

The impact of the mother tongue in producing different phonemes of two non-distinctive English sounds by Arabic second language learners

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Abstract

Despite the same speech organs that all human beings have in common, speakers of different languages have different articulatory systems, which restrict their pronunciation and make their producing of the sounds phonologically different. This study is designed to examine the influence of the mother tongue in the pronunciation of English stop alveolar consonant sounds /t/ and /d/ by adult Arabic speakers and the potential impact of the phonemic awareness on improving their reading skill. So that this study is investigating the role of the phonemic awareness that Arabic speakers may have to recognize the non-distinctive two consonant sounds /t/ and /d/, and the probability of improving their reading skills by increasing their phonemic awareness.

The purpose of this study can be achieved by choosing a random sample from adult Arabic speakers and designing an oral reading task in order to evaluate their pronunciation of /t/ and /d/ sounds in English. The purpose of the oral reading task is to measure the imitation of /t/ and /d/ sounds in English. This method of data collection allows the examiner to evaluate the second learners' pronunciation of the stop alveolar sounds /t/ and /d/ in English during their reading. The results will be used for more understanding of teaching English sounds system as a second language to adult Arabic speakers. Given that the research dealing with beginning reading in adult second language learning is remarkably limited (Dellicarpini, 2011), this study will contribute to the field of improving reading skill of non-native English speakers at early stages of adult learning programs.

Keywords: phonemes, non- distinctive English sounds, phonemic awareness

1. Introduction

Human languages are considered as “a conceptual-intentional and sensorimotor system” that makes languages vary regardless their construction-specific features (Bouchard, 2003). This variation among languages includes the sound system of each language. Despite the same speech organs that all human beings have in common, speakers of different languages have different articulatory systems, which restrict their pronunciation and make their producing of the sounds phonologically different. A great attention has been drawn to both phonological and phonemic awareness in the scope of the first language acquisition. Phonological awareness is defined as the ability to break up and manipulate speech units at the level of syllables and rhymes (Mora, Rochdi, & Souza, 2013; Byrne, & Fielding-Barnsley, 1995; Chapman, 2002; Cunningham, 1990; Siegel, 2013). For example, words like

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“cat” and “hat” both start with different sounds and share the rest of sound segments (Yeh, 2004). Phonological awareness, moreover, is considered to be a metalinguistic ability of being aware to the sounds and speech differences in spoken language which is playing an important role in early decoding and reading acquisition skill, and it is also related to the cognitive ability and conscious level of awareness (Dellicarpini, 2011; Ukrainetz, Cooney, Dyer, Kysar, & Harris, 2000; Ouellette, & Haley, 2013). Phonological awareness is, therefore, the ability of recognizing the speech sounds rather than the meaning (Wilson, & Colmar, 2008). This ability makes native speakers understand a stream of sounds in their native language even if it is meaningless. They can identify each single sound in spoken form of language. According to the international reading association, phonemic awareness, on the other hand, has been viewed as an advance level of phonological awareness, which begins at school level, and it is related to the understanding of the smallest units of the language sound system that is used to make the speech stream (Mora, Rochdi, & Souza, 2013; De Groot, Van den Bos, Van den Meulen, & Minnaert, 1998; Dixon, Chuang, & Quiroz, 2012; Griffith, & Olson, 1992; Walsh, 2009). Phonemic awareness is defined as the ability of recognition that a spoken word consists of a sequence of phonemes. For example, the word cat involves three phonemes which are /k/, /a/, and /t/ (Yeh, 2004). It is simply viewed as the relationship between speech and the written form (Woods, 2003). Moreover, phonemic awareness could be labeled under cognitive linguistics, which indicates that the learner develops a conscious control over sound segments in the spoken form of the language, and it is a part of a hierarchy of metalinguistic skills that develops gradually (Ouellette & Haley, 2013; Snider, 1995). Chapman (2003) argues that phonological and phonemic awareness can be used interchangeably in a relation to the metalinguistic awareness. She adds that this field is including the general understanding of all the aspect of the language such as syntax, semantic, and the like. A considerable number of studies have approved that there is a strong correlation between the phonological and phonemic awareness and the ability of decoding a reading passage in the first stages of the learning process in the domain of the first language literacy acquisition as well as second language acquisition (Mora, Rochdi, & Souza, 2013; Suggate, Reese, Lenhard, & Schneider, 2014; Kelley, & Blanchard, 2015; Detey, Racine, Eychenne, & Kawaguchi, 2014). Learning a second language is occurring in a similar environment as learning the first language naturally by young kids in early ages. Learning a second language as an adult is not an easy task and despite the effort that the adult learners can do, they cannot reach the proficiency level especially in pronunciation (Sebastian-Gallés, Rodríguez-Fornells, Diego-Balaguer, & Diaz, 2006). Other language skills could be obtained by practice such as writing, reading comprehension and general understanding, grammar, and the like (Chapman, 2003). However, the only aspect in language that is hard to be mastered is speaking with a sufficient degree of fluency in the second language.

