

A Psycholinguistic Analysis of Semantic Transfer by Turkish Learners of English

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Abstract: This study examines the proposition that second language learners tend to map second language (L2) lexical forms onto the existing semantic content of their first language (L1) translations rather than creating a separate semantic network for the second language. To test this, the participants (n=9) responded to three semantic judgement tasks. In the first task, they were asked to state whether the English words can be used interchangeably or not (experiment 1). In the second task, they were provided the words and asked to place them into suitable sentences. Finally, they were given a forward translation task (task two and three are involved in experiment 2). Results showed that older foreign language learners bring their already developed conceptual and semantic systems which demonstrates that the participants are highly influenced by their native language. Additionally, an undeniable effect of context on the students' performance was observed in the results. In line with these results, the implications were discussed within the psycholinguistic perspective and semantic transfer hypothesis.

Anahtar sözcükler

Psikodilbilim,
anlamsal aktarma,
ikinci dil, kelime
edinimi

İngilizce Öğrenen Türk Öğrencilerin Anlamsal Aktarımlarının Psikodilbilimsel Analizi

Öz: Bu çalışma, ikinci dil öğrenenlerinin, ikinci dil için ayrı bir anlamsal ağ oluşturmaktan ziyade, ikinci dil (L2) sözcük formlarını ilk dildeki (L1) çevirilerin mevcut semantik içeriğine yerleştirme eğiliminde oldukları önermesini incelemektedir. Bunu yaparken, katılımcılar (n = 9) üç semantik yargı görevine yanıt verdi. İlk görevde, İngilizce sözcüklerin birbirinin yerine kullanılıp kullanılmayacağına yanıt vermeleri (deneme 1) istendi. İkinci görevde verilen kelimeleri uygun cümlelere yerleştirmeleri istendi. Sonunda, bir ileri çeviri görevi verildi (görev 2 ve üç deney 2'de yer aldı). Elde edilen sonuçlar, yaşça büyük olan yabancı dil öğrenenlerin, geliştirdikleri kavramsal ve semantik sistemleri beraberlerinde getirdiklerini ve katılımcıların ana dilden çok etkilendiğini göstermektedir. Buna ek olarak, bağlamın öğrencilerin performansı üzerindeki yadsınamaz etkisi, sonuçlarda açıkça görülmüştür. Bu sonuçlar doğrultusunda sınıf içi uygulanabilirliği psikodilbilimsel bakış açısı ve anlamsal aktarım hipotezi açısından tartışılmıştır.

1. Introduction

Since the mid-1980s, psycholinguistics has been viewed as a significant part of the interdisciplinary field of cognitive science that amalgamates research in linguistics, psychology and neuroscience in order to better understand how people think, communicate and process information during their language use. MacWhinney (1992) states that there have been two different strands among psycholinguists: those who are conducting their research on adults, and those who are doing research on children. The reason for this separation was explained as psycholinguists who want to research “acquisition” prefer children, whereas those who want to investigate “process” prefer adults. However, it is clear that there is a mutual relationship between acquisition and process. Opportunely, the field of second language learning research combined these two strands; thus, both acquisition and process have been researched within the framework of psycholinguistics.

Despite early research in psycholinguistics focusing on the syntactic level of language acquisition as a result of the strong impact of behaviourism (e.g., Bock & Warren, 1985; Bock, 1990), the research interest shifted towards word meaning (e.g., Van Orden, Stone & Pennington 1990; Plaut, McClelland, Seidenberg, & Patterson, 1996) and discourse meaning due to the integration of interaction and social constructivism (e.g., Gibbs, 2002; Brown & Yule, 2003) in the field of second language acquisition. There have been some significant theories that have affected the literature on these issues. First of all, psycholinguistics research dealing with cross-linguistic aspects of language processing needs to consider the theories that are effective on research in this specific field, namely contrastive analysis hypothesis (Lado, 1957) and markedness differential hypothesis (Eckman, 1977).

