Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.8, No.29, 2017

Exploring the Use of Translation in L2 Production Through Think-aloud Protocols

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Abstract
Translation has always been one of the critical means to understand and use a foreign language. In this regard, understanding the use of translation in second language (L2) production is a topic worth investigating. The purpose of this study is to identify the main areas where students have difficulties in L2 production tasks and determine in what typical cases they refer to first language (L1) while they are working on speaking and writing tasks. The study also explores to what extent age, gender and field of study relate to the participants' use of translation in L2 production. The study was conducted with 144 students studying at English-major and non-English major departments at two state universities in Turkey. Data were collected using the ITLS Inventory for Translation as a Learning Strategy and Think-aloud protocols for speaking and writing tasks. Although the data obtained from the inventory showed that field of study, age and gender do not have statistically significant effects on the learners' choice of translation, data obtained from the think-aloud protocols revealed that both English-majors and non-English majors use translation strategies for various purposes, but the groups differed in the use of translation in L2 production.
Keywords: Translation in L2 Production, Foreign language learning, Think-aloud protocol, Translation Strategies

1. Introduction

Awareness and use of learning strategies is crucial for all learners. Learning strategies are defined as "the techniques or devices which a learner may use to acquire knowledge" (Rubin, 1975; 43). Basically, learners use learning strategies as tools that aid their understanding of the target language. Oxford (1990) also describes language learning strategies as specific, self-directed steps taken by learners to enhance their own learning. To Cohen (1998), language learning strategies constitute the steps or actions consciously selected by learners either to improve the learning of a second language or the use of it, or both.

The definitions above highlight different aspects of learning and the learner; and researchers in the field of education seem to agree on the facilitative role of learning strategies in language learning. Furthermore, the benefits associated with the use of language learning strategies are not limited to a specific proficiency level. Researchers indicate that language learning strategies are beneficial for learners at different language levels (Fawcett, 2003; O'Malley and Chamot, 1990).

Numerous conceptualizations of learning strategies exist in the literature (O'Malley and Chamot, 1990; Wenden and Rubin 1987; Oxford 1990; Stern 1992; Ellis 1994). As Oxford (1990) states, there is no complete agreement on exactly what strategies are, how many strategies exist, or how they should be defined, demarcated, and categorized. However, there is no doubt that one of these strategies is translation strategy. Tradzenyuy (2016) claims that "translation strategy", "translation method", "translation technique" and "translation procedure" are used invariably with slight changes of meaning. In line with the scope of this study, O'Malley and Chamot (1990) define translation as using the first language as a base for understanding and /or producing the second language. According to Naiman et al. (1978) and Al-Khotaba and Al-Taraweh (2015) translation is one of the strategies often used by language learners from different levels. Learners refer back to their mother tongue and make effective cross-lingual comparisons when learning a foreign language. To Ellis (1985), EFL learners have a natural tendency to use translation. In other words, consciously or unconsciously, they refer back to their L1 as a source of knowledge to acquire L2.

L2 learning strategies are reported to be associated with many cognitive, affective, and demographic factors such as motivation, learners' beliefs, language proficiency, age, field of study and gender (Pan and Pan, 2012). An important issue is whether language level is a factor that affects use of translation in L2 production. Garner (1990) noted that learners with limited English proficiency are more prone to switch to L1 when completing a language task. According to Tan (2015), advanced learners with considerable proficiency in English language were less likely to adopt L1 translation strategies. As to gender, Al-Musawi (2014) found a significant difference in students' use of translation strategies in learning English as a foreign language in favor of the females.

Although the related literature indicates studies on the use of translation strategies based on students' own reports through questionnaires, there are too few studies which explore the use of translation strategies in L2 production through think-aloud protocols, which aim to reveal the mental processes while students are working on an L2 production task. With this aspect, the present study fills the gap in the literature by providing insights from students' mental processes while they are working on speaking and writing tasks.

