SLIPS OF THE TONGUE: A PSYCHOLINGUISTIC STUDY IN TURKISH LANGUAGE

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The purpose of this study is to analyze whether the number of the slips of the tongue (SOTs) of the native speakers of Turkish illustrate any important differences based on age, gender and educational background differences and whether the speaker planned his/her speech in advance or not. To accomplish this, four different groups (each consisting of 7 males and 7 females) were comprised of the native speakers of Turkish in the ages between 4 and 8 years of age, 18-23, and 33-50-year-olds in two groups with different educational levels. The speakers had no hearing loss, developmental language disorder or neurological problem. Via face to face interviews, prepared and unprepared speech samples (for children unprepared speech samples only) of at least 300 words of each participant were collected and transcribed. Wilcoxon Signed-Rank Test, Mann-Whitney U Test and Kruskal–Wallis One-Way Analysis of Variance were used for the statistical analysis of the data. As a result, it has been found out that children speak less fluently in terms of SOTs than the speakers in the other two age groups. It has also been revealed that speakers in 18-23 and 33-50 age groups produce more SOTs in their prepared speech than their unprepared speech. In terms of gender differences, more SOTs have been observed in unprepared speeches of males than females in 18-23 age group. Based on educational background analysis, it has been found out that 33-50 year old male speakers with low education profile produce more SOTs in their prepared speech than the ones with high education profile in the same age group. By enriching the knowledge about the mechanisms underlying SOTs, and by lighting the way for future research, results of this study will provide an important contribution in putting forward hypotheses to prevent SOTs in the spontaneous speech of Turkish people.

Keywords: Psycholinguistics, Speech production, Slips of the tongue, Speech disfluency.

1. Introduction

As it is stated in the proverb (derived from the poem of Alexander Pope (1711)), "to err is human" (qtd. in Dempsey, 2004), human speech is far from being perfect. Everyday speech is full of different kinds of speech errors, which are commonly referred to as slips of the tongue. A slip of the tongue can be defined as a type of speech error or speech disfluency in which sounds, syllables or whole words change their locations between two or more words in an utterance. In a slip of the tongue, a speaker wants to say something but unintentionally says something else.

There are many different definitions of a slip of the tongue in the literature. Sturtevant (1947) defines a slip of the tongue as "a lapse" or "a speech error" as "an unintentional linguistic innovation." As a reflection of this definition, Boomer & Laver defines it as an involuntary deviation in performance from the speaker's current phonological, grammatical or lexical

intention (qtd. in Fromkin, 1973: 217). A widely accepted definition is from Dell (1986: 284) who defines a slip of the tongue as an unintended, habitual deviation from a speech plan. By using this definition, Poulisse (1999: 91) sets two criteria to operationalize the notion of slips of the tongue. The first one is that there must be an error. The second one is that the speaker must be able to repair the error. Criterion 1 is especially important in the identification of slips of the tongue. It helps to exclude some other types of speech errors, disfluencies and disorders like repetitions, stuttering, inappropriate lexical items, false starts, and stretches of speech, etc. Criterion 2 also helps to exclude some habitual errors occurring repeatedly in the speaker's speech without there being any correct instances like "but my father <u>don't</u> like" from being SOTs (Poulisse, 1999: 92). Baars (1992) characterized SOTs as inadvertent errors, which are beyond the speakers' control, which are not representative of their ordinary language use, and which can be corrected by them if they are asked to do so. So rather than being the result of ignorance or forgetfulness, they are the result of problems in controlling the speech production process (qtd. in Poulisse, 1999: 1). By extending this idea Jaeger (2005: 2) states that a slip of the tongue is a one-time error in speech production planning. The speaker intends to utter a particular word, phrase, or sentence, and during the planning process something goes wrong so that the production is at odds with the plan. According to her, it is not simply a misarticulation (e.g. stuttering or mumbling), a lack of knowledge/memory slip (where the speaker does not know the correct word or cannot remember it at the moment), or a false start (where the speaker changes his or her mind about the propositional content of the utterance). Speakers themselves will consider the utterance to contain an error, and will often correct it immediately, sometimes with commentary on the silliness of what they have said.

According to Aitchison (2007: 20), everybody's tongue slips now and again, most often when the tongue's owner is tired, a bit drunk or rather nervous. Cutler and Henton (2004: 38) emphasize the prevalence of SOTs in spontaneous human speech by stating that most fortunate of all, even among speech researchers, are those who study SOTs. Where there is speech, there are slips. Errors of this type are common enough to be called normal and they are valuable sources of data for understanding the complex nature of language and language production.

