the interlanguage of the learners. Learners may insert a vowel to break up consonant clusters, or reduce and substitute clusters at other times as in *twelfths* as /twelfis/ and *distinct* as /distntik/

4-EFL Libyan learners face more difficulties as the number of the cluster increases e.g. *linguistics* /liŋwistikis/.

5-The patterns of phonological phonotactics phonological syllable-final consonant clusters produced by the subjects are in the sequence of *CC, CCVC, CVCC CCC, CCVCC, CCVCVC* and *CVCC*.

The accurate production of syllable- final consonant clusters has been presented and discussed, and a summary of the results obtained from the students test is listed.. The percentage score and mean score in word list reading have been presented and highlighted. The mean score of syllable-final consonant clusters produced by the samples is (38.1%).

4.3 The Presentation of the Results of Teachers' Questionnaire:

This section deals with the data collected from the teachers' questionnaire which is classified and presented in the form of tables. Each question has a descriptive summary heading. An analysis and a summary of the results are given for each table:

Question One:

You have taught English language for (1-4 years , 4-8 years, 8-10 years, other option).

Before asking the questions about teaching and learning of pronunciation to the teachers, the researcher enquired about the teacher's experience of teaching English. Most of the teachers have more than ten years of experience in teaching English , and some have 1-4 years of experience teaching it.

Four teachers (33,33%) have taught English for 1-4 years, three teachers (25%) have taught English for 4-8 years, five of them (41.66%) have taught English for more than ten years. Most of them have taught English for 20 years, whereas no one has taught English for 4-8 years.

Question Two:

Libyan learners face difficulties in pronouncing English consonant clusters. (strongly agree, agree, strongly disagree, disagree).

Table 2 Learners' facing difficulties in pronouncing English consonant clusters.

Options	Strongly agree	agree	Strongly disagree	disagree
No. of teachers	2	10	0	0
percentage	16.66%	83.33%	0%	0%

Table Two shows that 10 teachers (83.33%) agree that Libyan learners have difficulties in pronouncing English consonant clusters. Whereas two teachers (16.66%) strongly agree that Libyan learners have difficulties in pronouncing English consonant clusters.

Question Three:

If you agree that Libyan learners face difficulties in pronouncing English consonant clusters, what may be the reasons for poor English pronunciation of Libyan learners? . (Mother tongue interference, Students are not interested in improving their pronunciation, lack of an English speaking environment, lack of systematic practice of IPA (International Phonetic Alphabet), other).

Table 3: Reasons for poor English pronunciation by Libyan learners.

Options	Mother tongue interference	Students are not interested in improving their pronunciation	lack of an English speaking environment	Lack of systematic practice of IPA	other
No. of teachers	8	1	0	1	2
percentage	66.66%	8.33%	0%	8.33%	16.66%

Eight teachers (66.66%) answered that mother tongue interference is the reason for poor English pronunciation of Libyan learners. Two teachers (16.66%) see that students are not interested in improving their pronunciation. None of the teachers see that lack of English speaking environment has an effect on learners' pronunciation (0%). One teacher (8.33%) thinks that the main reason for poor English pronunciation of Libyan learners is lack of systematic practice of IPA, while two teachers agree that there are other reasons of poor English pronunciation of Libyan learners.

Question Four:

I face difficulties in teaching English consonant clusters (yes, no).

Table 5: Facing difficulties of teaching English consonant clusters.

option	yes	no
No. of teachers	9	3
percentage	75%	25%

Nine teachers (75%) face difficulties in teaching English consonant clusters, while three teachers (25%) do not face difficulties in teaching them.

Question Five:

In teaching English consonant clusters, I use techniques and strategies (very often, often, sometimes, rarely).

Table 6: The use of pronunciation techniques and activities.

option	Very often	often	sometimes	rarely
No. of teachers	4	5	3	0
percentage	33.33%	41.66%	25%	0%

The answer of this question reveals that four teachers (33.33%) said that they very often use techniques and strategies in their teaching of English consonant clusters. Five teachers (41.66%) said that they often use them, whereas three teachers (25%) said that they sometimes use techniques and strategies in teaching English consonant clusters and none of the teachers (0%) rarely use techniques and strategies in teaching English consonant clusters.

Question Six:

Students are influenced by their mother language in pronouncing English consonant clusters. (Strongly agree, agree, strongly disagree, disagree).

Table 6: The influence of mother language.

option	Strongly agree	agree	Strongly disagree	disagree
No. of teachers	4	8	0	0
percentage	33.33%	66.66%	0%	0%

Table Seven shows that four teachers (33.33%) strongly agree that students are influenced by their mother language in pronouncing English consonant clusters. Eight teachers (66.66%) agree that the learners' mother language influences their production of English consonant clusters.