The following research questions were addressed in this study:

1) What difficulties do English-majors and non-English majors have in L2 production?
   a) What are the main themes regarding the difficulties the groups have?
   b) What is the role of L1 for English-majors and non-English majors when they have difficulties in L2 production?
   c) What solutions do the students produce solutions for the areas of difficulty?
2) To what extent do age, gender and field of study relate to the participants' use of translation strategies?

2. Methodology

2.1 Aim

This study aims to identify the use of translation in L2 production by English-majors and non-English majors in a university setting and explore the similarities and differences between these two groups of learners in terms of the use of translation in L2 production. In this study, the intention is to uncover the participants' cognitive processes as they think-aloud through verbal and written expressions.

2.2 Participants

This study involved 47 undergraduate students majoring in *English Language Teaching Department* and *Department of Translation and Interpreting Studies*, and 97 undergraduate students majoring in non-English disciplines. Of the 144 participants, 36 participants were from Cukurova University and 108 participants were from Adana Science and Technology University. English-majors were enrolled in the *English Language Teaching Department* at the University of Cukurova, and *Department of Translation and Interpreting Studies* at the Adana Science and Technology University. As for the Non-English majors, they were all enrolled in various departments in Adana Science and Technology University. All the participants (n= 144) were attending compulsory foundation year classes within the preparatory two-semester English language study programme. Further, 80 participants were female (55.6%) and 64 were male (44.4%); most of them (86.1%) were aged between 18 and 20. The demographics of the participants are summarized in Table 1.

Table 1. Frequencies and Percentages of Participants' Demographic Features

Variable	**Group**	**n**	**%**
Gender	Male	64	44.4
	Female	80	55.6
Age	18-19 years	86	59.7
	20-21 years	51	35.4
	22 and above	7	4.9
Field of Study	English-Major	47	32.6
	Non-English Major	97	67.4

2.3 Design

This study utilized a mixed-methods approach by combining both qualitative and quantitative data to determine whether the two converge upon a single understanding of the use of translation in L2 production by two groups of learners.

2.4 Data Collection Tools

Two main data collection tools were utilized in this study. While the quantitative data were obtained through the Inventory for Translation as a Learning Strategy, the qualitative data were collected via think-aloud protocols.

2.4.1 Inventory for Translation as a Learning Strategy (ITLS)

Data were collected through the Inventory for Translation as a Learning Strategy. The inventory was developed by Liao (2002) and used in Taiwan originally. Statements in the inventory are answered on a five-point Likert scale, ranging from 1 (never) to 5 (always). How frequently the participants use a strategy was identified by adding up the scores and calculating the average, which represents reported use of translation as a learning strategy (Liao, 2006). The Turkish version of the ITLS (Mutlu, Bayram and Demirbuken, 2015) was used in this study to eliminate the language barrier.

2.4.2 Think-aloud Protocols

Think-aloud protocols require participants to speak out loud whatever thoughts come to mind while solving a problem. Retrospection, introspection, prompting and dialogue observation are some of the methods the experts use to establish an effective verbalization process (van Someren, Barnard and Sandberg, 1994). Think-aloud protocol is reported to be one of the main tools to investigate what is going on in people's minds when and before they translate (Fawcett 2003). To this end, data collected from the inventory was supported with the data collected through think-aloud protocols. The participants were given a set of pictures in which they were asked to talk and write about the events in the sequenced pictures. While the students were busy completing the tasks,

the researchers gave directions and reminded participants to go on reporting verbally, and this process allows cognitive process to be studied (Brown and Rodgers, 2004). When they had difficulty, the researchers asked them questions such as "Why did you stop?", "What are you thinking now?", "What are you planning to do now? Questions adapted from Oxford (1990) and Chamot et al. (1999) guided the way think-aloud protocols were conducted and provided insights from the students' experiences in this process. Twenty students, 10 from each group, completed think-aloud procedures and their performance was recorded for analysis.

2.5 Data Analysis

Data collected from the ITLS were analyzed using SPSS Statistics 22 for Windows. Initially, descriptive statistics consisting of frequencies and means were calculated for participants' responses to all items. Responses to the items in the ITLS were analyzed through t-test and one-way analysis of variance test.