This study will be a short review of SOTs literature, and it will analyze whether the number of the SOTs produced by the native speakers of Turkish illustrate any important differences based on age, gender and educational background differences and whether the speaker is prepared or unprepared.

2. Literature Review

The history of SOT research dates back to the year 1895 in which Meringer and C. Mayer published a study on "Mistakes in Speech and Reading". In this study, the researchers tried to examine the rules governing SOTs. Their main aim was to deduce from these rules the existence "of a definite psychic mechanism," "whereby the sounds of a word, of a sentence, and even the words themselves would be associated and connected with one another in a quite peculiar manner" (qtd. in Freud, 1901: 71-72).

Although Meringer and C. Mayer's work was a pioneer work in the SOTs literature, most people associate the study of SOTs with Freud who did not agree with the viewpoints of Meringer and C. Mayer. He had dealt with SOTs in his book "Psychopathology of Everyday Life" (1901). This work is seen as a reflection of Freud's thinking in terms of humanity. According to Freud, there is a fundamental conflict between the demands of social life and our instinctual urges. Society demands that sexual and aggressive instincts be repressed or pushed

from conscious awareness. Freud argued that what is repressed returns to haunt us in disguise, and SOTs bear the traces of repressed desires and intentions (qtd. in Billig, 2002: 453). According to this view; for example, Freud (1901/1958) interpreted an error from a patient who replaced the German word "schwer" (heavy) with "schwest" (first syllable of sister) as evidence for the speaker's unconscious concern about his sister (qtd. in Dell, 1995: 3). Freud (1901:71) thinks that what we observe in normal persons as SOTs gives the same impression as the first step of the so-called "paraphasias" which manifest themselves under pathologic conditions. Although some later studies have proven that SOTs reveal thoughts other than repressed intentions and desires, Freud's work's seen as very influential in speech errors literature. The very common "Freudian slip" term which is a verbal or memory mistake that is believed to be linked to the unconscious mind can be seen a result of this influence, and common examples of Freudian slips include an individual calling his or her spouse by an ex's name, saying the wrong word or even misinterpreting a written or spoken word (Cherry, 2013).

The neurolinguistic perspective to SOTs has also aroused interest in the SOTs research literature, and the question of what the brain does before the SOTs has been tried to be answered by some researchers. In one of these studies, conducted by Möller et al. (2007: 1176), the experimental manipulation successfully induced spoonerisms that were preceded by increased negativities following: the presentation of a target word pair and the presentation of the vocalization prompt. In both cases, a similar frontocentral scalp distribution was observed. The main generator of both effects, as revealed by two independent source localization methods, was located in medial frontal cortex (SMA). Still, in the light of the spatial resolution of source localization methods, it could not be possible for researchers to completely rule out the anterior cingulate region as a locus of the effect (Möller et al., 2007: 1176).

From a linguistic perspective, Dell (1995: 190) emphasizes that slips can be seen in any kind of linguistic unit, but they are mostly encountered between words, phonemes and morphemes. They can occur on both syntactic level and phonological level. As a result of this, the main problem for researchers related to SOTs has been detecting the slips and obtaining SOTs data. Still, the slip of the tongue phenomena has been studied by a lot of researchers since they are excellent sources of data for understanding the speech production process better.

In the SOTs literature, there are few studies on children's SOTs. Still, Jaeger's (2005) research on kid's SOTs is a very comprehensive data set of children's SOTs, and here it will briefly be reviewed from a psycholinguistic perspective.

Jaeger (2005: 15) analyzed 1,383 SOTs of 60 children, including her 3 children, who are in the ages between 1; 10–5; 11. The data were collected in naturalistic settings. Jaeger (2005: 46) states that a child cannot make an error on a construction until the child has learned that construction correctly. Therefore, the onset of slips depends on the age at which individual children develop various language constructions. In her study, she also noted that SOTs in children did not become common until age 1; 7.

In Jaeger's work (2005: 51-56), it was suggested that children make most of the same types and proportions of slips as adults. Although, there had been some minor differences, these differences were not treated too seriously since they represented a very small proportion of the overall data. Few errors made only by children were explained as the process of hypothesis testing in the setting up of morphological representations for specific words. The errors made predominantly by adults were explained by adults' having a more detailed representation of the morphological and prosodic structure of words and the formal representation of orthography. In terms of the proportions of slips, it was found out that children produced a higher percentage of phonological errors than adults, and fewer lexical and syntactic errors. In sum, although there are

some minor differences observed, it can be concluded that children's speech production processes can be accommodated within the adult models.

