The Effect of L2 Input on Young Learners' Pronunciation Performance in English[1, 2]

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Abstract

There is no dearth of studies on pronunciation problems of students of English as a Foreign Language (EFL); however, research on pronunciation problems of young learners is scarce. Therefore, to fill this research gap, the present quasi-experimental study aimed at investigating the effect of L2 input on the pronunciation performance of young learners in English. To this end, two groups of primary school learners were recruited as the study participants. Both groups were of the same age (10 years old), and they were all native speakers of Turkish. Group A's exposure to English was somewhat restricted since their education was exclusively in Turkish, while Group B received a great deal of input through an immersion program. Data were collected using a pictorial pronunciation test. The analysis of the data shows that Group B participants far outperformed Group A students. Everything being equal, this could be interpreted as the result of greater exposure Group B participants had to English through the immersion program they were following. Thus, it can be concluded that by increasing the amount of learners' input, language acquisition, in general, and pronunciation performance, in particular, can be facilitated.

Resumen

No hay escasez de estudios sobre los problemas de pronunciación de los estudiantes de inglés como lengua extranjera (EFL); sin embargo, la investigación sobre los problemas de pronunciación de los jóvenes estudiantes es escasa. Por lo tanto, para llenar este vacío de investigación, el presente estudio cuasi-experimental tuvo como objetivo investigar el efecto del *input* de L2 en la pronunciación de los jóvenes estudiantes de inglés. Con este fin, dos grupos de estudiantes de primaria fueron reclutados como participantes del estudio. Ambos grupos tenían la misma edad (10 años) y todos eran hablantes nativos de turco. La exposición del grupo A al inglés fue algo restringida ya que su educación fue exclusivamente en turco, mientras que el grupo B recibió una gran cantidad de información a través de un programa de inmersión. Los datos se recopilaron mediante una prueba de pronunciación pictórica. El análisis de los datos muestra que los participantes del Grupo B superaron con creces a los estudiantes del Grupo A. En igualdad de condiciones, esto podría interpretarse como el resultado de una mayor exposición al inglés de los participantes del Grupo B a través del programa de inmersión que estaban siguiendo. Por lo tanto, se puede concluir que al aumentar la cantidad de aportes de los alumnos, se puede facilitar la adquisición del lenguaje, en general, y el desempeño de la pronunciación, en particular.

Introduction

Pronunciation is perhaps the most challenging aspect of foreign-language learning. Research shows that this is largely due to first language (L1) and target language (L2) differences (Bada, 2001; Berg, 2001; Chan, 2009; Linda, 2011; Sedighi, 2010; Varol, 2012). Mispronunciation may lead to intelligibility and communication failure. Accordingly, second language acquisition scholars have highlighted the significant role pronunciation plays in communication. For example, Hedge (2008) asserts that "part of speaking the English language competently is the ability to produce its sounds in ways that are intelligible to other speakers [both native and non-native speakers of English]" (p. 268). Morley (1991) also states that "intelligible pronunciation is an essential component of communicative competence" (p. 488). In the same vein, Harmer (2007) maintains that "in some particular cases, pronunciation helps allow students to get over serious intelligibility problems" (p. 248). Therefore, foreign language methodologies that emphasize oral aspects of language teaching have integrated pronunciation into the curriculum in one way or another.

Numerous empirical studies have been conducted on the pronunciation difficulties of adult learners of English as a foreign language (EFL) (e.g., Akbari, 2013; Bada, 2001; Baloch, 2013; Bekleye, 2011; Bui, 2016; Chan, 2009; Lin, 2001; Metruk, 2018; Thompson, 1991; Varol, 2012; Zhanmig, 2014). All of these studies have confirmed the influence of the MT on pronunciation problems of EFL learners. For example, the results of Baloch's (2013) research revealed that Arabic EFL learners have serious pronunciation problems with the English phoneme /p/ because /p/ is absent in Arabic, hence MT interference.

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Consequently, Arabic learners of English usually pronounce /p/ as /b/, which phonetically shares the same place and manner of articulation with /p/, but differs from it in terms of voicing. Chan (2009) also investigated the role of MT on L2 pronunciation acquisition. His participants were Cantonese speakers who studied English at an advanced level in Hong Kong. The findings of Chan's research pointed to the fact that despite the participants' advanced proficiency level, negative transfer existed as the learners were still under the influence of the MT. Another study on L2 pronunciation acquisition was done by Kwary and Prananingrum (2006). The results of this study showed that the participants, who were Indonesian university students, had difficulties pronouncing some of the English consonants and vowels. The researchers attributed these difficulties to interference. Similarly, Sedighi (2010) examined the pronunciation problems of Iranian EFL learners at three different proficiency levels: beginning, intermediate, and advanced. He found that all three groups of learners faced considerable difficulties in pronouncing English phonemes that are absent in Persian.

Unlike pronunciation problems of adult EFL learners, the pronunciation of young second language learners is an under-researched topic. Studies dealing with the education of young learners have focused primarily on language proficiency in general, rather than pronunciation problems per se. For example, Barnett et al. (2007), comparing the effects of dual-language and monolingual English immersion programs on children's learning, state that "children in both types of classrooms experienced substantial gains in language, literacy, and mathematics" (p. 277). Similarly, De Courcy et al. (2002), commenting on immersion programs, assert that "evaluations of such programmes indicate that the cohort of students achieve higher levels of proficiency than students in traditional programmes" (p. 112). The study conducted by Zhang et al. (2019) was also restricted to examining "the impact of providing access to word pronunciation on the assessment of L2 Chinese learners' vocabulary knowledge" (p. 344).

Nevertheless, some studies on young learners' second language development have dealt with both language proficiency and pronunciation. For example, elaborating on the impact of immersion programs on language proficiency, Soderman (2010) asserts that "an immersion model provides the best opportunity for children to attain high levels of proficiency in a target language, but only if children's everyday experiences are well constructed, engaging, and developmentally appropriate" (p. 57). On the phonological aspects of young learners, in particular, Soderman (2010) states that "young language learners are more likely to develop naturalistic prosody and phonology, the music and rhythms unique to particular languages" (p. 58). Comparing advanced learners with beginners, Marijanović et al. (2009) assert that "even advanced learners frequently substitute L1 phonemes for similar but nonidentical L2 phonemes" (p. 152). They further add, "we could observe that L2 learners, and in particular the beginners, use L1 rules when encoding L2 linguistic items" (p. 152).