Data obtained from the think-aloud protocols were transcribed. During the think-aloud procedures, the students were not allowed to use online dictionaries or any other resources while conducting the activity. Data were subjected to content analysis, and categories were formed regarding the difficulties students had while completing the activities.

3. Findings

To answer the first research question, which deals with the students' use of translation in L2 production through the think-aloud protocols, the emerging categories were evaluated by the researchers. English-majors' speaking data revealed four main categories regarding the difficulties students had while completing the task. Table 2 summarizes the main categories indicating the areas where students had difficulties.

Table 2. Non-English-Majors' Areas of Difficulty

Main Themes for the Difficulties	Examples	L2 Production
Lack of Vocabulary & Struggle for exact Turkish equivalence in English	I don't know "keçi*goat" Solution: used "x" What is "ip*rope", "adet*habit" and "saman*straw" "inatçı*stubborn", "Zıtlaşıp inatlaşmak- obstinate with each other"? Solutions: Could not substitute "rope, habit, stubborn, and obstinate with each other" did not use them in sentences. Substituted "goat" with "sheep", "straw" with "food and dry plant". Substituted "grass" with "ground" I don't know what "olay" is. Solution: Wrote the word in L1. I cannot find "giyinmiş*wearing". Solution: did not use the word. I cannot find "ceketi düşürmek*dropping the jacket"… Solution: did not use the word How can I say "dışlandığı için üzgün*sad because she was isolated"? Solution: did not use them in sentence, said "unhappy" instead. I don't know how to say "azarlamış*scolded" Solution: did not use the word in sentence.	*"There are two sheep. They are eating some food. Dry plant" S1* *"Two sheep have to do thing together. But they doesn't together, they won't arrive food. Firstly they should go to first food, later they should go to second food. And they will eat and they will happy"S2* *The jacket in the ground. S3* *There is no end this "olay". S4* *"The same clothes"....* S4 "…down…down". S5 "unhappy" S6 ***Researcher's Note:*** No production about the words that could not be recalled or substituted (S1, S2, S3, S4,S5, S6, S7)
Word order	Orange hair..purple shoes..same clothes..wear Solution: gave up trying to put words in certain order. Two different animals see… I guess It is nonsense Solution: realized that it was not true, but had no other option, wrote the sentence as above. Animal friend…Eat food.. this…food..left…I cannot make sentences. Solution: Gave up trying	Two children… She is angry… This..orange hair…purple shoes… S4 Two different animals see ***Researcher's Note:*** No production was noted when there were problems about putting the words in correct order (S3, S2, S6, S1, S4, S8)
Use	"Put this, them.." I am not sure. "They helped him.. helped her.." Why did you take it? It's me...I..my .. "Ona veriyor*giving her", he..him..he ..his.. him.. I am not sure	They helped her, put her them. Give his… Why did you take it? It's me.

Main Themes for the Difficulties	Examples	L2 Production
of pronouns	Solution: Used one of them but could not be sure.	***Researcher's Note:*** L2 production was confusing due to the incorrect use of pronoun (S1, S2, S4, S6, S8).
Use of prepositions	In the Picture.. at the Picture… For you.. No it is not right... Girl gives clothes for.. no for..for them? Her clothes under.. They looked at on...in reverse place or at reverse place.. Solution: Used these expressions as above but stated that they could be wrong.	They see food at reverse places. In the picture 1, I see two animals. ***Researcher's Note:*** L2 production was interrupted due to students' confusion about the use of correct preposition (S2, S5, S1, S9, S10)