Other than these different perspectives in SOTs research another important issue in the literature is the classification of SOTs. SOTs may occur in different shapes. However, some researchers suggest that there are two main types of SOTs (Aitchison, 2007: 246; Field, 2004: 269). One is selection errors, and the other is assemblage errors. Selection errors are mainly defined as a problem in retrieving a word from the lexicon. It might involve the substitution of one word for another (castanets for clarinets), or it might result in words or non-words which are blends of two related items (expect & suppose-expose; shout & yell-shell) (Field, 2004: 269). These types of errors are also labelled as "slips of the brain" by Aitchison (2007: 246).

Assemblage errors are errors in which the appropriate lexical item is retrieved but is not produced correctly (patter-killer for caterpillar), or a whole string of words is planned but is delivered in the wrong syntactic order (Field, 2004: 269).

However, Carroll (2008: 195) has a more extensive classification of SOTs which consists of eight categories. One other category can also be added to this classification and a nine-category classification some of which overlaps Aitchison's subcategories can be made. Here, the classification is very general, and it does not classify SOTs according to the linguistic unit involved. According to this generally accepted classification major types of SOTs are shifts, exchanges, anticipations, perseverations, additions, deletions, substitutions, blends and misdeviations.

A shift is the addition of a linguistic unit that is deleted elsewhere. In other words, the speech unit moves to a different location, as in saying "she decide to hits it" instead of saying "she decides to hit it" (Carroll, 2008: 195). In exchanges, two units swap positions. Exchanges are, in effect, double shifts in which two linguistic units exchange places. An example of exchanges is saying "fancy getting your model renosed" instead of saying "getting your nose remodeled"(Carroll, 2008: 195). Anticipations occur when a later segment takes the place of an earlier one. In other words, a speech unit is activated too early. They differ from shifts in that the segment that intrudes on another also remains in its correct location and thus is used twice as in the examples of "bake my bike" (take my bike), "leading list" (reading list), and "sky is in the sky" (sun is in the sky) (Carroll,2008: 195). In perseverations, a speech unit is activated too late. An earlier segment replaces a later item. Some examples of this type are: "he pulled a pantrum" (tantrum), and "beef needle" (beef noodle) (Carroll,2008: 195). Additions add linguistic material. A unit is added as in the example of "I didn't explain this clarefully enough" (carefully enough) (Carroll,2008: 195). Contrary to additions, deletions leave something out. A unit is deleted as in the example of "same sate" (same state) (Carroll, 2008: 195). Substitutions occur when one segment is replaced by an intruder. In other words, a unit is changed into a different unit. An example can be "at low speeds it's too light" (heavy) (Carroll, 2008: 195). In blends, two speech units are combined. Blends apparently occur when more than one word is being considered, and the two intended items "fuse" or "blend" into a single item. An example of blends is: "that child is looking to be spaddled" (spanked/paddled) (Carroll, 2008: 195). Finally, in misdeviations, the wrong unit is attached to a word. An example of misdeviations is: "intervenient node" (intervening node) (Maynell, 2003: 3).

Based on this research literature; in this study; age, gender, educational background and speech situation (prepared or unprepared) variables in the production of SOTs in Turkish language have been analyzed from a psycholinguistic perspective.

3. Methodology

Detectability of SOTs has been seen as a major problem for researchers who study SOTs. In the literature, as stated by Poulisse (1999: 96), most examples of SOTs have been gathered by the "pen and paper" method in which the researcher simply writes down what he heard. The reliability of this method has been criticized by a lot of researchers. One of these researchers was Anne Cutler. Cutler (1982) raised three problems in this respect. The first one is that not all SOTs are detected because listeners tend to divide their attention between the contents and the form of speech. The second one is that of perceptual bias in the sense that some SOTs may be easier to detect than the others. The last one is that the collection of SOTs may also be biased as a result of distributional differences in the language as in the example of having more content words than function words (qtd. in Poulisse, 1999: 96-97).

Because of these reasons mentioned above, many researchers such as Cutler et al. (1982: 805) preferred gathering SOTs data via using conversations transcribed from tape recordings. In this study, the same methodology was used. First, four different groups (each consisting of 7 males and 7 females) were comprised of native speakers of Turkish in the ages between 4 and 8 years of age, 18-23, and 33-50-year-olds in two groups with different educational levels. The speakers had no hearing loss, developmental language disorder or neurological problem. Then, prepared and unprepared speech samples of at least 300 words of each participant were collected via face to face interviews and transcribed. Since it was difficult to get prepared speech samples of the children, just unprepared speech samples were gathered and analyzed in this age group. Before gathering the prepared samples of speech the questions, which are going to be asked during the interview, were given to the participants in advance, so they could think about and plan their speech. For the unprepared speech interview, the participants answered the questions, which they had not seen before, in a spontaneous way. Topics for the face to face interviews were chosen from common areas of interest such as jobs, hobbies, career, directions, cooking instructions, etc. On the transcriptions, each slip of the tongue was marked by hand. The slip of the tongue rates of each participant were determined by calculating the average number of the SOTs in every 100 words. The gathered data was analyzed under the light of different variables such as age, gender, educational background and prepared / unprepared speech situations.

