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Psycholinguistic Analysis of Topic Familiarity and Translation Task Effects on Incidental Vocabulary Learning: an Iranian Context

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Abstract: The major thrust of this research has been a psycholinguistic analysis of effectiveness of topic familiarity and two types of translation tasks (from L1 to L2 and L2 to L1) on retention of incidental vocabulary learning for a longer duration. The effects of translation tasks and topic familiarity have been studied individually. However, the relative effect of topic familiarity conditions and translation in two directions have not been attended to in longer period of time. In doing so, thirty intermediate EFL students were asked to translate a few texts in two directions with two conditions of topic (un)familiarity. Each text contains some unknown words. The students were tested on these unknown words and the responses were examined in immediate and delayed post tests. The delayed post test session held after 2 weeks. The results show that, unlike the revised hierarchical model (RHM), translation task directions did not have significant effect on incidental vocabulary learning while retention was more effective with topic familiar texts in the both tests. In addition, topic familiarity of the texts play an important part in the process of incidental vocabulary learning. The article concludes with some suggestions for task designing and vocabulary teaching.

Keywords: Incidental vocabulary learning; Translation task, Topic familiarity.

1. Introduction

Comprehension is important for second language acquisition. Comprehension of input depends mostly on vocabulary knowledge. Vocabulary knowledge is not only important for oral comprehension, but also for reading comprehension. Both native speakers and learners recognize the importance of getting the words right because lexical errors are numerous and disruptive. Thus, it is important for learners to have good lexical skills in order to produce sentences and to understand them correctly (Gass and Selinker, 2001). Nation and Waring (1997) as cited in Schmidt (2000) argue that vocabulary size of 3,000 to 5,000 is essential for more proficient learners to be able to read authentic texts. Meara (1995) as cited in Schmidt (2000) states that the first 2,000 words of a language are very important for second language learners; thus, he encourages ESL and EFL teachers to teach them from the beginning of a language course.

Teachers of English as a second language face many difficulties while teaching vocabulary. In order to deal with these problems, they have to develop different techniques that meet their students' needs. One of these difficulties is that learners' L1 may have a negative impact on their learning of the L2 vocabulary advocacy of translation. Cook (2013) argues that the criticisms that have been levelled against translation overlook the fact that translation can also be used in ways that can complement the Direct Method of language learning. Indeed, Gonzalez-Davies (2004) points out that concepts that are central to the Communicative Approach, such as learner autonomy, peer work, meaningful learning, learning to learn, decision-making and student-centered classes, are all concepts that are relevant to translation training too. She claims that translation assignments can be designed to develop a number of competencies.

Butzkamm and Caldwell (2009) argue that translation should be regarded as a fifth skill, whose efficacy for communicative development has been disparaged in the past. Further evidence to reinstate translation in Language learning is found in a study conducted by Brooks-Lewis (2009), which reports on student resistance to a monolingual classroom and challenges the theory and practice of the exclusion of the learner's L1 in the classroom. Cook (2013) points to a growing literature which supports a return to bilingual teaching for a number of acquisitional, pedagogic, political and educational reasons.

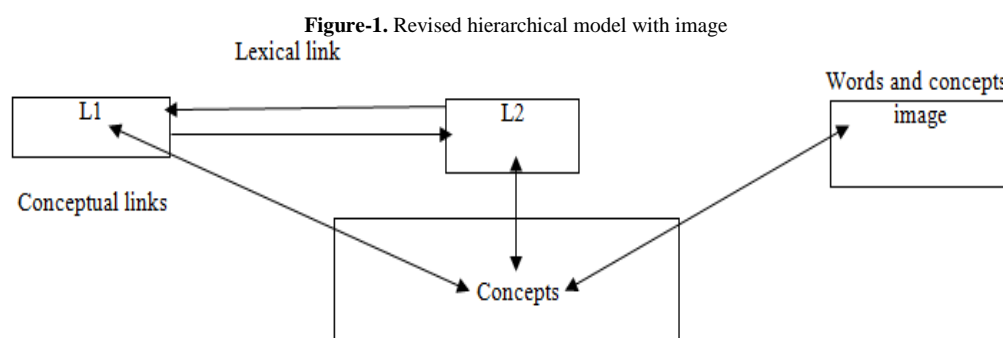
In a study highlighting the merits of translation in language learning conducted by Laufer and Girsai (2008), showed that incorporating explicit contrastive analysis and translation activities into a text-based communicative lesson made a significant difference in acquiring new vocabulary. As a controlled task, translation is regarded as a

time-efficient way to teach and test the L2 (Duff, 1989), Cook (2013) argues that translation is one of the few methods that can be adopted in large classes; In addition, its structured and predictable nature gives students a sense of attainment and achievement.