Human share the same articulatory organs, however, there are some major differences in the phonetic system among languages all around the world. Learning the sound system of the second language is usually affected by the mother tongue, and the way of producing these sounds that are not exist in the target language is always problematic. Sometimes a confliction can be noticed when the second language speakers pronounce the new sounds with their native language accent. Our focus in this study will be on the impact of the phonemic awareness that makes Arabic speakers recognize the difference between the two-stop alveolar consonant sounds /t/ and /d/ in English and Arabic. These two sounds are considered as non-distinctive sounds between Arabic and English. Yet their place of articulations is

slightly different, which makes these two sounds are producing differently in both languages.

Phonemic awareness has been classified under two categories according to the use of the language skills, which are the analytic and synthetic skills (Ouellette & Haley, 2013). The first category is referring to the ability of breaking down the word into its basic components. The second category, on the other hand, indicates the ability of building up words and sentence by combining sound units together (Ouellette & Haley, 2013). Measuring phonemic awareness depending on these two categories, which can predict the reading ability at advanced levels (Yeh, 2003). These two interesting categories; however, have never been used separately rather they are always considered as describing the same thing (Ouellette & Haley, 2013). A considerable number of studies have been conducted in the area of the relationship between phonemic awareness and reading skill in the scope of first language acquisition (Mora, Rochdi, & Kivisto-de Souza, 2014). For first language acquisition, phonemic awareness is an important metalinguistic competence, which leads to a successful acquisition of reading (Yeh, 2003). Moreover, phonemic awareness is not required for understanding spoken form of the language; it is an essential step of developing language skills that are related to manipulating phonemes (Griffith, & Olson, 1992). Since developing the phonological and phonemic awareness helps on the other hand enhance the decoding ability which is considered as the first stage in reading skill, word identifications and the knowledge of phonics as well seems to be an important aspect leading to proficiency in reading skill (Thatcher, 1998). Breaking the code in reading and being aware of the relationship between the sound and the letter is only an initial step towards a proficient reading ability (Gates, & Yale, 2011). Thirty years of research has approved that phonemic awareness plays a fundamental role in developing the early stages in reading ability among young children (Ashby, Dix, Bontrager, Dey, & Archer, 2013). This also could be true for second language learning. After developing an appropriate phonemic knowledge about the second language, learners can sufficiently read and use the target language more effectively even with some differences between the second learners' mother tongue and the target language (Mora, Rochdi, & Souza, 2014).

Several studies have approved that English sound system is the most difficult one compared to other European languages and regarding the ability of decoding the reading pieces in terms of transparency and syllable structure among native speaker learners (Suggate, Reese, Lenhard, & Schneider, 2014). According to this assumption, it can be said that English phonemic-grapheme system causes problems to learners in decoding and recognizing phonemes in reading English texts not only for native learners but also for non-native speakers as well, which will be more difficult for them if the second language acquisition has occurred at adulthood. Despite this assumption, Linebaugh and Roche (2013) have proved that after an intensive training program on a group of Arabic speakers, their ability of producing English sounds has been increased. Then it can be said that phonemic awareness can be taught through a lot of activities in the classroom.