Some studies have also concentrated on the phonological awareness of young learners. For example, in a recent study, Kopečková et al. (2021) investigated the nature of phonological awareness in young L3 learners. The results of their study showed "a range of different manifestations of phonological awareness in the young multilinguals. In their L2/L3-accented speech, they demonstrated their noticing of specific L2/L3 phonetic properties, covering both segmental and suprasegmental features" (p. 13). Other studies on perception, rather than production, of foreign language sounds are concerned with comparing monolingual and bilingual learners (e.g., Antoniou et al., 2015; Patihis et al., 2015). The above review shows that productive aspects of young learners' pronunciation are a neglected area, hence further justification for the present research.

The impact of L2 input on young learners' pronunciation

The main variable in this study is the impact of input on pronunciation performance of young learners through different instructional programs. In the context of the present study, the two instructional programs were the mainstream Turkish-medium program and immersion. In the former, the language of instruction was the learners' mother tongue, and English was taught only as a subject, and in the latter, English was the medium of instruction for all subjects. The first program is the typical model in many EFL situations, where exposure to the target language (TL) is minimized (Hedge, 2008; Richards & Rogers, 2014).

Unlike some teaching methods (e.g., the Grammar-Translation Method, the Direct Method, and Audio-lingual Method) that focus on teaching foreign languages in the traditional fashion (Richards & Rogers, 2014), *immersion* is an educational program in which the foreign language is the medium of instruction. Thus, it provides the greatest amount of exposure to the target language. The title *immersion* is used because the students are immersed in the TL throughout the school day. The *Immersion Program (IP)*

emerged out of the Communicative Approach, which focused on communicative aspects of teaching. Therefore, like the communicative approach, it is meaning-oriented and task-based. However, the Communicative Approach, though effective, is still restricted to language teaching. In contrast, in the *IP*, the second language is used as the medium of instruction for all or most school subjects, depending on the type of immersion (Krashen, 1984; Swain, 1980; Swain & Johnson, 1997).

There are two types of Immersion Programs: Full (or Total) and Partial, depending on the intensity and amount of instruction delivered through the TL. In the *Total Immersion Program (TIP)*, all subjects are taught through the medium of L2, which is English in the majority of cases. On the other hand, in the *Partial Immersion Program (PIP)*, which is used in bilingual schools, English is used for the teaching of some subjects (approximately 50%), and the rest are taught in the learners' MT (Fortune & Tedick, 2003; Genesee & Jared, 2008; Krashen & Terrell, 1983; Snow, 1990). It is worth mentioning that the school where Group B participants of the present study were recruited followed the TIP. That is, all subjects were taught through the medium of English, except for Turkish.

Many studies have been conducted on the effect of the immersion program on L2 proficiency enhancement and the development of additive bilingualism, in which proficiency in both L1 and L2 is promoted (Ahn, 2015; Fortune, 2011; Genesee, 1976; Kersten & Rohde, 2015; Kim, 2007; Lee, 2009; Swain & Johnson, 1997; Wesche, 2002). According to Cheng et al. (2010), "research has demonstrated that second language immersion is an effective means of facilitating primary school students' second language without undermining competence in their first language" (p. 157). In their study, Cheng et al. (2010) compared the academic achievements of immersion and non-immersion students in three subjects: English (L2), Chinese (L1), and mathematics. The results of their research showed that immersion students outperformed non-immersion students in English at all three grade levels (i.e., Grades 2, 4, and 6). "They also did similarly in Chinese and mathematics at Grades 2 and 4, but better at Grade 6" (p. 157). Knell et al. (2007) also concluded that EFL students taught through immersion outperformed non-immersion students in vocabulary, word identification, and general English oral proficiency. Similarly, Wesche (2002) summarizes the outcomes of EFI [Early French Immersion] programmes as 'two for one', i.e., the EFI students achieve both a high level of L2 achievement *and* mastery of school subjects. This level of achievement is equivalent to the educational outcomes of children studying the subject matter in their native language, English.

Immersion programs for young learners

Since immersion programs aim at preschool and primary school students, participants of most immersion studies are young learners. Most of these studies, some of which were reviewed above, deal with the general proficiency of young learners. In fact, studies that specifically deal with productive aspects of young learners' pronunciation, such as accuracy, are scarce. However, studies that have compared the performance of monolingual and bilingual learners in TL pronunciation conclude that younger bilingual learners, who normally receive instruction through immersion, outperform monolinguals. For example, the results of Kopečková's (2016) study revealed that bilingual learners have an advantage over monolinguals in the pronunciation of English and Spanish rhotic sounds (i.e., the alveolar tap [ɾ] and alveolar trill [r]). In a similar study, Morales Reyes et al. (2017) compared the performance of 4–8-year-old Korean-English bilinguals with that of English monolinguals in the pronunciation of Spanish [ɾ] and [r]. They found that bilingual children far outperformed English monolinguals. In a recent study, Kieseier (2021) investigated the pronunciation accuracy of 4th-grade monolingual and bilingual EFL learners with different language backgrounds. Similar to the present study, she categorized all error types and compared their relative frequency and substitution patterns. The findings of her study pointed to the advantage of young bilingual learners over their monolingual counterparts in English pronunciation. However, the present study differs from all of the above in that the participants of this study, unlike the previous ones, were all monolingual Turkish speakers. Moreover, in addition to the age of the participants (young learners), the role of input through two different instructional programs (immersion vs. traditional mainstream) was investigated, as explained above.