1.1. Bilingual lexicon

To understand the effectiveness of L1 and L2 glosses better, it is important to examine how words and concepts are represented in L2 learners' minds. Potter *et al.* (1984) introduced two models of lexical and semantic representations in bilingual learners' minds: the word association model and the concept mediation model. The word association model claims that L2 is mediated through L1 since new L2 words are associated with L1 translations, while the concept mediation model suggests that L2 can be mediated through concepts without L1 translations. Studies have found a developmental shift from the word association model to the concept mediation model as L2 proficiency increases (Potter *et al.*, 1984). In other words, L2 learners rely on word-to-word links (lexical links) in early stages, but as their L2 proficiency develops, they link L2 directly to concepts (conceptual links). With these results, Kroll and Stewart (1994) revised their model to include both the lexical links of the word association model and the conceptual links of the concept mediation model, and delineated the developmental shift through differentiation of the strength of the conceptual links. Figure 1 shows this revised model adding an "Image" which was part of the original model (Potter *et al.*, 1984).

This model suggests that L1 conceptual links are stronger than L2 conceptual links because L2 words are associated with their L1 translations for accessing meaning in early stages of L2 acquisition; and a direct link to concepts from L2 words can be possible only with increasing proficiency (Kroll and Sunderman, 2003). The current research uses the model in Figure 1 as a theoretical base, and through this model, one could expect that the L1 glosses would be more effective than L2 glosses for vocabulary learning since the word-to-concept connections are stronger for L1 than for L2 for the participants in this study who are regarded as intermediate learners. One can also recapture the concept of the dual-coding hypothesis in the model; images provide another source of conceptual linkage and consequently strengthen links between words and concepts.



Source: Adapted and modified from Kroll and Stewart (1994)

1.2. Background Knowledge and Schema Theory

Theoretical support for the process of comprehension guided by "background knowledge" is known as "schema theory" (Barlett, 1932; Rumelhart and Ortony, 1977). The first psychologist who used this term was Bartlett. He defined "schema" as "an active organization of past reactions, or past experience" (Barlett, 1932). From this introduction "schema theory" has got different definitions in the realm of foreign language teaching. For example, (Nunan, 1999) believes that "Schema theory is based on the notion that past experience leads to the creation of mental frameworks that help us make sense of new experience".

Widdowson (1983) define "schema" as cognitive device to organize information in our long term memory and Rumelhart (1980) describe it as "the building blocks of cognition". For a comprehensive definition we go to Carrell and Eisterhold (1983):

[...] according to schema theory, a text only provides directions for listeners or readers as to how they should retrieve or construct meaning from their own, previously acquired knowledge. This previously acquired knowledge is called the reader's *background knowledge*, and the previously acquired knowledge structures are called *schemata*. (Carrell and Eisterhold, 1983).

Researchers divide schema into three categories: formal, content and cultural or abstract schema. "Formal schema is the knowledge of the language that is necessary for understanding the writer's message. Content schema relates to the background knowledge that readers have about the topic or content of the text" (Dehghan and Sadighi, 2011). Cultural schema is defined as a device to reconstruct the meaning of a text through making a reference to the related cultural scripts (Oller, 1995). After years of researching, different aspects of this theory have been studied (Ellis and Beaton, 1993; Fathollahi and Jahandar, 2014; Gorjian *et al.*, 2013; Pulido, 2004;2005).

Pulido (2004) studied the effects of background knowledge of texts and students' incidental vocabulary retention. She found "significant effects of cultural familiarity whereby vocabulary gains were greater after participants read within the culturally familiar versions of the scenarios." (Pulido, 2004).

