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ACQUISITION OF ENGLISH DENTAL FRICATIVES /Θ/ AND /Đ/ BY YOUNG LEARNERS OF ENGLISH AS A SECOND LANGUAGE[2]

This study deals with the acquisition of English dental fricative sounds /θ/ and /ð/ by young Serbian learners. It consists of two parts, the theoretical part and the research. The aim of the study is to analyse the potential relation between perception and production language processes, to analyse the nature of possible substitutions of dental fricatives by L1 sounds and to analyse the reasons for the particular learner's choice of the substitution. The study consists of two tasks, perception task (listening) and production task (speaking). The findings of the perception task confirm that young learners have developed the ability to perceive a foreign language well. The production task shows that although they have a good ability to perceive the phonological level of the language, students still face problems with the production of non-native sounds. The participants were far more apt not to produce /θ/ and /ð/ as they really are than to perceive these dental fricatives. The most prominent substitution sounds appear to be /t/ and /f/ for voiceless and /d/ for voiced dental fricative. The production task also includes statistical data on substituting sounds calculated using relevant statistic methods for small samples.

Keywords: second language acquisition, pronunciation, consonants, dental fricatives, substitution

I INTRODUCTION

„The first principle that the teacher should keep in mind is that language is and remains the phenomenon of sound. It may have auxiliary help from gestures, pictures and writing, but it is basically sound."[1]

The English language is the first foreign language that children have in Serbian primary schools. Pupils start learning English at the very beginning of the first grade. Both Serbian and English belong to the Indo-European family of languages, but still there are numerous differences since Serbian belongs to Slavic group of languages and English belongs to the Germanic group of

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languages. There are differences on the phonological level, i.e. particular phonemes distinctive in English do not exist in Serbian, and some of them can be referred to as similar but not the same on the suprasegmental level according to the suprasegmental features, i.e. features of speech which generally apply to groups of segments or phonemes (Kelly 2000: 3). According to my personal findings prominent studies related to the acquisition of English phonology dealt with the Serbian affricates substitutions for the English postalveolar consonant clusters /tr/ and /dr/ (Čubrović 2007: 149) or general errors in pronouncing English consonants by young learners (Đokić 1974). This paper focuses solely on analysing the acquisition of dental fricatives /θ/ and /ð/ existing only in the English consonant inventory and their possible substitutions in Serbian consonant inventory by young learners of English as a second language.

As the result of non-existence of these sounds in the Serbian language, individual learners and English teachers may easily experience or notice the difficulties (Kelly 2000: 8) in acquiring these sounds and learners may produce substitutions of different sounds of a native language.

This paper provides the analysis, the discussion and implications for further research on how young Serbian learners acquire non-native dental fricatives of English both through the perception and through the production process of learning the language. The results of this study are used to analyse and explain if there exists the pattern for perception and production of these non-native sounds.

1. Acquisition of the phonological units of the second language

The study of the second language acquisition investigates the process of a learner's development of the aspects of any language or languages different from the native language. It is considered to be relatively young branch of linguistics that started its development in the second half of the twentieth century. The second language acquisition focuses on vocabulary matters, grammatical structures and phonological level of acquiring foreign accent through the learning process. It cannot be accurately claimed how strongly the native language influences morphology and syntax acquisition of the second language. Researchers agree that mother tongue strongly influences the acquisition of the second language phonology. It is common for native speakers to easily recognize non-native speakers on the basis of pronunciation. The research in the field of the second language acquisition was mainly used for the purpose of pedagogy and methodology of teaching. It was considered that the comparison of the native and the second language was fundamental (Lado, 1957: i) for "teachers in correctly assessing their learners' pronunciation needs" (Celce-Murcia et al., 1996: 11). It was assumed that by comparison of the two languages and their specific elements certain difficulties for learners could be predicted. Those elements of the second language that are similar to the learner's mother tongue would be easier for learners and those different from their mother tongue would cause difficulties (Lado, 1957: 2).

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For understanding the pronunciation segment of the second language acquisition a few additional factors should be considered: biological factors, socio-cultural factors, personality factors and the role of the native language (Avery, Ehrlich 1992, Introduction, 1).