Differences between English and Turkish sound systems

A comprehensive contrastive analysis of Turkish and English sound systems is beyond the scope of the present study; however, based on Varol's (2012) study, certain English consonants are missing in the Turkish sound system. These include interdental fricatives /θ/ and /ð/, represented in the initial sound of 'think' and 'this'. Therefore, Turkish learners of English tend to replace these two sounds with [t] and [d],

respectively. Another English consonant that does not exist in Turkish is the bilabial glide /w/, which is usually substituted with the nearest Turkish sound [v] by Turkish speakers, as in 'ven' instead of 'when'.

There are also differences between English and Turkish vowels that may cause pronunciation difficulties for Turkish learners of English. For example, "the vowel [æ] does not exist in Turkish vowel inventory. As a result of the absence of this sound, most Turkish speakers pronounce this vowel either as [e] or [ɑ]" (Varol, 2012, pp. 21-22).

Certain English diphthongs are also absent in the Turkish sound system, in particular [aʊ] and [ɔɪ]. As Varol (2012) argues, "because there is not any similar sound for the diphthong [aʊ] in Turkish, when Turkish speakers encounter words that contain this sound they usually pronounce [aʊ] as [ɑ]. For example, 'how' is usually pronounced as 'hɑv' by Turkish speakers" (p. 22). The diphthong [ɔɪ] occurs in some limited Turkish words like 'koy', meaning 'put'; however, its pronunciation differs slightly from English [ɔɪ].

As the above review shows, the literature is rich in research studies dealing with the pronunciation problems of adult EFL learners (e.g., Bada, 2001; Baloch, 2013; Bekleye, 2011; Bui, 2016; Chan, 2009; Metruk, 2018; Zhanmig, 2014). However, studies on pronunciation problems of young learners are scarce (e.g., Kieseier, 2021; Kopečková, 2016; Morales Reyes et al., 2017), in particular concerning the impact of the type of exposure to the target language on the pronunciation achievement of young learners of English. More specifically, to the best of the researchers' knowledge, no study has previously been conducted on comparing the effect of two types of instructional programs (mainstream vs. immersion) on young monolingual Turkish-speaking learners of English. Therefore, this study was guided by the following research questions:

1. *What are the most frequent pronunciation errors of Group A students?*
2. *What are the most frequent pronunciation errors of Group B students?*
3. *To what extent does the amount of input affect the acquisition of English pronunciation by young learners?*

Method

Participants

Participants of this study consisted of two groups of primary school students from a private primary school in North Cyprus. The two groups belonged to the same age group (ten years of age) and were at the beginning of their fifth year of primary school at the time of data collection. They were all native speakers of Turkish with no exposure to English before starting their primary schooling. Convenience sampling was used for the selection of the participants since the researchers had only access to the existing sample. Since the participants were young learners and the data were collected during school hours parents' informed consent was obtained through the school principal prior to data collection. The participants' motivation for taking part in the study was a sense of positive competition, i.e., when they found out that some of their classmates volunteered to take the test, they were also encouraged to participate. Group A students followed a Turkish curriculum with English being taught only as a school subject (40 minutes of instruction per day). Group B, on the other hand, received instruction in English for all subjects as the school had adopted the National British Curriculum. In other words, they were immersed in English during the school day. Most of their teachers were native speakers of English, and those who were not native speakers had advanced fluency in English (this was part of the employment policy of the school). Except for the reception[5] and the first grade, where phonics was taught explicitly to the learners, Group B students acquired English pronunciation indirectly. That is, they learned English while they were engaged in learning other language skills such as reading and oral expression as well as through interaction with their teachers and classmates in English. Group A was comprised of 24 students, and Group B consisted of 26 students. It should be stated that gender was not a variable in this study.

Instruments

The data for the current study were collected using a pictorial pronunciation test. The pictorial test was used on the assumption that it was the most suitable instrument considering the age of the participants

[5] In the British primary educational system, 'Reception' refers to a preparatory period before the first grade of primary school. It is the near equivalent of 'kindergarten' in the American system.

compared to other pronunciation tests such as multiple-choice hearing identification. Initially, target words that potentially contained pronunciation errors were chosen. Then colorful pictures suitable for this age group that matched the target words were included in the test. These pictures added to the pronunciation clarity of the target words. Moreover, the colorful pictures were intended to attract the young learners' attention and cooperation, which possibly added to the face validity of the test. Altogether, a total of 88 target words were pronounced by each participant while being audio-recorded. Audio recording of participants' pronunciation was another research instrument used in the present study.

Research Design

The design of this study was quasi-experimental since the researchers had no control over the treatment; they simply investigated the effect of two different pre-existing instructional programs on the participants' pronunciation performance in English. Since the design of the study was quasi-experimental, a control group was not necessary. As Griffee (2012) asserts, "teachers [or researchers] with predetermined or intact classes cannot randomly assign students to a control or experimental group. They must use a quasi-experimental design" (p. 75).

Data Collection Procedure

After obtaining the consent of the school principal to visit classes and administer the pronunciation test, a quiet room was chosen for recording to avoid noise distractors and ensure the clarity of the recordings. Afterward, the participants were called one by one for audio-recording while reading sentences that described the pictures in the test, e.g., 'the smiling boy is fishing'. Before the recording, a friendly atmosphere and rapport with the participants were created, and they were assured that the pronunciation test would not affect their grades in other subjects.

Data Analysis

After the data were collected, they were listened to carefully at least three times the researchers. Then the audio materials were transcribed and codified for further analysis, e.g., code 5 for the /v/ sound. The data were coded manually to categorize the participants' pronunciation errors into different error types (i.e., fricatives, nasals, vowels, and diphthongs). It needs to be pointed out that other types of consonants, such as plosives, affricates, and approximants were absent in the data. The two researchers who analyzed the data are trained in phonetics and have taught pronunciation to EFL learners for years.

Insofar as the content validity of the instrument is concerned, the pictorial test measured what it intended to measure, namely the pronunciation of the two groups of participants in this study, hence construct validity. The face validity of the test was also ensured by choosing pictures that were most suitable for the age group of the participants, i.e., young learners.