1.3. Incidental Vocabulary Learning

Incidental vocabulary acquisition is generally described as the “picking up” of new words when students are engaged in a reading, listening, speaking, or writing task. That is, incidental acquisition refers to the absence of the conscious intention to commit a word to memory. It is not to be confused with the notion of implicit learning. For example, we talk about incidental acquisition when a learner encounters an unfamiliar word in a text, attempts to understand its meaning to better comprehend the text, and is able to recall the word (or parts of it) after having completed the reading task. Typically readers attempt to understand the word by making an educated guess about the meaning from context (inferencing), glancing at a gloss (L1 translations or L2 synonyms) in the margin of the text, or by looking up the word in a dictionary.

1.4. Types of Incidental

Interpretations of incidental learning in past and current L2 vocabulary literature can be categorized into one of three definitions:

1) learner-oriented definition: learning as a by-product of a primary activity in which the learner’s attention is on meaning; The learner-oriented definition particularly emphasizes the learner’s perspective in assuming that during incidental learning, the learner’s attention is fixated on something other than word-learning. Researchers’ objective is to replicate as closely as possible the real-life naturalistic conditions during which learners are engaging with language—hence, attending to meaning—without trying to deliberately learn unknown words. One way that studies fitting this learner-oriented category have sought to create incidental learning situations is through designing experimental tasks that require learners to focus on a primary activity such as reading for pleasure or reading to extract information (Chen and Truscott, 2010; Wesche and Paribakht, 1999).

2) method-oriented definition: learning that occurs in experiments where participants are not told beforehand of a test; the method-oriented definition of incidental learning is perhaps the narrowest definition in the literature. It describes a simple methodological protocol: Participants are not told beforehand that they will be tested for vocabulary gains. The studies fitting the learner-oriented definition also follow this protocol, but what sets the method-oriented definitions apart is that strong claims or assumptions about learner attention being mostly on meaning are left out, and the act of withholding information about an imminent vocabulary test to participants is taken to be the only prerequisite for an incidental experimental condition. In place of the learner being at the center of the conceptualization of ‘incidental learning,’ the method in and of itself is what determines ‘incidental learning’ within the particular study. This approach can seem rather subtractive from the more general usage in language learning and teaching. However, this usage is likely to be the original one, as its appearance in experimental psychology can be traced back to the beginning of the 20th century (Hulstijn, 2001).

3) pedagogy-oriented definition: learning that occurs in a classroom when the overriding pedagogical focus is on meaning. While all three definitions share a common semantic nucleus, they highlight different aspects of the construct of ‘incidental’ learning. These nuances, although seeming trivial, lead to consequentially distinct framings and operationalizations of the construct in empirical studies.

The final definition of incidental learning, which is going to be the leading definition of the present study, focuses on the nature of instruction, rather than the learner or the experimental method. Specifically, it pertains to studies that are concerned with indirect instructional approaches to vocabulary teaching. Incidental learning is seen to be the result of learning in classrooms where language is not the primary object of instruction. Studies that fit this category usually involve a description of the classroom setting or the underlying pedagogical goals of instruction (Coll, 2002; Wode, 1999).

Previous studies unravelled different aspects of topic familiarity, translation and their effects on incidental vocabulary learning. The present study aims at shedding some lights on the concepts by investigating mixed effects of translation tasks (from L1 to L2 and vice versa) and topic familiarity of translated texts on incidental vocabulary learning among Iranian intermediate students. So the present study is going to answer the following questions:

- 1) Does translation tasks (from L1 to L2 and vice versa) of a text have any significant impact on immediate incidental vocabulary learning of Iranian EFL students'?
- 2) Does topic familiarity of a text have any significant impact immediate incidental vocabulary learning of Iranian EFL students'?
- 3) Does translation tasks (from L1 to L2 and vice versa) of a text have any significant impact on delayed incidental vocabulary learning of Iranian EFL students'?
- 4) Does topic familiarity of a text have any significant impact immediate incidental vocabulary learning of Iranian EFL students'?