Therefore, the main questions in this study are whether the Arabic native speakers, who studied English as a second language, are aware of the

articulated differences between non-distinctive /t/ and /d/ sounds in Arabic and English, and they can distinguish between the different pronunciation of the two stop alveolar consonants /t/ and /d/ sounds when they read in English? Why is phonemic awareness important for second language learners? What is the relationship between the phonemic awareness and starting decoding in reading skill? This study's main purpose is to find answers for these questions.

2. Methodology

This study has been conducted to examine the relationship between the phonemic awareness and reading skill among Arabic learners of English as a second language with much focus on the two alveolar stop sounds /t/ and /d/ taking into account their background about English language.

2.1. Participants

Twenty Arabic native speakers participated in this study. These participants have been divided into two groups depending on their background in English and the level of proficiency they are already in. The first group consists of 10 native Arabic speakers who are studying English as a second language at one of the ESL centers in the United States. These language centers are based on teaching English skills through 112 levels in one year. English, in these language centers, is taught according to the traditional teaching approach, which focuses on teaching language skills, which are writing, reading, speaking, listening, and grammar. The participants are still studying English in different levels. They are in levels 106, 109, and 110, which are considered as intermediate and upper intermediate or advance levels. This group is practicing English at daily bases with native speakers because they are already studying English in the United States. The second group as well consists of 10 native Arabic speakers who graduated from the English department at Benghazi University in Libya last academic year. The second group participants have never been to an English native speaking country. The only experience that they have about English is through their study at the collage, which had lasted for 4 years. However, the English program in the English department is very intensified. Phonology is introduced in the first academic year through the fourth year with introduction to the English sound system. Hence, the participants in the second group are graduated from the English department and their major is English linguistics, they are supposed to be aware of the English language phonology. The participants' ages are similar in both groups. They are around 22 years old ($M = 22.9$ $SD = .65$) for the first group and $M = 22.3$ $SD = .63$) for the second group.

2.2. Data collection

The participants were asked to participate in an oral reading task in order to evaluate their pronunciation of the two stop alveolar consonants /t/ and /d/, and whether they can recognize and produce the different allophones of these two sounds.

Each group has been tested by giving them an oral reading task including three sections: monosyllabic and multisyllabic words containing stop

alveolar sounds, simple sentences, and a reading passage focusing on words containing /t/ and /d/ sounds. The first section includes six words with different syllabic length. All these words contain sound /t/, /d/, or both in different positions in the word. The second section focuses on reading words that contain sounds /t/ and /d/ in a string of other words. The purpose is to see if the participants can recognize the different phonemes of the sounds /t/ and /d/ and pronounce each phoneme in a clear English pronunciation. The third section is more complicated. The participants were asked to read a short story passage while evaluating their reading fluency with much focus on /t/ and /d/ sounds and the different pronunciation of these two sounds.

2.3. *Data analysis*

The phonemic awareness has been measured according to their ability to distinguish between the different productions of these sounds in English. The participants are asked to read aloud in order to measure their pronunciation of the target phonemes.

Phonemic awareness has been measured by dividing the task scores into five level of proficiency. The first level indicates the lack of the phonemic awareness, the second level refers to low level of recognizing the difference between the two sounds in Arabic and English, the third level refers to the intermediate level, the fourth level refers to the advanced level of phonemic awareness, and the fifth level refers to the proficiency level.

3. Findings

Several studies addressed the question of whether the phonemic awareness can be taught, and the results of these studies have shown that the second language learners can be successfully trained to be phonemically aware (Yopp, 1992). This evidence will be a helping tool to the teachers of English as a second language to raise the students' phonological as well as the phonemic awareness in the classrooms in order to assess and develop their students reading skill.