Question Seven:

Do you recognize your students' mispronunciation of English consonant clusters when they speak English? (Yes/ No).

Table 7: Recognition of students' mispronunciation of English consonant clusters.

option	yes	no
No. of teachers	12	0
percentage	100%	0%

All teachers (100%) clearly recognize their students' mispronunciation of English consonant clusters when their students speak English. Six of them (50%) correct their students' mistakes and give them the accurate transcription, while four of them (33.33%) sometimes correct those mistakes, and two teachers (16.66%) often correct the students' mistakes.

Question Eight:

If you recognize your students' mispronunciation of English consonant clusters when they speak English, do you correct their mistakes and give them the accurate transcription? (very often, often, sometimes, rarely).

Table 8: Correcting students' mistakes and giving the accurate transcription.

option	Very often	often	sometimes	rarely
No. of teachers	6	2	4	0
percentage	50%	16.66%	33.33%	0%

Table Eight shows that six of the teachers (50%) correct their students' mistakes and give them the accurate transcription, while four of them (33.33%) sometimes correct those mistakes, and two teachers (16.66%) often correct the students' mistakes.

Question Nine:

Do you give attention to how English sounds are pronounced? (very often, often, sometimes, rarely).

Table 9: Giving attention to how English sounds are pronounced.

option	Very often	often	sometimes	rarely
No. of teachers	8	3	1	0
percentage	66.66%	25%	8.33%	0%

The results presented in Table Nine show that eight teachers (66.66%) very often give attention to how English sounds are pronounced, three teachers(25%) say that they often give attention to how sounds are pronounced and one teacher (8.33%) sometimes gives attention to pronouncing English sounds.

Question Ten:

Do you think that correcting students' mispronunciation of English consonant clusters is a waste of time? (Yes, No)

Table Ten: Correcting students mispronunciation of English consonant clusters.

option	yes	no
No. of teachers	0	12
percentage	0%	100%

All teachers (100%) agree that correcting students' mispronunciation of English consonant clusters is not a waste of time.

Question Eleven:

Students in your class in the present English semester receive enough pronunciation instructions. (strongly agree, agree, strongly disagree, disagree).

Table Eleven: Students' receiving enough pronunciation instruction.

option	Strongly agree	agree	Strongly disagree	disagree
No. of teachers	0	5	4	3
percentage	0%	41.66%	33.33%	25%

The results in Table Eleven above show that five teachers (41.66%) agree that students in this semester receive enough pronunciation instruction, but four of them (33.33%) strongly disagree that they receive enough pronunciation instruction. Three of the teachers (25%) disagree that students receive enough pronunciation instruction in that semester.

4.3.1 Summary of the teachers' questionnaire results:

1_ The English Department/Faculty of Education teachers who responded to the teachers' questionnaire vary in their use of teaching aids .

2_ Teachers at the Faculty of Education of English Department need to integrate pronunciation with other English lessons like reading comprehension or grammar. For example, in the grammar lessons, teachers need to help their students to know the different sounds if the "ed" ending of regular verbs in the past.

3_ Most teachers (75%) face difficulties in teaching English consonant clusters.

4_ (74.99%) of teachers agree that instructions which were given that semester were not enough to students. Two hours weekly for teaching pronunciation is not enough to put the students on the right way.

5-All teachers (100%) agree that Libyan learners have difficulties in pronouncing English consonant clusters.

6_ According to the most teachers (66.66%), the main reason of the difficulties of pronouncing English consonant clusters is first language interference.

7_ All teachers (100%) correct students' mispronunciation of consonant clusters and they give them the accurate transcription.

8_ Teachers of English Department at the Faculty of Education (100%) recognize students' mispronunciation of English consonant clusters.

4.3.2 Conclusion:

Twelve teachers in the English Department in the Faculty of education/ Misurata were given a questionnaire of ten questions. According to the teachers' responses a majority of the students face problems in pronouncing English consonant clusters. The following section provided a description of the results of teachers' questionnaire.

4.4.1 Notes During the Classroom Observation:

In addition to the checklist points mentioned in the previous section, the researcher noticed some other points during the observation. They are summed up as follows:

- 1- Teachers in the English Department in the Faculty of Education/ Misurata do not encourage their students to use pronunciation dictionaries although they are in phonetics classes.
- 2- Although all teachers who are observed use a lot of techniques and teaching aids in teaching pronunciation, all classes are teacher- centered. Teachers do not give chances to students to work in groups. Or , in other words, their classes are teacher talk classes.
- 3- During the observation, the researcher noticed that the majority of students have a problem in the production of sounds, and they could not recognize their mispronunciation of sounds.
- 4- The teachers in the Faculty of Education/ Misurata vary in their use of teaching aids as well as techniques, but they do not give their students a chance to practice pronouncing words or sentences.