2. Methods

2.1. Null-hypothesis

- 1) Translation tasks (from L1 to L2 and vice versa) of a text do not have any significant impact on immediate incidental vocabulary learning of Iranian EFL students'?
- 2) Topic familiarity of a text does not have any significant impact immediate incidental vocabulary learning of Iranian EFL students'?
- 3) Translation tasks (from L1 to L2 and vice versa) of a text do not have any significant impact on delayed incidental vocabulary learning of Iranian EFL students'?

- 4) Topic familiarity of a text does not have any significant impact immediate incidental vocabulary learning of Iranian EFL students'?

2.2. Participants

60 EFL learners (25 male and 35 female) studying at Adib university in Sari, Mazandaran participated in this research. The participants were at the intermediate level based their scores of the language proficiency test (OPT). Their scores do not show any significant differences so homogeneity of participants was considered. The students' age range was from 20 to 30.

2.3. Instrument

The most important instruments used in this study were an OPT test and two lists of vocabularies; the first list contained 25 English words from familiar and non-familiar texts and students were expected to supply the Persian meanings of these words. The second list contained 23 Persian words extracted from familiar and non-familiar Persian texts and students were supposed to write their meanings in English. From the 4 passages, two texts were based on culturally familiar topics (Tehran city in Persian and Mulla-Nasreddin story in English) and the other two were based on culturally unfamiliar topics (King William's actions in Persian and a political text in English). These texts were equal using a Fog index of readability (Farhady *et al.*, 1994). Also, two PhD holders in EFL evaluated the content validity of the texts and tests and reported the texts as suitable for translation tasks and tests as valid productive instruments.

2.4. Procedures

This study carried on in two sessions and the students were supposed to translate 4 passages from English to Persian and vice versa. They were told that they would be measured only based on their translation tasks so they were involved in the process of translation and did not focus on learning vocabulary. They were allowed to use their own dictionaries. In order to nullify the "order effect", the researcher represented the texts in 4 combinations. In this procedure, we have 4 versions of the same instrument. Immediately after the translation process, students were asked to participate in a vocabulary test. The words were completely new to the subjects because they expressed that they did not know the meaning of the words. In order to study the delayed effects of translation tasks and topic familiarity, the researchers tested participants' implicit vocabulary learning rate after a two week time interval with the same format of previous vocabulary lists. Students' scores in these two sessions of testing were analyzed statistically with two-way ANOVA tests to investigate the significance of observed differences. The results of this analysis are present thoroughly in the preceding paragraphs.

3. Result

3.1. Descriptive Analysis of the Data

Table 3.1. Descriptive analysis of immediate post test

Descriptive Statistics				
Translation	Familiarity	Mean	Std. Deviation	N
F to E	familiar	2.0333	1.09807	30
	non-familiar	.6667	.88409	30
	Total	1.3500	1.20486	60
E to F	familiar	1.9667	.80872	30
	non-familiar	1.1333	1.16658	30
	Total	1.5500	1.08025	60

F= Farsi E= English

As indicated by table 3.1, the number of participants was 30 and the mean score of immediate vocabulary post test of participants who translated content familiar text from Farsi to English was 2.0333 (std. Deviation 1.098), as compared to the mean score of participants who translated non-familiar text in a similar way which was 0.6667 (std. Deviation 0.88409).

Table 3.2. Descriptive analysis of delayed post test

Descriptive Statistics				
Translation	familiarity	Mean	Std. Deviation	N
F to E	familiar	.9333	.94443	30
	non-familiar	.1000	.30513	30
	Total	.5167	.81286	60
E to F	familiar	1.2333	1.04000	30
	non-familiar	.2667	.44978	30
	Total	.7500	.93201	60

F= Farsi E=English

Participants who translated content familiar text from English to Farsi obtained a mean score of 1.9667 (std. Deviation 1.9667) in post test while the mean score of participants who translated non-familiar text in a similar way was 1.1333 (std. Deviation 1.1333).

Table 3.2 shows the results of delayed post test. Participants who translated cultural familiar text from Farsi to English achieved a mean score of 0.9333 (Std. Deviation 0.94443) while participants who translated non-familiar texts in the same way achieved a mean score of 0.1000 (Std. Deviation 0.30513). Participants who translated content familiar text from English to Farsi obtained a mean score of 1.2333 (std. Deviation 1.04000) in post test while the mean score of participants who translated non-familiar text in a similar way was 0.2667 (std. Deviation 0.44978).