Table 3. English-Majors' Areas of Difficulty

English-Major Students	Examples	L2 Production
Use of correct grammar structure	"Another girl who is wearing pink jacket as well…too…also"? "...try to find the who is, who, the jacket belongs to whom maybe she said". When she sees this jacket on somebody's, when somebody else wearing it, she.. Solution: went on speaking with self- corrections.	When somebody else was wearing it, she got angry. **Researcher's Note:** L2 production was interrupted by the effort to use correct grammar structures. (S11, S13, S14)
Use of synonym words	She feels alone/lonely? Solution: chose "alone" as he remembered the difference Her face is skeptical/suspicious? Solution: recalled skeptical about something and	The child is isolated from this. She feels lone, alone. She suspects something. **Researcher's Note:** L2 production was interrupted by students' verbal reports about minor differences between words/phrases/structures (S10, S12)
Use of pronouns	There was a *girl. He* joined *her* friends to play football. Solution: went on speaking without self-corrections, noticed the pronoun mistakes later.	I think... putting down **his** jacket? Her jacket The kids found **his** pink jacket…He..the isolated girl was unhappy. **Researcher's Note:** There were no boys in the picture, he and his were used instead of she and her (S16, S17, S19, S20)
Use of phrasal verbs/prepositions	I can see a girl…dropping-not dropping I think..putting down his jacket? Her jacket Put down? Put on the ground? Put it on the floor She is putting her jacket on.. Putting on her jacket? Solution: Finally chose one, but could not be sure.	The girl is putting down her jacket. She puts down her jacket. She is putting her jacket on.. **Researcher's Note:** L2 production was interrupted due to confusion, but it was comprehensible (S14, S15, S18,S20)
Use of tenses	A girl came.. she sees the jacket.. then she called the… Should I use present tense or past tense? Solution: Stopped to decide between the tenses and asked for help.	She thought she stole the jacket…She comes and asks. Sorry… She came and asked… I didn't act…sorry.. I wouldn't act like this.. **Researcher's Note:** L2 production was fluent in most cases but interrupted by self-corrections (S12, S15)

As it is summarized in the table with examples, while English-majors could substitute the words they did not know with easier or more familiar words (e.g. animal for goat, cloth for jacket, food for straw, etc), non-English majors were often unable to produce meaningful utterances because of their relatively poorer vocabulary knowledge. As the students did not have access to any kind of materials during the activity, they demonstrated poor L2 production performance. The following excerpts from the speaking task indicate this result:

"Oh this is so annoying. I do not know the basic vocabulary I need here, so I cannot tell the story. If

I were doing it at home or in class, I would simply check the vocabulary I need from the online dictionary in my cell phone." (Non-English major student)

"When I cannot recall words, I try to express them with easier words I know. If I have the opportunity, I simply use the online dictionary". (Non-English major student)

"When I cannot decide between two similar words, I use online dictionary to see the little differences. Unfortunately I cannot use it now, so I just have to guess" (Non-English major student)

"*If I had the chance to use the dictionary, I would use it. I would have completed the activity successfully. However, unfortunately this is not a good habit in the long term. I check the word and use it, I spend no time thinking about it, so I cannot record it in my mind."* (English-major student)

As stated in the excerpts above, students' use of online dictionaries was made clear from both qualitative and quantitative data collection tools. Data collected from the think-aloud protocols indicated that students from both groups use online dictionaries as a learning tool, seemingly to translate from Turkish to English.

Based on the ITLS results, the second and third most frequently used strategies were "*When I write in English, I first think in Turkish and then translate my ideas into English*" and "*To write in English, I first brainstorm about the topic in Turkish*." Qualitative data provided support for these items as follows. Expressions with an asterisk (*) next to them were originally spoken in Turkish.

"I could have produced much more if I could tell the things I thought in Turkish. I feel like my performance remained at a superficial level". (English- major student)

"I inevitably think in Turkish first. I try to do my best to think in English, because when I think in Turkish I have more difficulty in speaking/writing in English." (English-major student)

"I think writing is easier than speaking. You have time to stop, think in Turkish, and go on trying to produce in English" (Non-English major student)

"I prepare my sentences in Turkish. When I have difficulty in writing long and complicated sentences, I simplify them. I try to leave out words I do not know or express them with easier words. In this picture, I want to say: they want things different from each other, they cannot find a common point to agree, one wants to go this side, the other wants to go that side (*). I will say "they are fighting" (Non-English major student).