Figure 1 shows the difference between the total scores of the two groups in the reading task. It is obvious that students who graduated from the English department (EDS) scored higher than the ESL students.

Moreover, by looking at each section of the oral reading task, it is obvious that both groups scored similarly in the first section. At the word level, students in both groups performed similarly at the word level ($M = 4.85$, $SD = .78$) for ESL group, and ($M = 4.40$, $SD = .81$) for EDS group. The variances between the two groups are not significantly different ($t(18) = 1.29$, $p > .05$). Therefore, both groups' average scores are not different, which means that there is no statistically significant difference between the two groups of participants. In this case, it could be assumed that at the word level, participants in both groups got similar scores, and they were able to pronounce the words at roughly the same level of proficiency.

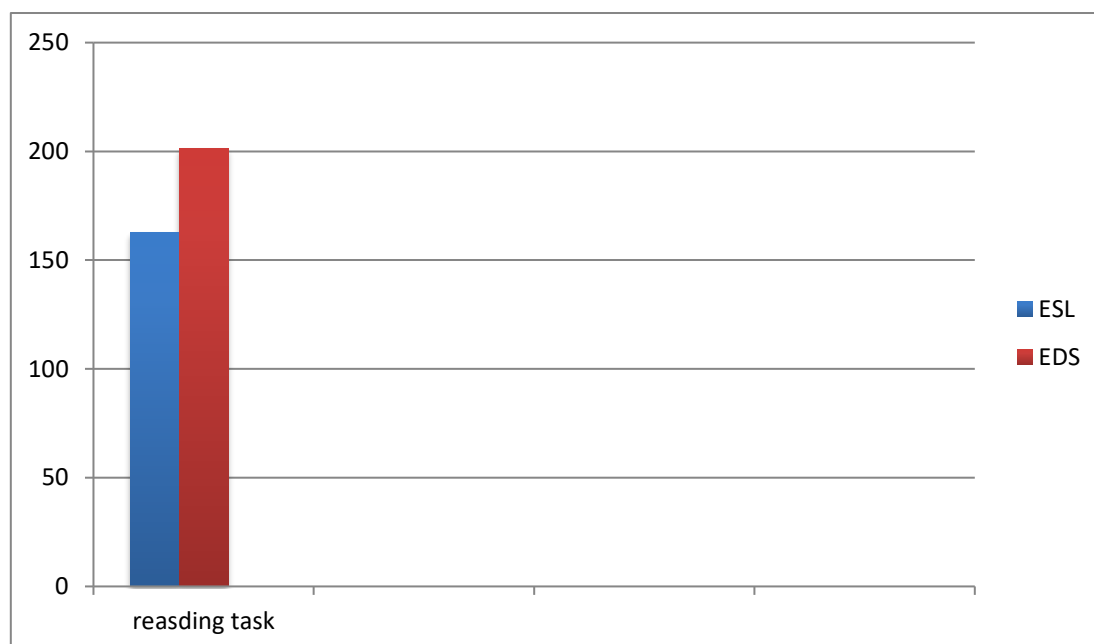


Figure 1. The difference between the score of the ESL students and ED students in the reading task

However, at the sentences and paragraph levels the two groups scored differently. When participants in the first group were asked to read the sentences section, it could be said that their focus was on the sentences which effected their pronunciation of the /t/ and /d/ sounds ($M = 3.60$, $SD = .52$). On other hand, the second group scored much better than the first group ($M = 4.60$, $SD = .39$). There is a statistically significant difference between the two groups at the level of sentences, and the variances between the two groups are not similar ($t(16.83) = 4.87$, $p < .05$). In the last section, which focused on reading the words in a short paragraph, as well the average score of the participants in both groups are different. The ESL group's mean is 7.90 and standard deviation is 1.96. The EDS group' mean is 11.20 and standard deviation is 1.11. The difference is statically significant, and the variances are not equal ($t(14.20) = 4.61$, $p < .05$). In general, ED group of participants ($M = 20.20$, $SD = 2.07$) scored better than the ESL group ($M = 16.35$, $SD = 2.31$). There is a significant difference between the total scores of both groups ($t(17.79) = 3.92$, $p < .05$).