The biological factor, i.e. age influences the second language acquisition of adult learners. There exists a common observation that adult second language learners almost always have a non-native accent while children who learn the second language from the early stage almost always attain native-like pronunciation (ibid.) One line of researchers supports the critical period hypothesis. According to this, a life period occurring around puberty is called lateralization, i. e. period when the process of assigning of certain functions of the two brain hemispheres is finished. It is considered, according to this hypothesis that the life period preceding lateralization, called critical period is a maximum capacity period for the second language acquisition (Celce-Murcia et al., 1996: 15).

The socio-cultural factor involves learners' attitude towards the second language culture. The more interested the learner is to accept the second language culture and its cultural identity, the more likely is it that he or she will sound like members of that culture. Personality factor is significant since it is a common observation that the learners who are open, confident and willing to learn are more often involved in interactions with native speakers (Avery, Ehrlich 1992, Introduction, 1).

1. 1. The Role of the Native Language in the Second Language Acquisition of Pronunciation

The nature of the second language accent is mostly determined by the native language (Avery, Ehrlich 1992, Introduction, 1). Those who learn the second language tend to transfer entire native language system into the learning process (Lado, 1957: 11). This transfer of the whole necessarily affects the ability both to speak and to hear the foreign language.

There are six recognizable theories dealing with the second language acquisition of pronunciation: contrastive analysis hypothesis, error analysis and avoidance, interlanguage analysis, markedness theory, language universals and information processing theory (Celce-Murcia et al., 1996: 15).

1. 1. 1. Contrastive Analysis Hypothesis

This most longstanding theory of phonological acquisition holds that the second language acquisition is filtered through the learner's first language. According to this theory, the units of the first language that differ or do not exist in the second language interfere with the second language and we call it transfer (Archibald, 1993: 19), i.e. negative transfer (Lado). This theory was initially widely accepted and later criticized for inability to predict the degree of the first language interference (Celce-Murcia et al., 1996: 20).

1. 1. 2. Error Analysis and Avoidance

Contrastive analysis could only point at a potential problem. The error analysis (i.e., an analysis of errors that occur in learner's system) can tell the intensity and the size of the potential difficulty (Banathy & Madarasz, 1969: 92). Richards (1971), another critic of contrastive analysis hypothesis, classified the errors related to the learning of second language into three groups: interlingual errors, caused by negative transfer from the first language, intralingual errors, errors related to the complex structure of the second language and developmental errors in the process of acquiring the second language, identical to those errors typical for young children acquiring their native language. Error analysis was criticized to focus much on learner's problems rather than learner's accomplishments. (Celce-Murcia, ibid.).

1. 1. 3. The Interlanguage Hypothesis

The term interlanguage was introduced by Selinker (1969) and referred to the second language linguistic code unique for a single learner. The term fossilization also comes from Selinker (1972) means the last stage of the interlanguage beyond which it is not possible for a learner to acquire any more from an L2.

1. 1. 4. Markedness Theory

The definition of markedness is that a phenomenon A in some language is more marked than B if the presence of A in a language implies the presence of B, but the presence of B does not imply the presence of A (Eckman, 1977: 320). This theory was initially proposed and developed by Trubetzkoy (1939) and later applied by Eckman (1977) as the markedness differential hypothesis. This theory predicted more facts than Contrastive Analysis Hypothesis. It predicted both the elements of a second language that would cause difficulty and the degree and the exact description of that difficulty (Eckman, 1977: 315). Those areas of the second language which differ from the native language and are more marked than the native language will be difficult for learners and those areas of the second language which are different from the native language but are not more marked than the native language will not be difficult (ibid. 321).

1. 1. 5. Language universals

This quest assumed that all languages share the same characteristics and only their surface is different. Most prominent representatives of this theory Jacobson (1941) and Chomsky (1986) developed the model of "universal grammar" and believed in an innate language acquisition device in all humans. This universal nature of all languages serves to analyse phonological acquisition of the second language and to predict and analyse possible difficulties and errors. Eckman (1991) combined his earlier work and language universals theory in order to propose Interlanguage Structural Conformity Theory which

states that the language universals of the native language are the same for the interlanguage, so interlanguages are influenced both with language universals and native language (Eckman, 1991: 24).

1. 1. 6. Information Processing Theory

This theory derives not from linguistics but from cognitive science. Learners tend to interpret new information in terms of their existing knowledge structures commonly referred to as "schemata" (Rumelhart and Norman, 1978). Those information are processed in two manners: via controlled processing (requiring attention and awareness) and via automatic processing (uncontrolled, not modified, not inhibited and of unlimited capacity), (Schneider and Schiffrin, 1977). The acquisition of the L2 phonological system is automatic while higher-level tasks require controlled processing.