In order to ensure the reliability of the data analysis, both researchers listened to the audio recordings and rated the performance of the participants. The first rater holds an MA in English Language Teaching with eighteen years of teaching experience and the second rater has a PhD in Applied Linguistics and Teaching English as a Foreign Language with over forty years of teaching experience. The results of interrater reliability for each group are presented separately in the results section below.

Results

In this section, the results of interrater reliability for each group are reported, followed by the results of the main experiment. First, the Intraclass Correlation Coefficient was calculated to measure the interrater reliability for Group A, i.e., to see if the two raters' identification of errors was similar. The result is presented in Table 1.

	Intraclass Correlation[b]	95% Confidence Interval		F			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.91[a]	.56	.98	33.70	9	9	.00
Average Measures	.95[c]	.72	.99	33.70	9	9	.00

*$p < .05$.

Table 1: Correlation Coefficient for Group A Interrater Reliability

As Table 1 illustrates, a high degree of inter-rater reliability exists for Group A data. As can be seen, the average measure of the Intraclass Correlation Coefficient is .95 with a 95% confidence interval from .72 to

.99 (F 9,9=33.70, p<.001), which indicates that 95.5% of the variance in the mean of the two raters is meaningful. This suggests a strong and significant relationship between the two raters' assessments regarding the pronunciation performance of Group A participants. Next, the inter-rater reliability for Group B was checked, as presented in Table 2.

	Intraclass Correlation[b]	95% Confidence Interval		F			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.97[a]	.85	.99	101.92	9	9	.00
Average Measures	.98[c]	.92	.99	101.92	9	9	.00

*p < .05.

Table 2: Correlation Coefficient for Group B Interrater Reliability

As Table 2 displays, a high degree of interrater reliability exists for Group B as well. As illustrated, the average measure of the Intraclass Correlation Coefficient is .98 with a 95% confidence interval from .92 to .99 (F 9, 9)=101.92, p<.001), indicating that 98.6% of the variance in the mean of the two raters is real. This shows that there was a close correspondence between the two raters' evaluations of the pronunciation performance of Group B.

The analysis of the data of the main experiment showed the impact of the degree of exposure to L2 through two different types of instruction on the pronunciation performance of young learners in English. The results of each research question are presented separately below.

Research Question 1. What are the most frequent pronunciation errors of Group A students?

The results of data analysis for Research Question 1 concerning the pronunciation difficulties of Group A students (i.e., students who received instruction through the medium of Turkish and were taught English only as a school subject) are presented in Table 3. The table includes pronunciation errors of Turkish EFL learners found in the literature (e.g., Demircioglu, 2013, and Varol, 2012) as well as some new errors that emerged in the present study. In Table 3, both types and tokens of potential pronunciation errors are provided with the words containing the target sounds and the frequency of participants' actual errors.

Potential Pronunciation Errors						
N	TP	Token	Words Containing Problematic Sounds (i.e., Target Words)	Pron Errors	N	%
1	/θ/	7	*teeth, thin, bath, thinks, south, three, thirty*	/t/, /f/, /s/	152	90.48
2	/ð/	18	*father, these, clothes, this*(x2), *the*(x8), *that*(x3), *there*(x2)	/d/	381	88.31
3	CC	3	*smiling, sleeping, school*	VCC	63	87.71
4	/ŋ/	10	*smiling, fishing, sleeping, showing, wearing*(x2), *walking, wedding, going, eating*	/ng/	200	83.33
5	/v/	4	*van, very*(x3)	/w/	79	81.76
6	CC	7	*truck, dress, drink, black, blue, clothes, cloudy*	CVC	135	80.35
7	/əʊ/	7	*toasts, toaster, coat, notes, goats, boat, coke*	/ɔ/	124	76.21
8	/ɪ/	19	*is*(x10), *his*(x2), *fishing, thin, this, with, thinks, drink, windy*	/i/	332	72.80
9	/ʌ/	4	*truck, bus, tub, funny*	/ɑ/	56	57.87
10	/w/	9	*with, woman, walking, wedding, weather, windy, want, wearing*(x2)	/v/	84	39.02
T		88			1606	75.76

Pron Errors: Pronunciation Errors
TP: Target Pronunciation
VCC=Insertion of an additional vowel before consonant clusters, as in *smile* /ɛsmaɪl/
CVC=Insertion of an additional vowel between two consonants, as in *dress* /dɛrɛs/
T=Total

Table 3: Frequency of pronunciation errors of Group A students

As Table 3 shows, ten different pronunciation errors were produced by participants in Group A. These errors included certain problematic consonants, vowels, and consonant clusters (CCs). In total, participants in this group made 1606 errors out of 2112 potential errors, i.e., errors that were expected to occur due to the lack of specific English phonemes in Turkish. This indicates that the majority of Group A students had difficulties in the pronunciation of the target English sounds as well as the initial CCs. The

main reason for such a large percentage of errors seems to be the restricted amount of input these students had in the TL.

The most frequent problematic sounds for these participants appeared to be the interdental fricatives /θ/ and /ð/ (90.48% and 88.31%, respectively). This is possibly because these consonants do not exist in the learners' NL, Turkish, as has been demonstrated by previous researchers (e.g., Demircioglu, 2013; Varol, 2012). Phonetically, such errors are referred to as *overdifferentiation* (i.e., when a target-language item is lacking in the learners' mother tongue), which proves to be the most difficult type of error for EFL learners (Keshavarz, 2015). Most of the participants replaced /θ/ with the consonants /t/, /f/, and /s/; however, for /ð/ there was only one substitute namely /d/.

The next highest frequent error was in the pronunciation of initial CCs. There are two possibilities in this regard, i.e., EFL learners either insert a vowel before the cluster or in the middle of the cluster. The first process is phonetically referred to as prothesis, and the second as anaptixis, both being subtypes of epenthesis, i.e., vowel insertion (Roach, 2014). Both processes can be labeled as language learning strategies. In the first case, second language learners consciously or unconsciously add a vowel to the initial cluster to make it easier to articulate. For example, they may pronounce smiling as /ɛsmailɪŋ/, and school as /ɛskul/. In the case of anaptyxis, second language learners insert a vowel between the two consonants, e.g., /tɛrak/ for truck and /dɛrɛs/ for dress. (Broselow, 1983; Keshavarz & Khamis, 2017). As Table 3 shows, the percentage of prothesis errors was very high (87.71%), and the percentage of anaptyxis, which will be discussed below, was slightly lower than prothesis errors (80.35). Mother tongue interference seems to be responsible for both error types since Turkish does not allow two consonants in the word-initial position.