"When I need to perform in an activity like this, I do not directly translate from Turkish. I have a look at the pictures and brainstorm the adjectives to start describing them" (English-major student).

"I look at these pictures and check all the vocabulary I know. I do not know "goat", so I will say I see two animals here."* (Non-English major Student)

Think-aloud protocols provided supporting data for students' use of translation for speaking as well. The item from the ITLS - *"When speaking English, I first think of what I want to say in Turkish and then translate it into English"* - was found to have an average of 3.67 on a 5-point scale in the non-English major group. This was clearly supported by the following excerpts:

"When I started learning English here, I always thought in Turkish and then translated my sentences into English. Now I do not do it as often as I used to. However, in challenging activities like this, I find myself thinking in Turkish and trying to translate what I think" (Non English-major student")

"She left the jacket on the ground" I am trying to translate this sentence directly. I think I cannot think in English. I try to recall the words in it, but I just cannot"* (Non-English-major student)

On the other hand, it is important to note that English-major students went through a different procedure. Although the sequenced pictures had some challenging items for them, too, none of them indicated problems related to the use of translation. Instead, they were able to substitute vocabulary they could not remember with easier or more familiar ones. However, these English-major students were found to be challenged by other factors such as grammatical structures and synonym words:

*"I just could not find "put it on the ground *" put down? She dropped her jacket? I am not sure. "put her jacket down?" Dropping? Not dropping I think. The jacket is laying down under a tree"?* (English-major student)

"I could not be sure whether I should say "put her jacket on" or "put on her jacket"? (English-major student)

"I am not sure whether I should say on the ground, in the ground, to the ground…"? (English-major student)

"When I think of a word in English, the synonym comes to my mind, and it gets difficult when it has more than one meaning. She feels alone/lonely... which one should I use? (English-major student)

Additionally, the use of pronouns was surprisingly problematic for English-major students. While one of the students said "*I don't understand why I keep saying **he** instead of **she** and **his** instead of **her***", another student mentioned the same problem by saying "*I said children, and then I said **his**. I said the **girl** and then I said **his**. Why is that?*". This issue, however, did not prevent the students from completing the activity. Following excerpts indicates more details about students' efforts to use correct grammatical structure.

"They want to go to different directions. Or opposite directions? Which one should I use? Opposite sounds better". ? (English-major student)
"Should I say "They try to eat something" or "try eating something? "I will say "to eat", but I am not so sure." ? (English-major student)
Should I write "can not" or "cannot"?
Should I add "the" here, I am not sure. ? (English-major student)

These findings indicate that as language level increases, the use of translation decreases specifically at the word level, indicating that proficiency level in L2 is a factor affecting students' L1 reference.

To address research question 2, which focuses on how translation strategy use is influenced by age, gender and field of study, mean scores on the items of the ITLS were calculated and compared. Means and standard deviations for each item in the Inventory for Translation as a Learning Strategy are shown in Table 3.