2. Acquisition of English dental fricatives in the Serbian language

Almost without exception dental fricatives are problematic for ESL learners. Usually student's native language determines the substitution of these sounds. In general, voiceless /θ/ is replaced by a voiceless sound and /ð/ is replaced by a voiced sound. (Avery, P., Ehrlich, S., 1992: 104). That is why learners should avoid using /t/ or /s/ for /θ/ and /d/ or /z/ for /ð/ (Gimson, 1962: 185). In the Serbian language there is no sound than can match a corresponding dental fricative sound of English. This is the reason why Serbian speakers of English as L2 substitute dental fricatives using Serbian sounds of similar features. These sounds can be non-contrastive, i.e. they will not create semantic confusion. They can be contrastive as well, i.e. they can cause difficulties in the use of the foreign language in general. (Avery, P., Ehrlich, S., 1992: 39) Serbian consonant system is very complex with large variety of shades and speakers can easily find close approximations for non-native sounds. (Čubrović, 2007: 150) Non-native dental fricative sounds are usually replaced by /t/ and /d/, rarely by /s/ or /z/. (Đokić, 1974: 14)

The aim of this study is to investigate the acquisition of English dental fricatives /θ/ and /ð/ by L1 Serbian learners of English as a second language. The researcher's assumption is that there exists a problem in acquiring these sounds as they are distinctive in the English language and non-existing in Serbian. Learners' strategies are to substitute these sounds with the closest sounds from L1. A few questions arise: is incorrect pronunciation of the sound the result of the incorrect perception and is there a connection between these two processes? Do individual speakers follow any clear patterns when substituting non-native sounds? Which L1 sound is the most prominent substitution of L2? Does the position of the dental fricative sound inside a word play any role in how the participants pronounce the sounds and whether the position influences the choice of the substituting sound?

For the above mentioned reasons, two tasks were performed, a perception and a production task. All the words used in both tasks were chosen in such a way to include sounds in initial, medial and final position in a word.

II METHODOLOGY AND PROCEDURE

The Participants

10 Serbian students from a Primary School in Čačak, aged 10 and 11 took part in the research. The participants were from the same class. Their taking part in the study was entirely voluntary and they asserted this with their written consent. Their level of English was not measured by a placement test, yet it is described by their English teacher as pre-intermediate. The participants started learning English at the age of 7 and during this period they have been having 2 forty-five minutes English periods per week.

The Materials

The materials included a recording of 10 minimal pairs for the perception task read by the participants' teacher, and a sheet of paper with ten pictures in full colour for the production task. Serbian translations were given below the pictures for students to feel more confident and to pronounce the words free from the burden of weak knowledge of vocabulary. HP ProBook 4520s PC was used both to play the perception task minimal pairs and for recording the production task.

The Procedure

The study took place in a Serbian primary school on May 26th, 2011. It was carried out with the consent of the school master and with the help of one of the teachers from the school whose task was to let individual students one by one come into a quiet classroom. The study was organized before the lessons started in order to avoid the noise from the hall and from the other classrooms. Taking part in the study was entirely voluntary.

The students were called out individually into the classroom. Only the participant and the researcher were in the room at a time. At the beginning each student signed their consent to take part in the study on the form prepared in advance by their teacher, now the researcher. Eventually, clear instructions were given to each participant in their native language with all needed clarifications.

The study included two tasks, the perception and the production task. The perception task was carried out first, since the production of the targeted dental fricatives would spoil the naturalness of their perception and would activate their "better ear" for dental fricatives. Also, in general when listening

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comprehension precedes speaking, the learner's initial experience includes more correct responses (Allen, H., Campbell, S., 1972: 98)

Perception task - Minimal pairs

Within the perception task the participants listened to 10 minimal pairs and their task was to decide whether these pairs were the same or different. Five pairs were the same and five different played from the recording in random order. In cases of different word pairs, one of the words contained one dental fricative and the second word contained other sound instead of the dental fricative sound, e.g. thank-tank. The sounds used instead of the dental fricatives in these minimal pairs were not just any sounds. According to earlier studies based on the pronunciation of English dental fricatives in different L1s the researcher supposed which sounds may be used as substitutions for dental fricatives by Serbian learners. The pairs of words in the recording were read loud and clearly and at a slow pace. The recording was played on HP ProBook 4520s PC. The words were read by the researcher, i.e. the students' English teacher for the current school year. The classroom was quiet and the experiment took place before the lessons so the participants were able to hear the recording well. The participants were given a form and their task was to write down "D" if they thought pairs different and "S" if they considered the pairs the same. Only answers for different pairs were taken in account for the study, i.e. 5 minimal pairs.