Therefore, the average scores of the two groups are similar only in the first section, yet in the other two sections, participants scored differently. See table 1.

By looking at ANOVA results, it could be said that ANOVA is a better represented to the difference between means than the independent t-test ($F(1, 18) = 37.18$, $p < .05$).

Table 1

The average score of the students from the two groups in the three sections of the reading task

		<i>N</i>	<i>Mean</i>	<i>S.D.</i>	<i>S.E. mean</i>
Words	ESL	10	4.85	.75	.24
	EDS	10	4.40	.81	.26
Sentences	ESL	10	3.60	.52	.16
	EDS	10	4.60	.39	.12
Paragraph	ESL	10	7.90	1.97	.62
	EDS	10	11.20	1.11	.35
Total	ESL	10	16.35	2.31	.73

So, it is obvious that there are differences in average between the two groups and they performed differently. The relationship between the reading score and the phonemic awareness is very positive strong correlation ($R = .91$). See Table 2.

Table 2

ANOVA and regression

Model	R	R^2	Sig.	F	df
1	.912	.831	.031	14.764	1
					18

To determine whether the phonemic awareness can be a good predictor for improving reading skill for Arabic speakers, a simple linear regression had been conducted. Roughly 83% of the variances in the oral reading task scores variable can be explained by the increasing in the phonemic ability. Arabic speakers can recognize the different phonemes of the /t/ and /d/ sound if they have been trained for a reasonable period of time, which is about four academic years in the second group of the participants. This predication is statistically significant ($F(1, 18) = 14.76, p < .05$). So, the phonemic awareness could be used to predicate the second learners reading ability in the future. The phonemic awareness should be taught and introduced to the second learners in early stages of their learning process (Thatcher, 1998).

A simple linear regression has been conducted. According to the results, the reading task score is expected to improve by 1.25 scores every time the phonemic awareness increases one unit. This means students, who will receive more practicing in the phonemic awareness, will score 1.25 higher than before increasing phonemic awareness during classroom activities. Therefore, increasing phonemic awareness in the classroom will defiantly make the students score higher in the reading skill.

4. Discussion

This study examined the level of phonemic awareness that Arabic learners of English as a second may have in order to distinguish between the sound system of Arabic and English at the level of non-contrastive sounds such as /t/ and /d/. The results of this study should be interpreted with caution due to the small sample size. This study examines the relationship between

the phonemic awareness and the initial reading ability for Arabic adult learners of English as a second language with focusing on the two stop alveolar consonant sounds /t/ and /d/. The data has been collected from two different groups of Arabic native speakers. The first group's participants are studying English in one of the ESL centers in the United States. The second group's participants graduated from the English department at Benghazi University in Libya. According to the results, the second group whose participants are phonologically aware scored better in the oral reading task than the first group whose participants are currently studying English in ESL center in the United States. These results give evidence to the answer to the main question of this study. Therefore, students who are taught to be phonologically aware will be better readers than other students who do not receive much concentration on phonology and phonemic aspects of the sounds.

Second language learners usually produce and perceive sounds in the second language much similar to the phonemes in their mother language phone perspective. This interference of the mother tongue can frequently be noticed with the sounds that have similarity with a certain phone of the phonetic system of mother tongue (Figueiredo, & Silva, 2009). Therefore, Arabic students, who are not aware of the phonemic differences between Arabic and English, tend to produce /t/ and /d/ sound much similar to the Arabic phonemic system.