Table 3. Means and Standard Deviations for the ITLS Items

		Non-English Major		**English Major**	
	Item	**M**	**SD**	**M**	**SD**
1	When reading an English text, I first translate it into Turkish in my mind to help me understand its meaning.	3.91	1.06	2.89	1.09
2	I read Turkish translations in the course reference book to help me better understand English articles in the textbook.	2.73	1.14	1.91	1.08
3	After I read English articles, I use an available Turkish translation to check if my comprehension is correct.	3.36	1.24	2.47	1.08
4	To write in English, I first brainstorm about the topic in Turkish.	3.93	1.12	3.68	1.18
5	When I write in English, I first think in Turkish and then translate my ideas into English.	4.11	0.99	3.45	1.36
6	I write Turkish outlines for my English compositions.	3.12	1.26	2.55	1.35
7	When I listen to English, I first translate the English utterances into Turkish to help me understand the meanings.	3.28	1.13	2.51	1.02
8	I read the Turkish translation scripts before I listen to instructional English tapes or CDs.	2.15	1.00	1.32	0.59
9	When I watch English TV or movies, I use Turkish subtitles to check my comprehension.	3.85	0.98	3.04	1.25
10	I listen to or read Turkish news first in order to understand English radio/TV news better.	2.39	1.05	1.81	0.95
11	When speaking English, I first think of what I want to say in Turkish and then translate it into English.	3.67	1.28	3.30	1.14
12	If I forget certain English words or expressions in the middle of conversation, I translate from Turkish into English to help me keep the conversation going.	3.42	1.04	3.28	0.99
13	I memorize the meaning of new English vocabulary words by remembering their Turkish translation.	3.59	1.18	3.36	1.09
14	I learn English grammar through Turkish explanations of the English grammatical rules.	3.33	1.27	2.60	1.28
15	I use Turkish translation of grammatical terms such as parts of speech, tenses, and agreements to help me clarify the roles of the grammatical parts of English sentences.	3.06	1.19	2.68	1.14
16	I learn English idioms and phrases by reading their Turkish translation.	3.46	1.11	3.13	1.31
17	I use English-Turkish dictionaries to help myself learn English.	3.71	1.38	3.53	1.18
18	I use Turkish-English dictionaries to help myself learn English.	3.68	1.40	3.60	1.19
19	I use an electronic translation machine to help myself learn English.	4.56	0.72	4.23	1.03
20	If I do not understand something in English, I will ask other people to translate it into Turkish for me.	3.38	1.17	2.43	1.17
21	I ask questions about how a Turkish expression can be translated into English.	3.65	0.99	3.02	1.28
22	When the teacher assigns English articles for reading, I work with others to translate them.	2.63	1.28	2.02	1.07
23	I practice mentally translating my thoughts from Turkish to English in various situations.	3.88	0.94	3.49	1.16
24	I take notes in Turkish in my English class.	2.88	1.21	1.79	0.88
25	I write Turkish translations in my English textbooks.	3.43	1.29	2.19	0.95
26	I try to clarify the differences and similarities between Turkish and English through translation.	3.61	1.00	3.30	1.02
27	When reading English, I try to grasp the meaning of what I read without thinking of Turkish equivalents.	3.11	1.52	2.28	1.33
28	When speaking English, I think of what I want to say in English without thinking first in Turkish.	2.81	1.51	2.47	1.48

As seen in Table 3, non-English majors more frequently use translation strategies as evidenced by higher mean scores on all items of the ITLS. The three most frequently used strategies reported by non-English majors were item 19 (I use an electronic translation machine to help myself learn English) with a mean of 4.56, item 5 (When I write in English, I first think in Turkish and then translate my ideas into English) and item 4 (To write in English, I first brainstorm about the topic in Turkish). On the other hand, item 8 (I read the Turkish translation

scripts before I listen to instructional English tapes or CDs) was the least used strategy in this group, with a mean of 2.15. As for the English-majoring group, the three most frequently used strategies were items 19, 4 and 18 (I use Turkish-English dictionaries to help myself learn English). Item 8 was also the least used strategy for English-majors with a mean of 1.32 .

The overall mean of the items in the ITLS were computed for males and females, and for the English- and Non-English majors. Independent samples t-tests and a one-way analysis of variance were performed to compare the differences in frequency of strategy use across these groups. The results regarding gender and field of study differences are presented in Table 4.

Table 4. Participants' Use of Translation Strategies by Gender and Field of Study

Source	**Group**	***N***	***M***	***SD***	***df***	***t***	***p***
Gender	Male	64	3.10	.595	142	1.932	.583
	Female	80	3.28	.550			
Field of Study	English- Major	47	2.81	.505	142	-6.398	.913
	Non-English Major	97	3.39	.511			

As Table 4 indicates, no statistically significant differences were observed between males (M = 3.10) and females (M = 3.28) in the use of translation strategies, $t(142) = 1.93$, $p = .583$. Similarly, English-majors (M = 2.81) were not significantly different from non-English majors (M = 3.39) in their use of these translation strategies, $t(142) = -6.398$, $p = .913$. The results of the one-way ANOVA are presented in Table 5.