Language transfer has long been one of the main topics in applied linguistics, second language acquisition and language teaching with the studies that have specifically addressed the role of transfer in discourse, semantics, syntax and phonology (including writing systems) (Odlin, 1989; Cuza & Frank, 2011; Yuan, 2013). Even though neither language transfer nor semantics can be thought of as more effective in the foreign language teaching/learning process, the present study will investigate the role of transfer in foreign language (FL) learners’ vocabulary acquisition.

The researcher has observed that intermediate level foreign language learners in Turkey depend on their pre-existing semantic network (L1), which shows they do not create a separate semantic network for their foreign language. As a result, they appear to have hardship in using the English words that have only one Turkish translation (e.g. tall and long), and they tend to over-differentiate these words since these words have the same translation in Turkish (uzun). The possible reasons for this problem may be not having two different Turkish meanings for these two English words and/or not being taught these English words in context, which also points to students not having a separate semantic network for English which functions as a foreign language.

The reason for this investigation is threefold. The first purpose of this study is to investigate the extent of the native language (Turkish) transfer in using these kinds of English words with only one Turkish translation as different. The second aim is to explore the effect of the context on semantic transfer. The third one is to encourage the participants to both differentiate and use these words correctly in a forward translation task. Based on the literature review outlined above, the present study will test the following two hypotheses:

1. The subjects will correctly interpret the sets of two different words which have only one Turkish translations (e.g., long-tall; uzun)

2. The subjects will be able to make correct semantic differentiation when provided with context (forward translation).

From a functional perspective, language is for communicating meanings; therefore, language learners have to acquire the label-meaning relationship (Ellis, 1997). Unlike young learners who are acquiring their first language (L1), adult foreign language learners bring their already developed conceptual and semantic systems which are related to their L1. When a learner starts to learn a foreign language, he tends to map the L2 word forms onto her/his pre-existing conceptual meanings. Ijaz (1986) stated that adult EFL learners are under the influence of their L1.

...second language learners essentially relied on a *semantic equivalence hypothesis*. This hypothesis facilitates the acquisition of lexical meaning in the L2 in that it reduces it to the relabelling of concepts already learned in the L1. However, it confounds and complicates vocabulary acquisition in L2 by ignoring cross-linguistic differences in conceptual classification and differences in the semantic boundaries of seemingly corresponding words in the L1 and L2 (p. 443).

In other words, L2 learners are still responsible for deciding on the reference of a new label in the *context* which they have first encountered the word in. With this in mind, it is fair to claim that context is the most important source of L2 vocabulary acquisition. This idea is also supported in studies by Stanovich and Cunningham (1992) and Sternberg (1987), in which they mention the significance of context and state that people who read a lot learn more vocabulary.

The role of semantic strategies on vocabulary acquisition is another important area that needs to be discussed here. Sökmen (1997) argues that four semantic strategies should be implemented during students' vocabulary acquisition. These are classified as semantic feature analysis, semantic mapping, ordering and pictorial schemata. According to these features, students should be provided with analysis of the meaning components of words in teaching and learning. In addition, they need to be supported to create semantic maps through brainstorming activities. Ordering is believed to be another technique that is helpful for students in distinguishing differences in meaning and organizing words to enhance retention. Finally, creating grids or diagram as a pictorial schema is stated to be another significant semantic strategy on vocabulary acquisition.

1.2. Background to the Study

Psycholinguistic Framework for L2 Vocabulary Acquisition

Jiang (2002) proposed a psycholinguistic model of adult L2 vocabulary acquisition. The researcher claims that the need to learn new concepts or meanings during L2 word learning is less than the need in L1. The major difference between the degrees of this necessity is the lack of contextualization in L2 vocabulary learning and the L2 learners' knowledge of pre-existing concepts and meanings of words. It is also stated that when children learn new words in their L1, they learn words and meanings simultaneously. Thus, word, form and meaning are in each other's pocket. In other words, when people hear or see a word in their L1, the meaning of that word is activated automatically. On the other hand, despite having pre-existing concepts and meanings of words in their minds, adult L2 learners learn vocabulary in association with modest conceptual or semantic development. That is to say, 'the existing L1 linguistic and conceptual systems are actively involved in L2 vocabulary learning process' (Jiang, 2002). As a result of this examination, Jiang (2002) proposed a model of adult

vocabulary acquisition including three phases; (1) lexical association stage, (2) hybrid-entry stage, (3) full integration stage.