4. Data Analysis

Wilcoxon Signed-Rank Test, Mann-Whitney U Test and Kruskal-Wallis One-Way Analysis of Variance were used for the statistical analysis of the data.

4.1. Age Variable

The differences among the unprepared speech SOT rates in three different age groups have been analyzed with Kruskal-Wallis One-Way Analysis of Variance. The results are as in Table 1:

Table 1. The SOT Rates of Three Different Age Groups in Unprepared Speech.

UNPREPARED SPEECH						
4-8 year olds		18-23 year olds		33-50 year olds		
Mean ± SD	Median (Min_Max)	Mean ± SD	Median (Min_Max)	Mean ± SD	Median (Min_Max)	p
0.75±0.51	0.6 (0.21-2.20)	0.24±0.19	0.21 (0-0.54)	0.31±0.23	0.27 (0-0.73)	0.001

Mean; Arithmetic mean, SD; Standard deviation

As it can be seen in Table 1, the unprepared speech analysis reveals that, in terms of SOTs in all three age groups, the median of 4-8 age group is 0.6 (0.21-2.20) whereas it is 0.21 (0-0.54) in 18-23 age group, and it is 0.27 (0-0.73) for 33-50 year olds. The difference is meaningful ($p < 0.01$). The median of 4-8 years old age group is higher than 18-23 and 33-50 year olds. In other words, children produce more SOTs than the speakers in the other two age groups.

4.2. Prepared / Unprepared Speech Variable

Prepared / Unprepared speech variable was analyzed with Wilcoxon Signed Rank Test. The results for the 18-23 year olds and 33-50 year olds can be seen in Tables 2-3 below:

Table 2. The Difference Between Prepared and Unprepared Speech SOT Rates in 18-23 Year Olds.

PREPARED SPEECH			UNPREPARED SPEECH		
Mean ± SD	Median (Min_Max)		Mean ± SD	Median (Min_Max)	p
0.36±0.23	0.32 (0-0.80)		0.24±0.19	0.21 (0-0.54)	0.033

Mean; Arithmetic mean, SD; Standard deviation

As it can be seen in Table 2, for 18-23 year old age group the prepared speech median is 0.32 (0-0.80), whereas it is 0.21 (0-0.54) in unprepared speech. The difference is meaningful ($p < 0.05$). Unprepared speech median is lower than the prepared speech median.

Table 3. The Difference Between Prepared and Unprepared Speech SOT Rates in 33-50 Year Olds

PREPARED SPEECH			UNPREPARED SPEECH		
Mean ± SD	Median (Min_Max)		Mean ± SD	Median (Min_Max)	p
0.42 ± 0.32	0.36 (0-1.11)		0.31 ± 0.23	0.27 (0-0.73)	0.030

Mean; Arithmetic mean, SD; Standard deviation

According to the data in table 3, for 33-50 year old age group the prepared speech median is 0.36 (0-1.11), whereas it is 0.27 (0-0.73) in unprepared speech. The difference is meaningful (p<0,05). Unprepared speech median is lower than the prepared speech median.

As a result, it can be stated that prepared speech in both age groups (18-23, 33-50) has more SOTs than unprepared speech.

4.3. Gender Variable

The data analysis of prepared and unprepared speeches of different age groups in terms of gender variable can be seen in tables 4,5, and 6 below. Mann-Whitney U Test has been used in the analysis of the data.

Table 4. The SOT Rates of 18-23 Year Olds in Unprepared Speech.

UNPREPARED SPEECH					
FEMALE			MALE		
Mean ± SD	Median (Min_Max)		Mean ± SD	Median (Min_Max)	p
0.12±0.10	0.07 (0.04-0.29)		0.37±0.16	0.40 (0.12- 0.55)	0.008

Mean; Arithmetic mean, SD; Standard deviation

The only meaningful result, in terms of the SOTs observed, has been found out in 18-23 year olds' unprepared speeches. When the data in Table 4 analyzed, in this age group, the SOT median for females is 0.07 (0.04-0.29), whereas it is 0.40 (0.12-0.55) for males. The difference is meaningful (p<0.01). The median of SOTs in unprepared speeches of 18-23 year old males is higher than that of females in the same age group. As a result, it can be said that in terms of gender differences, more SOTs have been observed in unprepared speeches of males than females in 18-23 age group.