The velar nasal /ŋ/ also occurred with a high frequency (83.33%). However, this error seems to be intralingual rather than interlingual due to the confusion caused by the TL system itself, in this case, the spelling representation of /ŋ/ namely –ng. As Keshavarz (2015) states, "a large number of orthographic errors are caused by inconsistencies of English spelling system as in the majority of cases, there is no one-to-one correspondence between letters of the alphabet and the sounds they represent" (p. 79). On the other hand, Turkish has a phonologically transparent orthography as there is always a match between graphemes (letters of the alphabet) and phonemes/sounds. Thus, Turkish learners of English find reading and pronouncing English words very difficult since they tend to read and pronounce graphemes of English as they do in their NL. Therefore, it is not surprising that they pronounce /ŋ/ as /ng/ in words such as sing and song.

Group A students' next most frequent pronunciation error was the substitution of the voiced labio-dental fricative /v/ with the bilabial glide /w/. Turkish students' difficulty with these two sounds seems to be the distribution of these sounds. Observation shows that these students have no problem with the pronunciation of /v/ when it occurs in word final position, as in move and love. This is because they have this sound in word final position in their NL, as in the Turkish words ev 'house, home' and sinav 'exam'. However, they have difficulties pronouncing this sound correctly when it occurs in the word initial position, as shown in the key words in Table 3. The source of this error seems to be learners' NL, as Turkish phonology does not allow /v/ in word initial position.

As mentioned above, Turkish-speaking participants in this study also had problems with the second type of epenthesis, namely anaptyxsis. That is, they inserted the vowel /ɛ/ in the middle of the cluster, as in the pronunciation of the English words dress /dɛrɛs/, and truck /tɛrʌk/. Similar to prosthesis errors, anaptyxis errors seem to be due to MT interference.

The next frequent error was the diphthong /əʊ/, as in goat, and boat, with a 76.21 frequency percentage. Similar to /θ/ and /ð/, this is also a case of overdifferentiation since such a diphthong does not exist in Turkish. In other words, students rely on their NL and pronounce /əʊ/ as /o/. The same explanation applies to the next problematic sound, the high front lax vowel /ɪ/, which is replaced by /i/, as in sheep, and feet.

A less frequent error was the mispronunciation of the low central vowel /ʌ/, as in love and funny, which was substituted with /ɑ/. However, in terms of teaching and learning English as a foreign language, this is not a significant error. As in most cases, it does not affect meaning and communication.

Finally, there were errors in replacing the bilabial glide /w/ with the voiced labio-dental fricative /v/, which is the reverse case of error number 5 in Table 3 above, i.e., pronouncing /v/ as /w/. Unlike the latter, the use of /v/ for /w/ does not seem to result from MT interference since /w/ does exist in Turkish. Instead, this error seems to be the outcome of teachers' overemphasis on the correct pronunciation of /v/, which is technically referred to as 'hypercorrection'. Since learners' attention is usually drawn to the correct pronunciation of /v/, they can get confused in the process and produce the familiar /w/ as /v/. Errors presented in Table 3 and described above are graphically displayed in Figure 1.

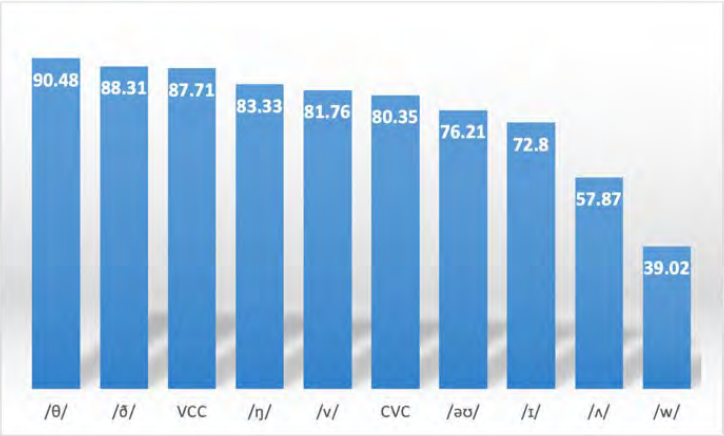

Figure 1: Pronunciation errors of Group A students

Research Question 2. What are the most frequent pronunciation errors of Group B students?

Next, the pronunciation errors of Group B students were analyzed, as presented in Table 4.

Potential Pronunciation Errors						
N	TP	Token	Words Containing Problematic Sounds (i.e., Target Words)	Pron. Errors	N	%
1	/θ/	7	*teeth, thin, bath, thinks, south, three, thirty*	/f/, /t/	36	19.70
2	/ð/	18	*father, these, clothes, this*(x2), *the*(x8), *that*(x3), *there*(x2)	/d/	90	19.20
3	/ŋ/	10	*smiling, fishing, sleeping, showing, wearing*(x2), *walking, wedding, going, eating*	/ng/	45	17.30
4	CC	3	*smiling, sleeping, school*	VCC	13	16.65
5	/v/	4	*van, very*(x3)	/w/	15	14.40
6	/w/	9	*with, woman, walking, wedding, weather, windy, want, wearing*(x2)	/v/	12	5.12
7	CC	7	*truck, dress, drink, black, blue, clothes, cloudy*	CVC	3	1.60
8	/əʊ/	7	*toasts, toaster, coat, notes, goats, boat, coke*	/ɔ/	2	1.09
9	/ɪ/	19	*is*(x10), *his*(x2), *fishing, thin, this, with, thinks, drink, windy*	/i/	0	.00
10	/ʌ/	4	*truck, bus, tub, funny*	/ɑ:/	0	.00
T		88			216	9.44

Table 4: Frequency of pronunciation errors of Group B students

As Table 4 illustrates, the frequency of pronunciation errors made by Group B students is relatively low. This is possibly due to the great amount of exposure these students had to the TL. Nevertheless, some of these students still had difficulties with certain sounds, including the interdental fricatives /θ/ and /ð/, the velar nasal /ŋ/, the labio-dental fricative /v/, and the initial consonant cluster /CC/. Indeed, these sounds seem to be among the most difficult English sounds for different L1 background EFL learners, as

elaborated on in the Discussion Section. Figure 2 illustrates the percentage of Group B students' pronunciation errors.