In the lexical association stage, L2 learners recognize the orthographic and phonological form as a word. They understand the meaning of that specific word with their pre-existing semantic knowledge. They tend to accompany the word with its L1 translation to be able to remember it later. However, a significant difference exists in this stage between L1 and L2 lexical entries in the mental lexicon of a learner. While L1 lexical entry includes all kinds of lexical knowledge (syntax, morphology, phonology, orthography) in the learner's mental lexicon, L2 lexical entry includes only orthographic or phonological knowledge, in other words, form knowledge. Consequently, learners rely on L1 translation to a great extent within this stage due to lack of direct association between L2 words and concepts.

In the second stage, a combination of L2 form knowledge and semantic-syntactic knowledge, transferred from its L1 translation, exist in the L2 entry. This semantic knowledge shows that the learner can link the word directly to its conceptual representations. Thus, it can be said that in this stage reliance on translation decreases, and automatic activation of L2 word meaning starts to increase. However, L1 goes on affecting L2 word use because lexical processing and production are still arbitrated by the word's L1 translation for the L2 entry. Because L2 entry contains both L2 form knowledge and L1 meaning and syntax knowledge, this stage is called hybrid-entry stage.

Finally, in the third stage lexical knowledge of a specific L2 word exists in its entry, and L1 information of that word is rejected; thus, with little influence from L1, the L2 word can be used more automatically. However, Jiang (2002) asserts that many words may stop processing before the third stage.

Semantic Transfer Hypothesis

The central claim of the above explained hypothesis depends on the model explained in the previous section. To recapitulate, the semantic content that is located in a L2 word is claimed to be transferred from L1. That is, 'the concept onto which L2 word is mapped is a L1 concept' (Jiang, 2004). This claim of semantic transfer is in contrast with the assertions of some L2 researchers (e.g., Bogaards, 2001; Ellis, 1995; Henriksen, 1999).

Bogaards (2001), contrary to the claim of semantic transfer hypothesis, states that '...one should not forget that vocabulary acquisition may also include the learning of new meanings for well-known words or for combinations of well-known words—that is, meanings that are not predictable on the basis of the already known meanings.' Similarly, Henriksen (2001) argues that L2 learners' ongoing process of constructing and reorganizing interlanguage semantic networks should not be disregarded. Moreover, he states that during the process of L2 vocabulary learning, learners also establish a different semantic network for the newly learned vocabulary.

Contrary to the aforementioned studies, semantic transfer further suggests that 'L2 words are mapped to existing meanings or concepts,' yet it postulates that this mapping is true when such meanings are available. If not, the transition from mapping to pre-existing meanings to mapping new concepts may not occur for many words as asserted in the second stage of the model discussed in the previous section.

In the related literature, evidence supports the Semantic Transfer Hypothesis (e.g., Martin, 1984; Ijaz, 1986; Jiang, 2002; Van Patten, 2004). In a study, Martin investigated the reasons for lexical errors made by L2 learners, and he asserted that L2 learners tend to use L2 words based on their L1 meanings which causes lexical errors. Furthermore, Jiang (2004) adds that these types of errors are common when two L2 words have the same L1 translation. The results of the study conducted by Ijaz (1986) suggest that ‘...native language conceptual patterns appear to be powerful determinants of the meaning ascribed to L2 words’ (p. 445).

Additional evidence for semantic transfer comes from the study conducted by Jiang (2002). He aimed to test the Semantic Transfer Hypothesis. In the study, Chinese-English bilinguals were tested with an experiment in which they were given word pairs that have the same translation in Chinese and another group of word pairs which are semantically related but have different translations in Chinese. Moreover, they were asked to rate the degree of semantic relatedness. The findings supported his Semantic Transfer Hypothesis because Chinese participants gave a higher rating score to the same translation set than the different-translation set. Finally, Van Patten (2004) states that L1 concepts may affect L2 vocabulary acquisition because L2 learners tend to conceptualize L2 words through L1.