Table 5. Results of one-way ANOVA

Variable	**Source**	**SS**	**df**	**MS**	**F**	**p**
Age	Between Groups	.829	2	.414	1.255	.288
	Within Groups	46.546	141	.330		
	Total	47.375	143			

Results show no significant differences in translation strategy use between students in the 20-21 (M = 3.28), 18-19 (M = 3.17) and 22 and above (M = 2.95) age groups.

4. Discussion

This study aimed to identify the main areas where English-majors and non-English-majors had difficulties in L2 production tasks and determine in what typical cases they referred to L1 while they were working on speaking and writing tasks. The study also explored whether field of study, age and gender influenced students' ITLS scores. In this regard, data obtained from the study sheds light onto the mental processes students are going through in L2 production tasks.

Considering the first research question, the data collected from the think-aloud protocols indicated that the use of translation was more common among non-English majors while English-majors could substitute the unknown words with more familiar ones. Both English-majors and non-English majors stated that they used translation in their L2 production more frequently at the beginning levels. Similarly, the qualitative data revealed that use of translation in L2 production is inevitable for non-English majors particularly at the beginning stages. Reportedly, the more they learned, the less students needed to use translation in L2 production. Hence, English-majors were found to use substitution more easily, and their performance was not hindered much by their struggles to find the exact equivalence. In their study which investigated elementary learners' reaction to the use of translation as a L2 learning practice, Calis and Dikilitas (2012) also reported that high proficiency students preferred to learn the target language through the target language. The present study also revealed that some English-majors found translation in L2 production not helpful since they generally conveyed the message by simply using the alternative words they know when words got stuck on the tip of their tongue.

Some phrases and proverbs from the source language do not always have clear-cut equivalents, making translating these items quite difficult. As most translators know, translation does not provide an exact reproduction of a word or phrase of the source text (Reynolds, 2016). Language users may need to bear this in mind and keep on actively finding solutions and adopting translating strategies to overcome these difficulties. To do this, they need wide vocabulary knowledge to substitute unknown words. Wilkins (1972) points to the importance of vocabulary knowledge by stating that "While without grammar very little can be conveyed, without vocabulary nothing can be conveyed'' (p. 111). While substituting vocabulary was a relatively manageable task for English-majors according to the data obtained from think-aloud protocols, vocabulary knowledge itself was quite challenging and even demotivating for non-English majors. As stated by more than one student who went through think-aloud procedures, not knowing the essential vocabulary for the completion of the task was "*annoying*."

As suggested by Cook (1992), all second language learners refer to their mother tongue in the learning process; however, the frequency of needing this reference may vary depending on the learner's language level. Although English -majors did not interrupt the task to find the exact word they wanted to translate from Turkish

to English, their performance in both tasks indicated use of translation. For instance; some of the English-majors had difficulty in forming noun phrases with a prepositional phrase (e.g. "*the girl with brown hair*"). For these students, the phrases they formed hinted at their use of translation strategies. Due to the Turkish structure in which color is used first and noun at the end, students came up with phrases such as: "*orange hairs girl*", "*brown hairs girl*". Another example that hints at L1 transfer for English-major students is the use of single pronoun (he) for gender. As suggested by one of the participants, lack of gender differences for 3rd person singular pronoun in Turkish causes students to fail to indicate these pronouns during tasks that require productive skills. Although they are already familiar with the rule, some students failed to use the correct pronoun while working on the L2 production tasks. Interlingual errors, as demonstrated in these examples, are reported to be caused by mother tongue influences (Richards, 1971).