Table 5. The SOT Rates of 18-23 Year Olds in Prepared Speech

PREPARED SPEECH					
FEMALE			MALE		
Mean ± SD	Median (Min_Max)		Mean ± SD	Median (Min_Max)	p
0.30±0.20	0.25 (0-0.57)		0.47±0.20	0.42 (0.27-0.80)	0.10

Mean; Arithmetic mean, SD; Standard deviation

However, as it is shown in Table 5, it has not been found out a difference in prepared speeches of the same age group in terms of the SOTs observed (p>0.01).

Table 6. The SOT Rates of 4-8 Year Olds in Unprepared Speech

UNPREPARED SPEECH					
FEMALE			MALE		
Mean ± SD	Median (Min_Max)		Mean ± SD	Median (Min_Max)	p
0.62±0.31	0.59 (0.27-1.27)		0.87±0.66	0.62 (0.20-2.20)	0.71

Mean; Arithmetic mean, SD; Standard deviation

As it was stated before, prepared speech data was not analyzed in 4-8 year olds. When the unprepared speech data shown in Table 6 was analyzed, the SOT median for females in 4-8 year olds is 0.59 (0.27-1.27), and it is 0.62 (0.20-2.20) for males. The difference is not meaningful (p>0.01). Gender difference does not affect the number of the SOTs produced in this age group.

In tables 7-8 below, the data analyses of prepared and unprepared speeches of 33-50 year old male and female participants with higher education level can be seen.

Table 7. The SOT Rates of 33-50 Year Olds with Higher Education Level in Unprepared Speech

UNPREPARED SPEECH					
FEMALE			MALE		
Mean ± SS	Median (Min_Max)		Mean ± SS	Median (Min_Max)	p
0.18±0.19	0.23 (0-0.49)		0.29 ± 0.21	0.24 (0-0.67)	0.45

Mean; Arithmetic mean, SD; Standard deviation

In 33-50 age group with higher education level, the data in Table 7 shows that the SOT median for females in unprepared speech is 0.23 (0-0.49), and it is 0.24 (0-0.67) for males. The difference is not meaningful (p>0.01).

Table 8. The SOT Rates of 33-50 Year Olds with Higher Education Level in Prepared Speech

PREPARED SPEECH					
FEMALE			MALE		
Mean ± SD	Median (Min_Max)		Mean ± SD	Median (Min_Max)	p
0.19±0.19	0.09 (0-0.51)		0.36 ± 0.28	0.35 (0-0.92)	0.25

Mean; Arithmetic mean, SD; Standard deviation

For the prepared speech of the same group, the data in Table 8 shows that the SOT median for females in unprepared speech is 0.09 (0-0.51), and it is 0.35 (0-0.92) for males. The difference is not meaningful (p>0.01).

In tables 9-10 below, the data analysis of prepared and unprepared speeches of 33-50 year old male and female participants with lower education level is given.

Table 9. The SOT Rates of 33-50 Year Olds with Lower Education Level in Unprepared Speech

UNPREPARED SPEECH					
FEMALE			MALE		
Mean ± SS	Median (Min_Max)		Mean ± SS	Median (Min_Max)	p
0.24±0.14	0.27 (0-0.39)		0.52±0.24	0.61 (1.14-0.73)	0.07

Mean; Arithmetic mean, SD; Standard deviation

In 33-50 age group with lower education level, the data in Table 9 shows that the SOT median for females in unprepared speech is 0.27 (0-0.39), and it is 0.61 (1.14-0.73) for males. The difference is not meaningful (p>0.01).

Table 10. The SOT Rates of 33-50 Year Olds with Lower Education Level in Prepared Speech

PREPARED SPEECH					
FEMALE			MALE		
Mean ± SD	Median (Min_Max)		Mean ± SD	Median (Min_Max)	p
0.4±0.28	0.48 (0-0.83)		0.73±0.30	0.69 (0.34-1.11)	0.07

Mean; Arithmetic mean, SD; Standard deviation

For the prepared speech analysis of the same group, the data in Table 8 shows that the SOT median for females in unprepared speech is 0.48 (0-0.83), and it is 0.69 (0.34-1.11) for males. The difference is not meaningful (p>0.01).