The Production Task - Naming Pictures

After the perception task the participants were given a sheet of A4 paper containing 10 pictures in colour. In order to avoid any possible confusion the words in mother tongue were written below each picture. Before the recording started the researcher asked each participant if they were familiar with the target words and all the participants gave affirmative answers. The pictures were selected in such way that each picture contained a word with a dental fricative. 10 pictures represented words with 10 dental fricatives, 6 voiceless /θ/ and 4 voiced /ð/.

III RESULTS AND ANALYSES

Results: Perception task

Results of the perception task are presented in Table 1. Within the perception task 10 participants listened to 10 minimal pairs and their task was to decide whether these pairs were the same or different. 5 pairs were different and only those were taken into consideration for this study. One word in each pair had one of the dental fricatives and the other word in the pair had a substituting sound similar in phonological features to the corresponding dental

fricative. Each participant gave 10 answers, 100 altogether. 5 pairs were taken into consideration, i.e. 50 answers all together. The summary of the results is presented in Table 1. The table shows the number of correct answers for each participant where "D" is written and incorrect perception where "S" is written.

The pairs that contained different sound were:

1. thank - tank
2. they - day
3. father - fader
4. mouth - mouse
5. bathe - bade

Table 1 - Results of the Perception Task

Different minimal pairs	2	3	7	9	10	Total
1	D	D	D	S	D	4/5 (80%)
2	D	D	D	D	D	5/5 (100%)
3	D	D	D	S	D	4/5 (80%)
4	D	D	S	D	S	3/5 (60%)
5	D	S	D	D	S	3/5 (60%)
6	D	S	S	D	D	3/5 (60%)
7	D	D	D	S	D	4/5 (80%)
8	D	D	D	D	S	4/5 (80%)
9	D	S	D	S	D	3/5 (60%)
10	D	D	D	S	D	4/5 (80%)
Total correct answers	10/10 (100%)	7/10 70%)	8/10 (80%)	5/10 (50%)	7/10 (70%)	37/50 (74%)

Analysis: Perception Task

What can be noticed at first glance is the fact that 90% of the participants made an error at some point during the listening task. Furthermore, nobody made more than three errors, which means that the smallest score was 60%

and 40% of the participants had that minimum score. The majority of the participants gave 4 or 5 correct answers and scored between 80% and 100%, 60% of them. Maximum number of correct answers was 50 and the participants scored 37 which gives a relatively high score of 74%. The percentage of incorrect answers was 26%.

The best score was in the pair thank - tank, i.e. voiceless dental fricative vs. voiceless dental stop. All the participants answered correctly and this score was the highest one in this task.

The lowest score was in pair mouth – mouse, i.e. voiceless dental fricative vs. voiceless alveolar fricative. Half of the participants could not distinguish between these two and the score was the smallest, 50%,

Although the score of this task was high, 74% of correct answers, the production task results will show the real problematic nature of dental fricatives acquisition. The conclusion can be that though the perception is on a high level, the production of the same units remains problematic for Serbian speakers of ESL.

Results: Production Task

After the perception task the production task was carried out. The participants were given a sheet of A4 paper containing 10 pictures in colour to name. The pictures were selected in such a way that each word corresponding to the picture contained a dental fricative in initial, medial or final positions. 10 pictures represented words with 10 dental fricatives, 6 voiceless /θ/ and 4 voiced /ð/. 10 participants read ten words which gives the number of 60 possible correct answers for voiceless and 40 possible correct answers for voiced dental fricatives, all together 100 cases. The results of the production task were given in Table 2 for the words containing voiceless dental fricatives and in Table 3 for the words containing voiced dental fricative. The aim of the study was not only to investigate the nature of the possible substituting sounds but also to try to conclude if there exist other factors for the substitutions, such as factors within the speaker, difference in position in a word, non-existence of a distinctive feature.