Semantic Transfer Studies in Turkish Context

Although there have been several studies in the field of vocabulary learning/teaching in L2 in Turkey (Altınok, 2000; Atay & Ozbulgan, 2007; Oztürk, 1999; Yildiz & Ozek, 2009; Ozek & Yildiz, 2012), there is only one semantic transfer study conducted with Turkish EFL students in Turkey (Oztuna, 2009). Oztuna stated that the verbs ‘make’ and ‘do’ tend to be used interchangeably by most of the Turkish EFL learners because of having the same meaning in Turkish, or they have difficulty in deciding which one to use. She also adds that this problem occurs especially during the initial stages of their foreign language learning. As a result of this observation, the study aimed ‘to investigate the effects of input flood and negative evidence on 7th grade Turkish EFL students’ learning of make/do collocations.’ Despite being a semantic transfer study, the researcher did not conduct this study within a psycholinguistic perspective.

To conclude, in light of the literature review in both Turkish context and in other cross-linguistic fields, the study aims to fill the gap in the semantic transfer issue, which is one of the specific fields of L2 vocabulary acquisition, by using semantic transfer hypothesis, which helps the researcher comment, and discuss within a psycholinguistic perspective in Turkey. In addition, the studies conducted on semantic transfer tend to investigate whether EFL students do semantic transfer or not. By doing that, this study also aims to explore the role of context in semantic transfer in an additional experiment within the psycholinguistic perspective. This study investigated both vocabulary *comprehension* and *production* of Turkish EFL students.

2. Method

2.1. Participants

The participants in this experimental study consist of 9 native Turkish-speaking intermediate level preparatory program students at a foundation university in Turkey. All students were registered to departments with English-medium-instruction (three students from the translation department, 1 student from the English Language and Literature Department, 5 students from the English Language Teaching Department). None of the students know any other foreign languages, which is an important fact regarding the purpose of the study. An intact class with the researcher was conveniently selected due to practicality issues. The participants were being taught English as a foreign language in an intensive strategy-based

program including teaching of four skills and grammar. However, they did not have a separate class hour for vocabulary learning. This component was integrated in reading and listening courses.

2.2. Instrumentation

The instrument employed to investigate whether the participants are doing semantic transfer or not is a Semantic Transfer Test developed by the researcher. The test included 10 pairs of English words which have different meanings in English but have the same meaning in Turkish. The words in the test were selected from students' essays which they wrote throughout the academic year. These words were the most frequently confused ones by the participating students. In the first part of the test, the participants were asked to decide whether these words can be used interchangeably or not. For example:

		interchangeable	different
1	Make - Do		

In the second part, in order to explore the role of context in the participants' decisions on interchangeable usage, the students were given a sentence completion test with the words in the first part of the test, and the participants were asked to complete the sentences with the word pairs. For example:

a. Make b. Do c. Not Sure

1. She likes living on her own and does not need anyone for anything. Whenever we visit her, she _____ us coffee which you cannot taste anywhere else.
2. I am decisive to lose weight this time. My doctor says that I should _____ lots of exercise in addition to my diet program.

Finally in the third part, in order to investigate the extent to which the participants can produce these words correctly, they were given a forward translation task in which they were to use the same pairs from the first part of the test. As the example below illustrates:

“Ev işi **yapmaktan** nefret ederim.”

[I hate **doing** housework]

As for the validation of the instrument, three other instructors who hold PhD degrees in the field also prepared items, and the common items were selected for the instrument. Before the main administration of the test, the test was applied to 10 intermediate-level EFL students in another university preparatory program to check the intelligibility of the items.

2.3. Data Collection Procedures

Since the purpose of the present study is threefold, the Semantic Transfer Test was administered in three different class hours. As regards the first purpose, investigating whether the participants are doing semantic transfer, initially only the first part of the test was applied. In another class hour, the second part of the test was given to explore the effect of the context on semantic transfer. Finally, in the third hour the forward translation part was given. In other words, the contextual part of the test was not provided with the first part of the test in order to prevent the possible effect on the semantic decision of the participants.