As a result, it can be said that, gender is not an effective variable in the production rate of SOTs in 4-8 and 33-50 age groups.

4.4. Educational Background Variable

As it was stated before, educational background variable was analyzed just in 33-50 year old age group. Educational background variable in this age group was analyzed with Mann-Whitney U Test.

In 33-50 year old age group, it has been found out a difference between males who are elementary-middle school graduates and bachelor's or master's/doctoral degree-holder males in their prepared speech.

Table 11. The SOT Rates of 33-50 Year Old Males with Different Educational Backgrounds in Prepared Speech

PREPARED SPEECH					
Males who are Elementary/Middle School Graduates			Bachelor's or Master's / Doctoral Degree-Holder Females		
Mean ± SD	Median (Min_Max)		Mean ± SD	Median (Min_Max)	p
0.73±0.30	0.69 (0.34-1.11)		0.36±0.28	0.35 (0-0.92)	0.03

Mean; Arithmetic mean, SD; Standard deviation

When the data in Table 11 is analyzed, it can be seen that SOT median is 0.69 (0.34-1.11) for males who are elementary/middle school graduates, whereas it is 0.35 (0-0.92) for bachelor's or master's/doctoral degree-holder males. The difference is meaningful ($p<0.05$). The median is lower for bachelor's or master's/doctoral degree-holder males. In other words, 33-50 year old male speakers with low education profile produce more SOTs in their prepared speech than the ones with high education profile in the same age group.

Table 12. The SOT Rates of 33-50 Year Old Males with Different Educational Backgrounds in Unprepared Speech

UNPREPARED SPEECH					
Males who are Elementary/Middle School Graduates			Bachelor's or Master's / Doctoral Degree-Holder Females		
Mean ± SD	Median (Min_Max)		Mean ± SD	Median (Min_Max)	p
0.52±0.24	0.61 (0.14-0.73)		0.29±0.22	0.24 (0-0.67)	0.21

Mean; Arithmetic mean, SD; Standard deviation

However as it can be seen in Table 12 above, it has not been found out a difference in unprepared speech between males who are elementary/middle school graduates and bachelor's or master's/doctoral degree-holder males ($p>0.05$).

The situation in female speech, in the same age group, is a little bit different from that of male speech. As it can be seen in Tables 13-14 below, there are not any differences in prepared and unprepared speeches between females who are elementary/middle school graduates and bachelor's or master's/doctoral degree-holder females in terms of the number of the SOTs produced ($p>0.05$).

Table 13. The SOT Rates of 33-50 Year Old Females with Different Educational Backgrounds in Prepared Speech

PREPARED SPEECH					
Females who are Elementary/Middle School Graduates			Bachelor's or Master's / Doctoral Degree-Holder Females		
	Median			Median	p

Mean ± SD	(Min_Max)		Mean ± SD	(Min_Max)	
0.36±0.30	0.38 (0-0.83)		1.19±0.19	0.09 (0-0.51)	0.33

Mean; Arithmetic mean, SD; Standard deviation

When the data in Table 13 is analyzed, for the prepared speech, the SOT median is 0.38 (0-0.83) for females who are elementary/middle school graduates, and it is 0.09 (0-0.51) for bachelor's or master's/doctoral degree-holder females. The difference is not meaningful (p>0.05).

Table 14. The SOT Rates of 33-50 Year Old Females with Different Educational Backgrounds in Unprepared Speech

UNPREPARED SPEECH					
Females who are Elementary/Middle School Graduates			Bachelor's or Master's / Doctoral Degree-Holder Females		
Mean ± SD	Median (Min_Max)		Mean ± SD	Median (Min_Max)	p
0.21±0.16	0.25 (0-0.39)		0.18±0.19	0.23 (0-0.49)	0.77

Mean; Arithmetic mean, SD; Standard deviation

For the same group, as it can be seen in Table 14, it is seen that, for the unprepared speech, the SOT median is 0.25 (0-0.39) for females who are elementary/middle school graduates, and it is 0.23 (0-0.49) for bachelor's or master's/doctoral degree-holder females. The difference is not meaningful (p>0.05). As a result, it can be stated that educational background variable does not affect the SOT production rate of females.

5. Discussions and Conclusions

The results of this study reveal that:

- Children speak less fluently in terms of SOTs than the speakers in the other two age groups.
- Speakers in 18-23 and 33-50 age groups produce more SOTs in their prepared speech than their unprepared speech.
- In terms of gender differences, more SOTs have been observed in unprepared speeches of males than females in 18-23 age group.
- 33-50 year old male speakers with low education profile produce more SOTs in their prepared speech than the ones with high education profile in the same age group.