Table 2 - Results of the Production Task - Substitutions of voiceless dental fricative

/θ/	Thirty	Thursday	Teeth	Math	Bathroom	Tooth-brush
1	/f/	/t/	/f/	/θ/	/θ/	/θ/
2	/t/	/t/	/f/	/s/	/θ/	/θ/
3	/θ/	/θ/	/θ/	/θ/	/θ/	/t/
4	/f/	/f/	/t/	/t/	/f/	/t/
5	/t/	/t/	/t/	/t/	/f/	/t/
6	/t/	/t/	/θ/	/θ/	/θ/	/θ/

7	/t/	/t/	/t/	/t/	/f/	/t/
8	/t/	/t/	/θ/	/θ/	/θ/	/θ/
9	/f/	/f/	/θ/	/θ/	/θ/	/θ/
10	/θ/	/θ/	/θ/	/θ/	/θ/	/θ/
…	/t/ 5/10 (50%) /f/ 3/10 (30%)	/t/ 6/10 (60%) /f/ 2/10 (20%)	/t/ 3/10\ (30%) /f/ 2/10 (20%)	/t/ 3/10 (30%) /s/ 1/10 (10%)	/f/ 3/10 (30%)	/t/ 4/10 (40%)
Σ	8/10 (80%)	8/10 (80%)	5/10 (50%)	4/10 (40%)	3/10 (30%)	4/10 (40%)
						32/60 (53%)

Table 3 - Results of the Production Task - Substitutions of voiced dental fricative

/ð/	this table	these tables	grandmother	grandfather	
1	/ð/	/ð/	/d/	/d/	
2	/d/	/d/	/d/	/d/	
3	/ð/	/ð/	/d/	/d/	
4	/d/	/d/	/d/	/d/	
5	/ð/	/ð/	/d/	/d/	
6	/ð/	/ð/	/d/	/d/	
7	/d/	/d/	/d/	/d/	
8	/d/	/d/	/d/	/d/	
9	/ð/	/ð/	/d/	/d/	
10	/d/	/d/	/d/	/d/	
Σ	5/10 (50%)	5/10 (50%)	10/10 (100%)	10/10 (100%)	30/40 (75%)

Analysis: Production Task

At the first glance, it is noticed in Table 2 and in Table 3, that /t/ and /f/ were used as substituting sounds for the voiceless fricative /θ/and /d/ was used as substitution for the voiced dental fricative /ð/. /s/ was only used once so it will not be analysed further in this study. Total number of answers was 100 and total number of incorrect answers was 62, 32 substitutions of /θ/, i.e. 52% and 30 substitutions of /ð/, i.e. 48%.

The participants used two variations of stops as the most prominent substitutions, 51/62 (82%) and labio-dental fricative 10/62 (16%).

Most of the errors for voiceless dental fricative sounds occurred in words where this particular sound is in initial position, followed by a vowel - sixteen out of twenty cases (80%). The same conclusion can be brought for errors that occurred in words where the voiced dental fricative is in initial position. The number of errors here is even higher, we should say "problematic" - twenty out

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of twenty cases (100%). When voiced dental fricative was in medial position 50% of the participants substituted this sound with dental stop /d/. As for the voiceless dental fricative in medial position the errors were present in 35% of cases and in final position in 45% of cases.

For the sound /θ/ in initial position substitutions with /t/ were present in 55% of cases and with /f/ in 25% of cases. In medial position /t/ was used instead of /θ/ in 20% of cases and /f/ was used in 15% of cases. In final position /t/ was used in 30% of cases and /f/ was used less, in 10% of cases. There were two words containing voiceless dental fricative in medial position. In the word bathroom fricative was substituted in 30% of cases and only by labio-dental voiceless fricative /f/ and in the word toothbrush fricative was substituted in 40% of cases and only by voiceless dental stop /t/. According to this difference a hypothesis can be established that the position of voiceless dental fricative in a word may determine both the choice of the substitution used by a learner and the assumption of the possibility for appearance of substitutions. These findings may describe non-native fricative substitutions as word dependant related to both the position in a word and the nature of the surrounding sounds. These findings can be analysed through the principles of language universals hypothesis: Jakobson's hierarchy (1941) – stops → nasals → fricatives – predicts that language with fricatives will necessarily have nasal and stops but not vice versa. (Celce-Murcia et al., 1996: 23) Macken and Ferguson (1987) state universal patterns of phonological acquisition: stops are acquired before nasals and nasals are acquired before fricatives. According to this, in the early stages of acquisition fricatives will be replaced by stops (ibid.). This may be applied to the former hypothesis of the study. The participants followed the universal markedness relations and replaced fricatives by stops. In those cases when they replaced dental fricative by labio-dental fricative they tried to solve phonologically problematic tasks by following the pattern of the substitution by the closest sound according to the place of articulation since Serbian language lacks dental fricative sounds.