The importance of the phonemic awareness can be implied in that when the second language learners are aware of the correct pronunciation of each sound in the target language, they then can read faster and more accurate than second learners who are not aware of phonemic differences. Slow second language readers usually focus on the pronunciation of every word in the sentences, which makes them lose their focus on reading the whole piece of text. The phonemic awareness should also be considered in the mother tongue. Several of studies have proven that poor phonemic awareness in the mother tongue will lead to difficulties in the reading skill in the first and second languages (Abu Rabia, 2004).

Due to the dominance of the communicative methodology on second language teaching for over thirty years, the non-communicative activities such as articulatory training, suprasegmental aspects of pronunciation, and productive drills have been neglected; however, after the important position that English language has took as an international language, a great attention has been drawn towards teaching these activities (Linebaugh, & Roche, 2013)

Moreover, it could be said that when students take English courses for a long period of time, then their scores in the reading task can be improved. Second language learners usually develop implicit knowledge about the differences in the sound system between their mother tongue and the target language, yet this kind of knowledge can be established at advanced levels of proficiency (Mora, Rochdi, & Kivisto-de Souza, 2014). For further future research, a within- group sample test can be applied for the first group participants after giving them an intensive phonemic course with focusing on reading. Then the same oral reading task is repeated to the same group in order to compare their performance before and after the phonemic course.

5. Conclusion

The continuing spread of English as an international language increases the number of adult learners whose first language is not English. Ouellette and Haley (2013) have claimed that the investigation on the area of phonemic awareness is quite unidentified despite its essential role in the early language acquisition ability. The research dealing with beginning reading in adult second language learning is remarkably limited (Dellicarpini, 2011). Therefore, this study will contribute to the field of improving reading skill at early stages to the non-native English speakers in adult learning programs. Drilling, practicing by repeating sounds, rhyming songs as well may help building up the phonemic awareness, which is very important for second language learners. However, a considerable number of studies have proven that phonemic segmentation and blending can build better phonemic awareness that leads to avoiding reading difficulties rather than repetition, rhyming, and drilling (Yeh, 2003). Since a lot of research has been related reading difficulties with the low level of phonological and phonemic awareness, then a sufficient attention should be drawn to increase the phonemic awareness' level in the scope of the second language acquisition (Pennala, Eklund, Hamalainen, Martin, Richardson, Leppanen, & Lyytinen, 2013). From this point of view, phonemic awareness can be taught to improve reading skill by practicing phonemic activities in a pre-reading program, which helps second language learners to build a sufficient foundation for the phonemic system in the target language (Ryder, Tnmer, & Greaney, 2008). This feature will help students improve the other language skills that are related to the phonemic awareness such as spelling, speaking, and listening. Therefore, phonemic awareness plays a very important role in the second language acquisition. A long list of tasks has been used by researchers and educators either to evaluate or teach phonemic awareness (Lewkowicz, 1980). However, it is not clear which task or tasks can strongly predict the reading skill (Ukrainetz, 2009). This list includes recognizing sounds through reading isolated words, sentences, and paragraph. Accordingly,

To conclude, the phonemic awareness is a very important aspect in the scope of second language acquisition not only for improving reading comprehension skill, but also it is an affective instrument that teacher can use to improve spelling skill as well. Despite this importance, phonemic awareness is neglected in many English as a second language teaching programs. Further research is still needed to help teachers of English as a second language apply the phonemic activities in the classroom in early stages of the learning process. Phonemic awareness should be introduced to the students at early stages of learning the alphabets (Dellicarpini, 2011).

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Appendix

Reading task:

Words:

too dog little decided destination disadvantage

Phrases:

My dad plays tennis every Wednesday.

What day is your next appointment?

The road went through the countryside

She is mad at her friend his trumpet was really loud

We ordered a salad for lunch

Paragraph

We were riding down the road in our car when suddenly another car went speeding past us. My friend Dave was driving and he got mad. His face turned red and he said, "That is really dangerous!"

The road came to a dead end and the car turned around. Dave waved his hand to stop the car. He rolled down his window and said, "Your speeding is dangerous to you and me. Please don't do it!"

The man in the other car apologized and said he would slow down in the future.