As it was stated above, in this study it was revealed that children spoke less fluently in terms of SOTs than the speakers in the other two age groups. This result is coherent with the results of many studies in the literature. For example, Gordon and Luper (1989) (qtd. in Eklund, 2004: 71). Ambrose and Yairi (1999); Watson and Anderson (2001) revealed that disfluencies are the most in children at the end of age two and at the beginning of age one as a result of language learning process, and the number of the disfluencies decrease after these ages. Obler & Albert, (1984) (qtd. in Bortfeld et al., 2001: 128); Bortfeld et al. (2001) and Menyhárt (2003) had also very

similar results in their studies. They found out that children speak less fluent than adults and older people.

When the second conclusion of the study given above is considered, it could be asserted "The Vicious Circle Hypothesis", which was originally put forward as a hypothesis related with stuttering by Vasic & Wijnen (2001: 14), can be helpful to explain the psychological basis of 18-23 and 33-50 age groups' producing more SOTs in their prepared speech than their unprepared speech. The Vicious Circle Hypothesis suggests that people who stutter pay too much attention for monitoring their speech. It could be the same with normal speakers. Speakers may pay too much attention to their speech when they are prepared since they try to speak along with their certain speech plan. Lickley et al. (2005: 306) tested this hypothesis by comparing normal speakers with people who stutter in terms of how they perceive speech disfluencies. The results were in accordance with the hypothesis since it was revealed that people who stutter were much more sensitive than normal speakers in determining the disfluencies in speech. Shortly, it could be said that too much sensitivity causes more disfluencies.

As a result of this study, it was also found out that, in terms of gender differences, males produce more SOTs than females in 18-23 age group in their unprepared speech. This result is a little confusing since it is peculiar to just one age group (18-23) in certain speech condition (unprepared). However, this result is in parallel with studies in the literature since there is not a consensus among the results of these studies on the gender variable in the production of speech disfluences. In many of these studies, it has been shown that there is not a meaningful difference between males and females in terms of disfluency production; however, some studies have shown that males produce more disfluencies (Johnson, 1961: 13; Lickley, 1994: 52), or vice versa (Menyhárt, 2003: 48). In most studies, it is asserted that, gender is an important variable in disfluency production especially in some types of disfluency. For instance, Shriberg (1994: 188), and Bortfeld et al. (2001: 139) assert that males produce more fillers and repetitions than females. Branigan et al. (1999: 388) have put forward that females, especially in certain speech conditions as in there is no eye contact, speak more fluent than males. In the light of these research results in the literature, it can be said that males produce more disfluencies than females at least for some types. As a disfluency type, for SOTs, there is not such a result; however, this study shows that 18-23 year old males produce more SOTs than females in their spontaneous unprepared speech.

The fourth conclusion of this study given above revealed that, in terms of educational background variable, 33-50 year old male speakers who have a low education profile produce more SOTs in their prepared speech than the ones with high education profile in the same age group. This situation can also be explained by Vasic and Wijnen's (2001: 14) "The Vicious Circle Hypothesis". As it was stated before according to this hypothesis, too much sensitivity cause more disfluencies. In this case, 33-50 year old male speakers with low education profile might have been more sensitive for monitoring their speech in order not to make any mistakes. Prepared speech condition may not be familiar to most them. This might have caused tension and anxiety for especially the male speakers in this age group. They are more mature than the 18-23 year old group and they have a certain status in their workplace. The wish for being recognized as knowledgeable as the higher education level working group in the workplace may have been another source of stress.

In sum, for SOTs, it will not be wrong to say that most people experience this phenomenon, when they are tired, excited, confused or distracted in some way. Fortunately, most of the SOTs are noticed quickly and corrected by the speaker immediately. In this study, SOT phenomena has been tried to be explained from several different perspectives, and some significant findings

about the psycholinguistic basis of the of Turkish speakers have been put forward. However, considering the number of subjects participating in the present study, as well as the amount of the speech samples investigated, it is possible to say that the gathered data is rather limited, so in order to clarify and generalize these findings further research is required.

References

1.   Aitchison, J. (2007). The Articulate Mammal: An Introduction to Psycholinguistics. London: Routledge.

2.   Ambrose, N. G. and Yairi, E. (1999). Normative Disfluency Data for Early Childhood Stuttering. *Journal of Speech*, *Language, and Hearing Research*, 42, 895-909.