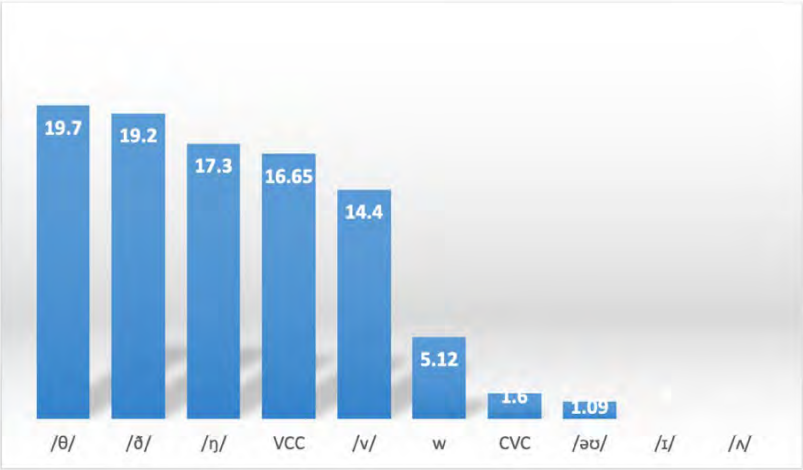

Figure 2: Group B students' pronunciation errors

Research Question 3. To what extent does the amount of input affect the acquisition of English pronunciation by young learners?

In order to answer research question 3, the performance of the two groups of participants was compared. A comparison of Tables 3 and 4, as summarized in Figure 3, demonstrates a significant difference in the pronunciation achievement of Group A and Group B participants. The percentage of total errors produced by Group A students was 75.76, while this percentage decreased to 9.44 in the case of Group B students, who had much greater exposure to L2.

Figure 3: Comparison of Group A and Group B Pronunciation Errors

Also, descriptive statistics show that there is a difference in the number of pronunciation errors made by Group A (*M*=75.760, SD=15.900) and Group B students (*M*=9.440, SD=8.600). To determine whether the differences in the performance of the two groups are statistically significant or not, an independent-samples t-test was conducted, the result of which is displayed in Table 5.

	Mean Difference	Std. Error Difference	*t*	*Df*	Sig. (2-tailed)
Equal variances assumed	66.32	5.71	11.60	18.00	.00
Equal variances not assumed	66.32	5.71	11.60	13.85	.00

Hartley test for equal variance: *F* = 3.41, Sig. = 0.03

Table 5: Results of the Independent Sample T-Test

As the results of the t-test indicate, there is a significant difference between the two groups (mean difference= 66.32), $t(11.602)=18$, at $p<.001$. Everything being equal (i.e., age, native language, and educational level), this significant difference is likely to be attributed to the amount of exposure of the two groups to the TL. In addition to the sharp differences in the frequency of errors, the nature of the errors made by the two groups was also different. For instance, most of the errors made by Group A in the pronunciation of /θ/ was in its substitution with /t/ whereas in the case of Group B students, in most cases /θ/ was replaced with /f/ for reasons that will be explained in the Discussion Section. Figure 4 graphically displays the total percentage of pronunciation errors made by the two Groups.

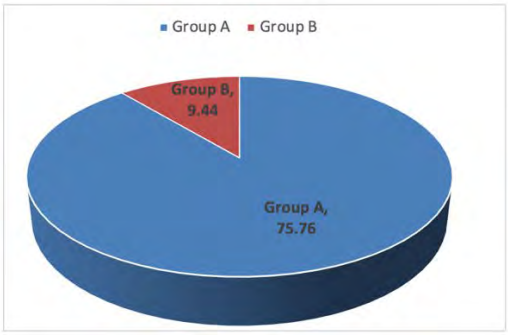

Figure 4: Total percentage of pronunciation errors made by the two groups

As Figure 4 illustrates, the percentage of total errors produced by Group A students is much higher (75.76) than those made by Group B (9.44). It must be remembered that these percentages represent actual errors made by participants in each group. The great difference between the two groups shows the effect of L2 input on young learners' pronunciation performance in English. Group B students, who had further exposure to English through immersion, did far better than Group A students.

Discussion

As the analyses of the data showed, Group B participants outperformed Group A. The main reason for this is possibly the amount of exposure the two groups had to the TL. As stated earlier, Group A's education was through the medium of Turkish, and English was taught only as a school subject, while Group B students were immersed in English as they received instruction exclusively through English for all subjects except Turkish. Therefore, the amount of exposure to English seems to be the leading cause of sharp differences in the performance of the two groups of participants. This confirms the advantage of the immersion curriculum over mainstream monolingual programs. Research has demonstrated various advantages of bilingual immersion programs, such as cognitive development and flexibility, metalinguistic awareness, linguistic creativity, and language testing (see, for example, Cummins, 2009; Genesee, 1992; Swain & Lapkin, 1991).

Studies on comparing the effect of input and amount of exposure to L2 on pronunciation performance of EFL learners, in general, and young learners, in particular, are scarce. Of the few recent studies reviewed, Kieseier's (2021) research is the closest to the current study since both deal with productive aspects of young learners' pronunciation, i.e., accuracy and error types. The general finding of the present study is similar to Kieseier's results, which revealed that young bilingual learners did better in the pronunciation of English than monolinguals. In the present study, although both groups of participants shared the same language background, Group B students, who received instruction through the English-immersion program, far outperformed the Turkish-medium group.