2.4. Data Analysis

The data collected through the semantic transfer test which includes three different parts was analyzed by means of frequency and percentage calculations. The correct answer rates for each word in three different parts and overall accuracy percentages of each group were calculated separately and then compared to test the hypotheses.

3. Results

The correct answer for each word in each part was identified based on the results of the semantic transfer test. For the first part of the test, the participants were expected to have difficulty in differentiating the words. This was indeed the case. The average accuracy rate for the first part of the test was 53% (Table 4.1). When the most frequently confused words were analysed (e.g., participate-attend = 11%), it was clear that when the frequency of words decreases, the rate of accuracy decreases as well. On the other hand, no pair of words produced a rate higher than 89%.

Table 1
Accuracy rates for part I

Word Pairs/ Participants	1	2	3	4	5	6	7	8	9	Part 1 Total %
Make-Do	0	0	0	1	1	1	0	0	0	33
Bakery-Oven	0	0	0	1	0	1	1	1	0	44
Long-Tall	1	1	1	0	1	1	1	1	0	78
Work-Study	1	1	1	1	1	1	1	0	1	89
Drive-Ride	1	1	1	1	1	0	1	0	0	67
Close-Near	1	0	0	1	1	1	0	1	0	56
Play-Game	1	1	1	1	0	1	1	1	0	78
Participate-Attend	0	0	0	0	0	1	0	0	0	11
Little-Few	1	0	1	1	0	1	0	0	1	56
Whole-All	0	0	0	0	1	0	0	0	1	22
Average										53

0 = incorrect answer 1 = correct answer

There are also some striking results in the first part of the test. To illustrate, words that are supposed to be confused and stated as interchangeable were differentiated by the participants (e.g. work-study = 89%, long-tall = 78%).

The results of the second part of the Semantic Transfer Test revealed some contradictory results to the first part of the test as it was previously hypothesised. As it is clear in Table 2, the average accuracy rate in the second part (74%), in which the students were provided with the contexts for word pairs, is higher than the average accuracy rate of the first part.

Table 2
Accuracy rates for part II

Word Pairs/ Participants	1	2	3	4	5	6	7	8	9	Part 2 Total %
Make-Do	1	1	1	0	1	1	1	0	1	78
Bakery-Oven	1	0	0	1	0	0	1	1	1	56
Long-Tall	1	0	1	1	0	0	1	1	1	67
Work-Study	1	1	1	1	1	1	0	1	1	89

Drive-Ride	1	0	1	1	0	0	1	1	1	67
Close-Near	1	0	1	1	1	1	1	0	1	78
Play-Game	1	1	0	0	1	1	1	1	0	67
Participate-Attend	1	1	1	1	1	1	1	1	1	100
Little-Few	0	1	0	1	1	1	1	1	1	78
Whole-All	0	0	1	1	1	1	0	1	1	67
Average										74

Moreover, the word pairs which were rated as the least accurate were rated as the most accurate word pairs in the second part (e.g., participate-attend = 100%). In general, there is an increase in the accuracy rates of all word-pairs in the second part of the test when compared to the first part of the test. Finally, the results of the third part of the test demonstrated very surprising results. It is evident from the Table 3 that the participants gave the least accurate answers with the average of 33% in the third part in which the participants were asked to forward translate by using the word pairs in the first and second part.

Table 3
Accuracy rates for part III

Word Pairs/ Participants										Part 3
	1	2	3	4	5	6	7	8	9	Total %
Make-Do	0	0	1	1	0	0	1	1	0	44
Bakery-Oven	0	0	0	0	0	0	1	1	0	22
Long-Tall	0	1	0	1	0	0	0	1	0	33
Work-Study	0	1	0	0	0	0	0	0	0	11
Drive-Ride	0	1	1	0	0	1	0	1	0	44
Close-Near	1	0	1	0	0	1	0	0	1	44
Play-Game	0	0	0	1	0	0	0	0	0	11
Participate-Attend	1	0	0	0	1	0	1	0	0	33
Little-Few	1	0	1	0	1	1	1	0	0	56
Whole-All	0	0	1	0	0	0	1	0	1	33
Average										33

Furthermore, the word pairs which participants responded correctly to with context in the second part of the test (e.g. work-study = 89%, participate-attend = 100%) were not used accurately in the forward translation (e.g. work-study = 11%, participate-attend = 33%).