3.   Billig, M. (2002). Freud and the Language of Humour. The Psychologist, 15 :9, 452-455.

4.   Bortfeld, H., Leon, S. D., Bloom, J. E., Schober, M. F. and Brennan, S. E. (2001). Disfluency Rates in Conversation: Effects of Age, Relationship, Topic, Role, and Gender. *Language and Speech, 44*(2), 123-147.

5.   Branigan, H., Lickley, R. and McKelvie, D. (1999). Non-Linguistic Influences on Rates of Disfluency in Spontaneous Speech. In *Proceedings of the 14th International Conference of Phonetic Sciences* (pp. 387-389). San Francisco.

6.   Carroll, D.W. (2008). Psychology of Language. Australia: Thomson/Wadsworth.

7.   Cherry,   K.   (2013).   What   is   a   Freudian   Slip?   *Psychology.* http://psychology.about.com/od/sigmundfreud/f/freudian-slip.htm. 16 September 2013.

8.   Cutler, A. , Mill, A.I, Brown, G. D., Shillcock, R.C.,& Garnham, A. (1982). Slips of the Tongue in the London-Lund Corpus of Spontaneous Conversation. Linguistics, 19:7-8, 805–818.

9.   Cutler, A., & Henton, C.G. (2004). There's Many a Slip 'Twixt the Cup and the Lip. In H. Quene, & V. van Heuven (Eds.), On Speech and Language: Studies for Sieb G. Nooteboom (pp. 37-45). Utrecht: LOT / Netherlands Graduate School of Linguistics.

10.   Dell, G. S. (1986). A Spreading-Activation Theory of Retrieval in Sentence Production. *Psychological Review*, 93(3), 283-321.

11.   Dell, G. S. (1995). Speaking and misspeaking. Language, 1, 183–208.

12.   Dempsey, J. (27 Mar 2004). An Essay On Criticism. *Poetry X.* http://poetry.poetryx.com/poems/1909/. 14 December 2013.

13.   Eklund, R. (2004). *Disfluency in Swedish Human–Human and Human–Machine Travel Booking Dialogues.* Unpublished Doctoral Dissertation. Sweeden: University of Linköping.

14.   Field, J. (2004). Psycholinguistics: The Key Concepts. New York: Routledge.

15.   Freud, S. (1901). Psychopathology of Everyday Life [ebook]. London: T. Fisher Unwin. Retrieved from https://archive.org/stream/psychopathologyo00freu#page/n13/mode/2up. 21 May 2011.

16.   Fromkin, V. (1973). Speech Errors as Linguistic Evidence. Paris: Mouton.

17.   Jaeger, J. J. (2005). Kid's Slips: What Young Children's Slips of the Tongue Reveal about Language Development. Mahwah, NJ: Lawrence Erlbaum Associates.

18.   Johnson, W. (1961). Measurements of Oral Reading and Speaking Rate and Disfluency of Adult Male and Female Stutterers and Nonstutterers. *The Journal of Speech and Hearing Disorders*, 7, 1-20.

19.   Lickley, R. (1994). *Detecting Disfluency in Spontaneous Speech.* Unpublished Doctoral Dissertation. Scotland: University of Edinburgh.

20.   Lickley, R., Hartsuiker, R. J., Corley, M. Russell, M. and Nelson, R. (2005). Judgment of Disfluency in People who Stutter and People who do not Stutter:Results from Magnitude Estimation. *Language and Speech*, 48(2), 299-312.

21.   Maynell, L. (2003). Speech Production Errors, collected by YOU. *Ling/Psych*, 371, 1-6.

22.   Menyhárt, K. (2003). Age-Dependent Types and Frequency of Disfluencies. In *Proceedings of DiSS'03*(pp.45-48), Goteborg University. Sweeden. 5-8 September 2003.

23.   Möller, J., Jansma, B.M., Fornells, A. R., & Münte, T. F. (2007). What the Brain Does before the Tongue Slips. Cerebral Cortex, 17, 1173-1178.

24.   Poulisse, N. (1999). Slips of the Tongue. Philadephia: John Benjamins Publishing Company.

25.   Shriberg, E. (1994). *Preliminaries to a Theory of Speech Disfluencies*. Unpublished Doctoral Dissertation. Berkeley: University of California.

26.   Vasic, N. and Wijnen, F. (2001). Stuttering and Speech Monitoring. In *Proceedings of DISS'01*(pp.13-16), Edinburgh, Scotland. UK. 29-31 August 2001.

27.   Watson, J. B. and Anderson, R. T. (2001). Disfluencies of 2 and 3 Year-Old Spanish Speaking Children From Puerto Rico. *Contemporary Issues in Communication Science and Disorders,* 28, 140–150.