Kopečková et al. (2021) also investigated the pronunciation of young learners; however, they concentrated on phonological awareness rather than production. The results of their study can be related to the findings of the present study only insofar as they demonstrated that multilingual children who had greater language experience did better than monolinguals. In the current study, although both groups were monolingual, those who had greater exposure to the L2 did significantly better.

In another study on young learners' phonological awareness, Marijanović et al. (2009) investigated the perception of L2 sounds (French) by 9-11-year-old Croatian students. They concluded that "L2 learners, and in particular the beginners, use L1 rules when encoding L2 linguistic items" (p.152). This is in line with the general conclusion drawn from the findings of the present study that most pronunciation errors

were due to MT interference. This is also similar to the findings of Feinauer et al.'s (2013) study, which confirmed cross-linguistic transfer, i.e., transfer from L1 to L2 for both monolingual and bilingual learners.

Yet another study that dealt with the pronunciation of young learners was conducted by Morales Reyes et al. (2017). The authors compared the performance of 4-8-year-old Korean-English bilinguals with that of English monolinguals in the pronunciation of Spanish rhotic consonants [ɾ] and [r]. They found that bilingual children, who had further exposure to an L2, similar to Group B participants of the present study, far outperformed the English monolingual learners in the pronunciation of the L3.

In contrast to the limited number of studies on young learners' pronunciation, studies on the pronunciation problems of adult EFL learners are abundant. The findings of some of them will be compared with the results of the present study below, especially with the performance of Group A students, whose exposure to English was restricted, similar to that of other EFL learners.

As illustrated above, the results revealed that Group A students had a great deal of difficulty in pronouncing the English interdental fricatives /θ/ and /ð/, presumably because these two sounds do not exist in the learners' MT, Turkish. Other studies on the pronunciation of Turkish-speaking learners of English have also demonstrated that the two interdental fricatives /θ/ and /ð/ enjoy high frequency in error counts (e.g., Arikan & Yilmaz, 2020; Bada, 1993; Varol, 2012).

Needless to say, Turkish is not the only language that lacks these two English consonants. Research shows that /θ/ and /ð/ are missing in the phonology of many languages. Consequently, speakers of those languages encounter difficulties in learning English pronunciation (see, for example, Akbari, 2013; Bada, 2001; Keshavarz & Khamis, 2017; Linda, 2011; Sedighi, 2010; Varol 2012). Among these, Varol's (2012) research is most relevant to the present study since the participants of both studies were Turkish EFL learners. Varol (2012) found that his participants had difficulty with the pronunciation of /θ/ and replaced it with /t/. He attributed this difficulty to negative transfer from the learners' MT as /θ/ does not exist in Turkish. However, the difference between Varol's findings and the results of the present study is that participants in this research replaced the target sound /θ/ not only with /t/ but also with /s/ and /f/. In particular, in the case of Group B students, the percentage of /t/ substitution for /θ/ was much lower than that for /f/. This difference may stem from the fact that Varol's participants were adult learners while the participants of the present study were young learners. It has been well attested that interdental fricatives have proven to be the most difficult sounds for even native English children, let alone young second language learners (see, for example, Ingram et al., 1980; Jakobson & Waugh, 1979; Mousa, 2014). Like some of the participants in this study, children whose MT is English usually replace /θ/ with /f/ (Cruttenden, 1979; Ferguson, 1973). Research on children's phonological development has considered differences in speech-motor control capacities of children and adults (Inkelas & Rose, 2007; Pater 1997, 2002). Interestingly enough, according to Gimson (1980), even in the speech of some adult speakers of British English, the interdental fricative /θ/ is substituted by the labio-dental /f/. The examples Gimson gives include *throw* and *Smith* in popular London speech, which are pronounced as /frəʊ/ and /smɪf/, respectively.

Other studies have also found that the interdental fricatives /θ/ and /ð/, in particular /θ/, are widespread errors in the speech of adult EFL learners. For example, in a study conducted by Bada (2001), /θ/ and /ð/ were among the frequent errors of Japanese learners of English. Bada attributed these errors to the influence of the learners' MT. Similar to Varols' study, participants in Bada's research also pronounced /θ/ as /t/. Another study in Nigeria was conducted by Opanachi (2013) on the pronunciation problems of Igala EFL learners of English. He found that this group of learners pronounced /θ/ as /t/. In the same vein, Linda's (2011) investigation into the pronunciation of Igbo-speaking learners of English in Nigeria revealed that her participants also substituted /θ/ with /t/, which existed in their NL. Similar studies have been conducted by Bui (2016) and Metruk (2017) on EFL learners' difficulties in the pronunciation of English interdental fricatives. These studies lend support to the role of negative transfer, which is prevalent in L2 pronunciation.

Regarding the pronunciation problem of initial CCs, as mentioned earlier, Group A participants used two learning strategies to facilitate the pronunciation of these clusters, namely *prothesis* (vowel insertion in the initial position) and *anaptyxis* (vowel insertion between cluster elements). This finding partially confirms the results of Arıkan and Yılmaz's (2020) study. Their Turkish-speaking participants also inserted a vowel between consonant clusters (anaptyxis); however, unlike the present study, they did not find examples of prothesis in their study.

This finding also confirms those of previous research on the pronunciation problems of non-Turkish L2 learners with diverse L1 backgrounds (e.g., Akbari, 2013; Berg, 2001; Broselow, 1983; Chang, 2004; Jabbari & Samavarchi, 2011; Lee et al., 2002). Most of these studies were concerned with prothesis; however, the results of the current study concerning the phonological process of anaptyxis confirm the findings of other researchers such as Boudaoud & Cardoso, 2009; Carlisle, 1991, 2001; Chan, 2009; Lin, 2001. Similarly, Akbari's (2013) study on Iranian EFL learners revealed difficulties with initial CCs and used epenthesis; however, she does not specify whether the epenthesis was prothesis or anaptyxis. Chang's (2004) research also indicated that Chinese EFL learners face difficulties in pronouncing initial English CCs. He attributed this difficulty and error to MT interference. As in Turkish, the syllable structure of Chinese permits only one consonant in the word-İnitial position. However, participants in Chang's study used anaptyxis and omitted the second element of the consonant cluster to simplify its pronunciation whereas the participants of the present study used both prothesis and anaptyxis. Unlike Chinese participants, they did not omit a cluster element.