4.4.2 Conclusion:

Two teachers are observed during their classes. The results of the classroom observation are summarized according to a check-list. Notes during the classroom observation is listed according to the check-list which is provided in **Chapter Four**.

Conclusion and Recommendations

5.1 Conclusion:

This chapter summarizes the results of the study reported, in the preceding chapter, on the syllable-final consonant clusters produced by Libyan learners of English. The results will be discussed in the context of the objectives of the present study and in accordance with the research questions which were given in **Chapter One**. These research questions are repeated here for convenience and are commented upon:

1. Do Libyan learners of English at the Faculty of Education/ Misurata face difficulties in pronouncing English consonant clusters?

From the data collected in Chapter Five and presented in **Table One**, yes Libyan learners of English at the Faculty of Education/ Misurata face difficulties in pronouncing English consonant clusters.

2. What are the patterns of phonotactics produced by Libyan learners of English at the Faculty of education in the pronunciation of English syllable-final consonant clusters while speaking English?

As illustrated in Chapter Four, The patterns of phonological syllable- final consonant clusters produced by the subjects in the Faculty of Education/ Misurata are in the sequence of *CC*, *CCVC*, *CVCC*, *CCC*, *CCVCC*, *CCVCVC* and *CVCC*. Consequently, this sequence produced by EFL Libyan learners in the syllable-final consonant clusters demonstrates that they have the tendency to use the syllable structure of their first language with that of English, which breaks consonant sequences in English syllables. In brief, inducing such sorts of patterns of phonological phonotactics produced by Libyan learners of English in

the production of English syllable-final consonant clusters achieve the second objective of the study and account for the second research question accordingly.

3. To what extent does language transfer exist i.e. the phenomenon of vowel insertion in the pronunciation of English syllable-final consonant clusters by Libyan learners of English?

As demonstrated in Chapter Five, it can be observed that language transfer, the phenomenon of vowel insertion, influences the pronunciation of English syllable-final consonant clusters produced by Libyan learners. The vowel insertion was found in types of vowel sounds. It is an /i/ vowel sound.

4. If Libyan learners face difficulties in pronouncing English consonant clusters, what strategies do Libyan learners employ to simplify the pronunciation of sequences of consonants?

In the production of consonant clusters, the results clearly show that there is a vowel insertion in the syllable-final consonant clusters produced by Libyan learners of the Faculty of Education/ Misurata. They tend to use strategies like reduction, deletion, substitution as well as overgeneralization in syllable-final consonant clusters.

The four research questions of the study are answered according to the results obtained from the data analyzed. Therefore, it can be concluded that Libyan learners of the Faculty of Education/ Misurata, seem to have difficulties in the pronunciation of English syllable-initial and/or syllable-final consonant clusters particularly involving three and four consonant clusters in the syllable-final.

Regarding the role of the teacher in teaching pronunciation, the results obtained from the teachers' questionnaire and classroom observation have confirmed the fact that teachers face difficulties in teaching English consonant clusters like the time devoted to for teaching phonetics and students not recognizing their mispronunciation of consonant clusters. Teachers in the Faculty of Education/ Misurata vary in their use of teaching aids and techniques.

5.2 Recommendations:

Based on the findings of this study, some suggestions are given below. These suggestions may help teachers and students in reducing students' difficulties in pronouncing English consonant clusters:

- 1- While teaching pronunciation in the classroom, the teacher should be conscious about the students' needs. The students may have different competency levels such as learning speed and styles. The teacher should give proper attention to the students and their special needs and problems. The teacher should also conduct a students' needs analysis regarding pronunciation. According to the needs of the learners, the teacher should develop some appropriate materials and strategies to present in the class to reduce the learners' problem(s).
- 2- There should be a systematic practice of symbols. Teachers should help their students to find out the pronunciation of the new words from the dictionaries.
- 3- Teachers should integrate pronunciation with other English lessons and not to make pronunciation restricted only to pronunciation lessons.
- 4- Teachers should help their students to find out the pronunciation of the new words from the dictionaries.
- 5- Time allocated for teaching pronunciation courses is not enough for the teachers to deal with each student individually.
- 6- This study recommended to be replicated in other areas of Libya such as Benghazi.

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Compliance with ethical standards

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