The above presented results from the production task are statistically significant: for /t/ substitution the results are statistically highly significant ($p<0.01$), for /f/ substitution statistically significant ($p<0.05$) and for /d/ substitutions also statistically significant ($p<0.05$).

The total number of substitutions of voiceless dental fricative is highly statistically significant ($p<0.01$) and for the voiced dental fricative statistically significant ($p<0.05$).

As for the position of the dental fricative within a word, voiceless dental fricative was substituted by /t/ in initial, medial and final position. The difference between medial and final position is highly statistically significant ($p\leq0.01$). As for the substitution by /f/ the difference in positions is not statistically significant. Voiced dental fricative substitutions by /d/ in initial and medial positions are not statistically significant but they reveal tendency to be statistically significant which can be explained by the sample size (Table 4 and Table 5).

Table 4 – Results of the Production Task – Substitutions of voiceless dental fricative in initial, medial and final positions

/θ/	Initial position	Medial position	Final position
/t/	11/20 (55%)	4/20 (20%)	6/20 (30%)
/f/	5/20 (25%)	3/20 (15%)	2/20 (10%)
/s/	/	/	1/20 (5%)
Total number of substitutions	16/20 (80%)	7/20 (35%)	9/20 (45%)

Table 5 – Results of the Production Task – Substitutions of voiced dental fricative in initial and medial positions

/ð/	Initial position	Medial position
Substitutions by /d/	20/20 (100%)	10/20 (50%)

Analysis within-speaker - Production Task

Table 6 and Table 7 give scores for each participant's result of the production task and the errors they made. Tables are made separately for words containing voiceless and for words containing voiced dental fricative. Five out of ten participants (50%) did not use voiced dental fricative at all and substituted all of them by dental stops. Two out of ten participants (20%) did not use dental fricatives at all and they pronounced exclusively substitutions.

Table 6 – Results of the Production Task – Within-speaker substitutions of voiceless dental fricative sound

/θ/	thirty	Thurs-day	teeth	Math	bath-room	tooth-brush	…	Σ
1	/f/	/t/	/f/	/θ/	/θ/	/θ/	/t/ 1/6 (17%) /f/ 2/6 (33%)	3/6 (50%)
2	/t/	/t/	/f/	/s/	/θ/	/θ/	/t/ 2/6 (33%) /s/ 1/6(17%) /f/ 1/6 (17%)	4/6 (66%)
3	/θ/	/θ/	/θ/	/θ/	/θ/	/t/	/t/ 1/6 (17%)	1/6 (17%)
4	/f/	/f/	/t/	/t/	/f/	/t/	/t/ 3/6 (50%) /f/ 3/6 (50%)	6/6 (100%)

5	/t/	/t/	/t/	/t/	/f/	/t/	/t/ 5/6 (83%) /f/ 1/6 (17%)	6/6 (100%)
6	/t/	/t/	/θ/	/θ/	/θ/	/θ/	/t/ 2/6 (33%)	2/6 (33%)
7	/t/	/t/	/t/	/t/	/f/	/t/	/t/ 5/6 (83%) /f/ 1/6 (17%)	6/6 (100%)
8	/t/	/t/	/θ/	/θ/	/θ/	/θ/	/t/ 2/6 (33%)	2/6 (33%)
9	/f/	/f/	/θ/	/θ/	/θ/	/θ/	/f/ 2/6 (33%)	2/6 (33%)
10	/θ/	/θ/	/θ/	/θ/	/θ/	/θ/	/θ/ 6/6 (0%)	0/6 (0%)
								32/60 (53%)

One out of ten participants (10%) did not make any errors in pronouncing voiceless dental fricative and one made one error (10%). 80% of the participants made two or more errors pronouncing /θ/,which makes the range of errors form 33% up to 100%.