Vocabulary was found to be one of the areas of difficulty in both groups; however, nature of the difficulty as well as the solutions found differed between the groups. Before English-majors produced sentences, they concentrated on the function and meaning of the vocabulary they wanted to use. For instance, they spent a lot of mental effort deciding between the options such as "*skeptical-suspicious"*, "*older-elder"*, "*alone-lonely", or "as well, too, also"*. On the other hand, the use of online dictionaries for direct translation from the first language seems to be more common among the non-English majors. During the think-aloud procedures, the students were not allowed to use online dictionaries or any other resources while conducting the activity. Saengpakdeejit (2014) stated that "*using a dictionary" and "guessing from the context*" are likely to be employed by language learners when they encounter some sort of vocabulary learning problems for better language learning results. The need for using the online dictionaries was mentioned by a number of non-English majors as they were busy completing the task. "*If I had the chance, I would simply use the online dictionary*" echoed their thoughts about this issue. On the other hand, one English-major's opinion regarding use of online dictionaries touched upon the issue of referring them in time of need and then simply forgetting the vocabulary searched for. Wang (2012) found that intermediate EFL learners, compared with the advanced learners, benefited more from using electronic dictionaries since they provided translation in the first language. Chiu and Liu (2013) asserted that dictionaries could be effective for vocabulary recognition over a short period of time. However, they concluded that printed dictionaries, rather than online dictionaries, could better help students retain the new vocabulary in their long term memory, particularly for the young learners. Some seemingly opposite findings can also be found in the literature that supports that online dictionaries are more effective for the retention of the targeted words (Amirian and Heshmatifar, 2013).

The second research question aimed to explore to what extent age, gender and field of study relate to the participants' use of translation strategies. ITLS results show higher mean scores for non-English majors, indicating that they utilize translation strategies more than English-majors. Additionally, there is no significant effect of gender, field of study and age on the mean of ITLS scores. These findings back up some earlier research (Mutlu et al., 2015; Shokouhi and Parvaresh, 2010; Xuemei, 2014). However, participants of the study showed individualized strategies to overcome the obstacles they faced while translating. The mean scores of the groups from the ITLS showed that English-majors' mean scores were lower than non-English majors' mean scores; and this finding can be interpreted that students' adherence to translation declines as students demonstrate greater proficiency in the language. O'Malley and Chamot (1990) found that translation accounted 30 percent of strategy uses. They also reported that while beginner learners mostly rely on repetition, translation and transfer, more advanced learners resort to inference; however, they do not abandon familiar strategies such as repetition and translation.

A remarkable finding of the present study was that the item "*I read the Turkish translation scripts before I listen to instructional English tapes or CDs*" was the least adopted strategy regardless of the field of study. Although the study conducted by Pan (2015) indicates that students benefit from reading transcripts in listening activities, it seems that participants of this study do not favor this strategy. The participants in this study are not provided with Turkish translation scripts of the listening activities. Hence, more specific questions should be asked addressing their preference in such cases.

This study investigated the Turkish students' use of translation in L2 production. The overall findings of the study seemed to indicate mostly similar but in some cases conflicting ways of use of translation in L2 production. Although both groups stated that they used translation as a learning strategy more frequently at the beginning levels, they tend to use it less with increased proficiency in L2. Despite the similarities, it is also worth noting that English-majors were found to use substitution more easily, and their performance was not hindered much by their struggles to find the exact equivalence Both students from English-major and other disciplines have favorable beliefs about the use of translation as a learning strategy, but no significant differences were found in the use of translation as a learning strategy based on age, gender, and field of study.

Limitations and Implications for Future Research

The findings of this study lack generalizability because of the small number of participants, especially in the

English-major group. To overcome this, the think-aloud technique was incorporated to improve the credibility of the data. Secondly, this study focused on speaking and writing production tasks; examination of listening and reading translation strategies through think-aloud protocols would also shed more light on the issue.

When students have a lot of vocabulary to refer to, they substitute them with the words they do not know. Hence, students could be encouraged to learn more vocabulary in a systematic way, for example through language learning strategies. It could therefore be a good idea to provide students with language learning strategies in their courses.

Because EFL learners' choice of translation as a learning strategy vary greatly, future research may be conducted on language users who are assigned a reading text to see their use of translation strategies during reading and listening activities as well. In addition, it might be interesting to conduct similar research while the learners are working on a task in pairs or groups.

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