The simplification strategy adopted by Group A and B students of the present study by inserting a vowel before CCs is similar to that of Jabbari and Samavarchi (2011). Participants, who were all native speakers of Persian, employed prothesis to simplify difficult consonant clusters in English. These authors maintained that MT interference is responsible for such errors since Persian, like Turkish, lacks initial CCs. There seems to be a natural tendency for students whose native language does not allow consonant clusters in the initial position to divide the complex CCs of English into two syllables through the phonological processes of prosthesis or anaptyxis, hence *simplification* strategy.

Another persistent error in this study was in the pronunciation of the velar nasal /ŋ/, with 83.33 percent frequency in the case of EFL learners and 17.33 by ESL students (Immersion Group). This is possibly due to the fact that Turkish has a phonetic spelling; hence students tend to pronounce all the letters in a word, e.g., *bring* as /brɪng/ and not /brɪŋ/. This finding is in line with that of Bekleye (2011), who also found that "among other factors, English spelling played an important role in the students' mispronunciations" (p. 94). He adds that "English spelling system makes it very difficult for learners to pronounce the words correctly by relying on spelling alone" (p.104).

Yet another frequent pronunciation error of Group A students was substituting the diphthong /əʊ/ with the mid-back rounded monophthong /ɔ/ in words such as *coke*, *notes*, *boat*, and *goats*. 76.21 percent of Group A participants had difficulties with this diphthong. This could be attributed to negative transfer since, as Demircioglu (2013) notes, "in the syntax [phonological] structure of Turkish language, two vowels are hardly ever in juxtaposition. So, Turkish learners are used to articulating the word-forming monophthong sounds because of the structure of Turkish language" (p. 2083).

The subsequent most frequent errors made by Group A learners were the two vowels /ɪ/ and /ʌ/, which were mispronounced as /i:/ and /a:/, respectively. These are cases of overdifferentiation as these vowel qualities do not exist in Turkish, as such. Therefore, such errors are possibly due to MT interference. This finding is in line with those of other researchers concerning the impact of pronunciation features of the learner's NL in the acquisition of L2 phonology, including Bekleye, 2011; Kwary and Paraningrum, 2006; and Opanachi, 2013. It needs to be pointed out that Group B students did not have any difficulty with these two phonemes, probably due to their further exposure to English.

Finally, there were errors in replacing the bilabial glide /w/ with the voiced labio-dental fricative /v/. This error seemed to be induced by the teacher's overemphasis on the correct pronunciation of /v/, leading to hypercorrection. It should be mentioned that in the case of Group B students, this error was insignificant (its percentage was only 5.12).

Conclusion

The overall conclusion drawn from this study is that the amount of exposure may impact the pronunciation performance of young learners. As the results demonstrated, Group B students, who received instruction through the TIP and were exposed to English during the whole school day, produced far fewer errors than Group A students, whose education was through the medium of Turkish. Ample exposure of Group B students to English led to their satisfactory performance in the pronunciation test. Therefore, it is suggested to syllabus designers of the mainstream Turkish education system to provide young learners further exposure to the TL to help them improve their oral fluency and pronunciation. If such provisions are made, it is anticipated that the students' oral fluency and pronunciation will improve to a large extent because as young learners, their vocal tract is flexible for the articulation of TL sounds. However, if the

teaching of pronunciation is postponed to later stages when learners become older, the task of acquiring correct or acceptable pronunciation will become more difficult due to the lateralization of the brain. As Neri et al. (2008) report, "several studies have shown that early exposure to an L2 can indeed lead to more accurate speech perception and production in that L2 than late exposure" (p. 393).

Considering the critical role pronunciation plays in maintaining intelligibility, teachers and syllabus designers should realize that EFL learners' mispronunciation may affect communication and distort comprehensibility. Unlike grammar, where language learners can use simple structures instead of complex ones, pronunciation cannot be simplified. However, the goal should not necessarily be native-like pronunciation but somewhat comfortably intelligible pronunciation so that communication is not impeded.

The nature of teaching pronunciation to children is different from that of teaching it to adult learners. In the latter case, a common method of teaching pronunciation has traditionally been pattern drilling of minimal pairs. Needless to say, the role of modelling and drilling in teaching pronunciation should not be underestimated. However, since children usually like to play and have fun, pronunciation can be taught indirectly through nursery rhymes, simple songs, tongue twisters, audio and videotapes, and children's storybooks. In all of these fun activities, emphasis should be given to choral practice rather than individual exercises so that the whole class would benefit from these exercises. In addition, choral practice has the advantage for shy students to feel more secure and relaxed in group activities.

Since it is neither possible nor necessary to teach all of the phonological features of English, teachers and syllabus designers should be selective and give priority to pronunciation problems that may cause maximum difficulties for a particular group of learners, both in terms of articulation and error gravity. In this regard, a comparison of the phonological features of English with those of the learners' mother tongue may prove helpful; however, this does not need to be a rigorous contrastive analysis. Rather, it would be sufficient for teachers to find out which English phonological features are absent in the learners' MT that may cause difficulties for them and give due attention to those problematic features.

The present study sought to address the pronunciation problems of young Turkish-speaking learners of English. However, no research is complete, and there remain many other questions to be answered as one of the objectives of the research is to generate further investigation. Accordingly, based on the limitations of the present study, the following topics are suggested for further research.

This study used a quantitative method of data collection. Future researchers might adopt a mixed-method approach in order to reach more conclusive results. In this study, convenience sampling was used. Future studies might use other types of sampling procedures. This study was restricted to learners' errors in segmental phonemes; future studies may consider suprasegmentals, such as stress and intonation.

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