Table 7 – Results of the Production Task – Within-speaker substitutions of voiced dental fricative sound

/ð/	this table	these tables	grandmother	grandfather	Σ
1	/d/	/d/	/ð/	/ð/	2/4 (50%)
2	/d/	/d/	/d/	/d/	4/4 (100%)
3	/d/	/d/	/ð/	/ð/	2/4 (50%)
4	/d/	/d/	/d/	/d/	4/4 (100%)
5	/d/	/d/	/ð/	/ð/	2/4 (50%)
6	/d/	/d/	/ð/	/ð/	2/4 (50%)

7	/d/	/d/	/d/	/d/	4/4 (100%)
8	/d/	/d/	/d/	/d/	4/4 (100%)
9	/d/	/d/	/ð/	/ð/	2/4 (50%)
10	/d/	/d/	/d/	/d/	4/4 (100%)
					30/40 (75%)

As for voiced dental fricative all the participants used substitutions - 100%. 50% of the participants substituted 50% of the voiced fricative and 50% of the participants substituted all of the voiced fricatives (100%). One of the research questions was related to the topic if individual speakers follow any clear patterns when substituting non-native sounds. Here the following conclusion can be drawn: the most participants substituted dental fricative for dental stop when the dental fricative is in the initial position in a word.

According to this study, substitutions in medial and final position do not seem to follow any clear patterns for the choice of substitution.

Connection between the perception and the production process

In chapter 3 the research question was raised whether incorrect pronunciation of the sound is the result of the incorrect perception and whether there is a connection between these two processes. By analysing the results of the two tasks of the study, the following findings can be observed. First, the participants reached a far better score in the perception task (74% of correct answers) than in the production task (38% of correct answers) where in the perception task the least errors were made when differentiating between both voiced and voiceless dental fricatives and voiced and voiceless dental stops, in the production task the most errors were made when producing these sounds, i.e. dental fricatives were substituted by dental stops /t/ and /d/. Also the correlation between these two tasks is not statistically significant ($p>0.05$).According to the results of the study it cannot be concluded that the perception of non-native sounds is significant for the production of the former.

IV CONCLUSION

The hypothesis which was established at the beginning of this paper was that since there is no such sound as English dental fricative in the Serbian language there may appear problems in acquisition of the former by Serbian learners this proved to be true, statistically confirmed and statistically significant. Through the two previously explained tasks it was proved that in both perception and production processes there are certain difficulties present

though not equally present in these two. The question of the wrong perception leading to wrong production was not proved true, since successfully perceived sounds did not lead to the success of the production task that followed.

It was also proposed that these dental fricatives would be substituted by other sounds which was also proved in this study and those substitutions were /t/, /f/ and /d/, all significant. The position of dental fricative within the word proved significant.

Finally, the markedness of phonological features, i.e. unmarkedness proved to determine the appearance and the choice of the substitution of a dental fricative by labio-dental fricative. Also, the language universals hypothesis proved to be relevant for substituting dental fricatives by dental stops.

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УСВАЈАЊЕ ЕНГЛЕСКИХ ДЕНТАЛНИХ ФРИКАТИВА /θ/ и /ð/ КОД МЛАЂИХ УЧЕНИКА У УЧЕЊУ ЕНГЛЕСКОГ ЈЕЗИКА КАО СТРАНОГ

Резиме

Ова студија односи се на то како говорници српског језика као матерњег усвајају у процесу учења енглеског језика енглеске денталне фрикативе /θ/ и /ð/.Студија се састоји из два дела: теоретског дела и истраживања. Циљ студије јесте да анализира могућу повезаност између процеса перцепције и репродукције језика, да анализира природу могућих замена денталних фрикатива гласовима матерњег језика и да анализира разлоге за избор извесних замена гласова од стране оних који уче страни језик. Студија се састоји од два задатка: први је тест перцепције а други је тест репродукције. Резултати теста пецепције потврдили су да су учесници у истраживању добро развили способност перцепције гласова страног језика. Тест репродукције показује да иако имају развијену способност да препознају фонолошки ниво страног језика, учесници у истраживању се ипак сусрећу са проблемом када изговарају гласове који нису својствени њиховом матерњем језику. Учесници у истраживању су далеко боље препознавали денталне фрикативе енглеског језика у тесту перцепције него што су исте успевали да изговоре у тесту репродукције. Најзаступљенији гласови коришћени као замена денталних фрикатива јесу /т/ и /ф/ за безвучне и /д/ за звучне денталне фрикативе. Тест репродукције садржи статистичке податке о замени гласоваизрачунате коришћењем релевантне статистицке методе за истраживање на малим узорцима.

Кључне речи: усвајање другог језика, изговор, сугласници, дентални фрикативи, замена

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