When Table 4 was analyzed, the difference among the accuracy rates of word-pairs in the three parts and the comparison of the average percentages can be seen more clearly.

Table 4
Comparison of word pairs in three parts and average rates.

Word Pairs	Part 1	Part 2	Part 3
	%	%	%
Make-Do	33	78	44
Bakery-Oven	44	56	22
Long-Tall	78	67	33
Work-Study	89	89	11

Drive-Ride	67	67	44
Close-Near	56	78	44
Play-Game	78	67	11
Participate-Attend	11	100	33
Little-Few	56	78	56
Whole-All	22	67	33
Average	53	74	33

4. Discussion and Conclusion

The results of the first part of the test and the statement of Ellis (1997) discussed in the review part are similar. As mentioned by Ellis, older foreign language learners bring their already developed conceptual and semantic systems, and the accuracy rate of the participants' responses (53%) to the first part of the test supported his view. This shows that the participants are highly influenced by their native language (Ijaz, 1986). Jiang (2002) in his model for L2 vocabulary learning and semantic transfer hypothesis differentiated three stages through which a learner should pass. According to this model and the results of the first part of the test, it is evident that the participants are in the first stage which is the lexical association stage. In this stage, they only understand the meaning of the word with their pre-existing knowledge, and they tend to accompany the word with its L1 translation. On the other hand, the results are also similar to the findings of Martin (1984). He stated that L2 learners have the tendency to use L2 words based on their L1 meanings. As a result of this discussion, it is proper to assert that the first hypothesis of the study was retained.

The second hypothesis, which was about the role of context in the students' ability to differentiate words with the same meanings in their native language, was also retained with the results provided in the previous section. According to the results, the increase in the average rate of the students' responses to second part showed that context has an undeniable effect on the students' performance. As Sternberg (1987) explained, context helped students to infer the correct word with the cues in it. In addition, if these results are discussed from the Semantic Transfer Hypothesis perspective, the participants could enter the second stage which is the hybrid-entry stage. In this stage, the learners are expected to combine the semantic knowledge of a word with its syntactic knowledge. Thus, with the help of the context, they applied their syntactic knowledge together with the semantic knowledge and responded more accurately to the word-pairs.

Finally, the results of the forward translation part, which aimed to measure the production of the participants, were in contradiction with the results of the first two parts. When the students' accuracy rate was high in the second part, they were expected to produce the same word-pairs correctly in the forward translation because both parts provided context. However, the students' accuracy rate for this part is 33%, which is very low. This result shows that the students know the words in their declarative memories and cannot shift them to their procedural memory which makes them use the words. This can be the result of not being exposed to these words in a variety of contexts. In addition, being able to use vocabulary requires not only semantic but also syntactic knowledge. When they had difficulty in structuring the Turkish sentence in English, they could have given up translating the sentence.

5. Pedagogical Implications

The findings of the present study have several pedagogical implications. First of all, the present study supported the views about the positive effects of context on vocabulary learning in a foreign language. It follows that L2 vocabulary has to be taught in context rather than in isolation. Secondly, in order to help learners create a different semantic system for the foreign language, semantic techniques that are explained in the literature review part should be implemented in the teaching process. To illustrate, use of semantic maps, helping learners to create pictorial schemata and doing semantic feature analysis for the newly learned L2 vocabulary are some of the semantic techniques (Sökmen, 1997). Moreover, the role of extensive reading and listening are undeniably important in the language learning and teaching process. Thus, the students have to be assigned extensive reading and listening to help them read and hear the same words in different contexts to learn accurately and use those words accordingly. Finally, as an important characteristic of the social constructivist approach to foreign language learning, the skills should not be separated in language classes for more meaningful and interactive language use. That is to say, the students should be provided with activities that integrate both productive and receptive skills.

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