In order to show the significance of observed differences two 2-way ANOVA tests was run; the results of which are presented in the following section.

3.2. Inferential Analysis of the Data

Table 3.3. The results of 2-way ANOVA test for immediate post test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	39.633 ^a	3	13.211	13.204	.000	.255
Intercept	252.300	1	252.300	252.155	.000	.685
translation	1.200	1	1.200	1.199	.276	.010
familiarity	36.300	1	36.300	36.279	.000	.238
translation * familiarity	2.133	1	2.133	2.132	.147	.018

As shown in table 3.3, a tow way analysis of variance yielded a main effect for the content familiarity, $F=36.279$, $p<0.05$, in that familiarity of texts can have significant effects on implicit vocabulary learning. The main effect of translation, $F=1.199$, $p>0.05$, and the interaction effect, $F=2.132$, $p>0.05$ were not significant. As shown by table 3.4, the second null-hypothesis would be rejected.

Table 3.4. The results of 2-way ANOVA test for delayed post test

Source	Type III Sum of Squares	df	Mean Square	F	Sig	Partial Eta Squared
Corrected Model	26.067 ^a	3	8.689	15.318	.000	.284
Intercept	48.133	1	48.133	84.855	.000	.422
translation	1.633	1	1.633	2.879	.092	.024
familiarity	24.300	1	24.300	42.839	.000	.270
translation * familiarity	.133	1	.133	.235	.629	.002

As shown in table 3.4, the results of 2-way ANOVA test of delayed post test also show a main effect for the content familiarity, $F=42.839$, $p<0.05$, such that familiarity of texts can have significant effects on implicit vocabulary learning. The main effect of translation, $F=2.879$, $p>0.05$, and the interaction effect, $F=0.235$, $p>0.05$ were not significant. As indicated by table 3.4, the fourth null-hypothesis would be rejected. The following paragraphs would be devoted to discuss the findings of the present study.

4. Discussion

With regard to the research questions, incidental vocabulary acquisition from reading is intricately interwoven with and related to text comprehension (Pulido, 2004). When readers set out to comprehend a text, they construct a coherent mental representation of the events, actions and states present in the written text. In cognitive psychology, these mental representations are known as mental models (Kintsch, 1974) or situation models (van Dijk and Kintsch, 1983). Successful text comprehension has been equated with the construction of a coherent situation model. Readers construct and update their mental model of the textual meaning by means of interacting bottom-up and top-down processes throughout the reading process. In this process, the existing model serves as a basis for the interpretation of newly read information and is in turn continually tested and updated by this new information. In fact, readers try to alleviate any probable discontinuities in their mental model in order to maintain textual coherence. As this research shows if readers face a discontinuity in reading due to the presence of an unknown word in a text, the topic familiarity of that text has a great contribution to their decision for discovering the meaning of that unknown word. In fact, in texts which display an easy-to-construct state of affairs due to their very topic familiarity, readers are less likely to attempt the meaning of every single unknown word through translation because they rely on inferencing within text organization such as propositions rather than individual words. Readers are likely to take refuge in finding the meaning of the unknown words in texts from which a mental model is difficult to construct and their top priority regarding text comprehension becomes 'trying to know', or at least 'guess', the meaning of individual words rather than inferencing propositions. Interestingly, this is in line with the literature on (Ellis and Beaton, 1993; Fathollahi and Jahandar, 2014; Gorjian *et al.*, 2013; Pulido, 2004;2005).As the results also show the differences between L1 and L2 was not so remarkable and this finding does not support the Kroll and Sunderman's model in which L1 conceptual links are stronger than L2 conceptual links because L2 words are associated with their L1

translations for accessing meaning in early stages of L2 acquisition; and a direct link to concepts from L2 words can be possible only with increasing proficiency (Kroll and Sunderman, 2003). The reason possibly lies in the nature of texts were given that did not differentiate the way that the subjects respond. The implications of this study are for teachers that present the new words in the texts that learners read. The readers can pick up new words more effectively through familiar texts than translation. Learners are able to learn more words through the texts that they have related schema than mere translation.

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