Acquisition of Japanese through translation

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Abstract

equiring and retaining vocabulary knowledge are two of the most important aspects of second language (L2) learning. Some scholars (e.g. Hedrick, Harmom, & Linerode, 2004; Nation, 1999; Stone & Urguhart, 2008) advocate that we should re-think and explore in depth the importance of vocabulary. According to Wilkins (1972), "while without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (p. 111). In other words, vocabulary is the foundation of language because without sufficient vocabulary knowledge L2 learners will not be able to express themselves satisfactorily or comprehend incoming information. Vocabulary items are thus the basic building blocks of language (Read, 2001) and their acquisition naturally leads to more efficient communication. Since, in today's academic settings, language courses are designed to develop learners' communicative competencies, translation has been overlooked. Accordingly, the study that will be presented had a total of 21 participants who took the course Japanese Through Translation designed for intermediate Japanese language learners during the 2016-2017 academic year at a public university in the United States. Participants took two different types of vocabulary guizzes which had a variety of lexical items they learned throughout the semester. This study examined two different ways of learning vocabulary – deliberate and incidental – one through communication and the other through translation, respectively. The results indicated that most of the words learners retained were those

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which had been taught by means of translation. Hence, it can be said that translation has a positive impact on the acquisition of vocabulary because learners have a better chance of coming across more lexicons/ words when they are engaged in translation tasks. Although the role of translation in language pedagogy has still been underappreciated due to negative associations with the antiquated grammar-translation method, it is time to reconsider its effectiveness for L2 learning.

Keywords: cognitive processes, incidental learning, Japanese, translation, vocabulary acquisition.

1. Introduction

The role of translation in language pedagogy has been overlooked and underappreciated, not only in academic settings, but also in the real world due to negative associations with the grammar-translation method used over half a century ago. As the name of this method indicates, the main focus is on specific grammar rules and vocabulary words embedded in various reading passages, and in translating them. It has been said that in this method no attempt is made to develop communicative competences such as speaking and listening comprehension (Lems, Miller, & Soro, 2010). In the past, scholars (e.g. Duff, 1989; Sankey, 1991; Wilkins, 1974) have been against the use of translation as a language learning tool, and thus "argued that translation is not a useful tool when acquiring a second or foreign language [because] it provides a simplistic one-to-one [correspondence] between the [source and the target] language [which] can cause interference between them" (Fernández-Guerra, 2014, p. 153). Moreover, it has been claimed that translation is just an artificial exercise that has nothing to do with a communicative approach to language teaching (Fernández-Guerra, 2014). Researchers in the field of translation studies have also affirmed that this is probably one of the reasons why translation has been overlooked. Dagilienė (2012) states that translation is still ignored as a useful language learning tool to date due to the fact that the anti-translation side continues to believe that it is not a communicative activity.

As mentioned in Fernández-Guerra (2014), "[r]ecent studies, however, show that far from being useless, translation can be a great aid to foreign language learning" (p. 153). For example, researchers have demonstrated that translation has a positive impact on the acquisition of vocabulary, and that learning vocabulary through translation is effective because learners have a better chance of coming across more lexicons/words when translating. One study group (Barletta, Klingner, & Orosco, 2011) examined two different ways of learning vocabulary, one through translation and the other through communication (i.e. oral activity). The results indicated that most of the words learners retained were those which had been taught by means of translation exercises. Today, translation can be one of the most useful techniques, especially for those learning a second or foreign language, in our present globalised world. Moreover, because translation has been defined as "the process of changing something that is written or spoken into another language" (Stevenson, 2010, p. 1899), it is conceivable that translation actually does have something to do with communicative approaches to language teaching.

Therefore, to add to the growing body of studies on the benefits of translation in language learning, the purpose of this study was to assess students' vocabulary development by means of translation tasks. This study has important results as a focus on vocabulary learning in the field of translation is missing. Learners have access to unknown lexicons/words when translating. Thus, the efficacy of learning vocabulary through translation and communication was also investigated.

2. Literature review

2.1. Interconnections between translation and vocabulary learning

Since translation is the process of changing something spoken or written into another language, it has been closely linked with linguistics. In order to create refined products, it has been said that translators should be familiar with both source and target cultures and languages, and have the ability to express thoughts clearly and concisely in both languages. Furthermore, many studies (e.g. Christopher, 2012; Jackson, 2014; Sofer, 2005) observe that because "meaning transfer is the translator's most clearly defined task" (Guzmán, 2010, p. 18) it is important for translators to possess extensive vocabulary knowledge in both languages.

According to Ur (2012), language learners need to recognise that there are several aspects of vocabulary knowledge including form, spelling, etc. She goes on to explain how important meaning is to vocabulary learning as follows:

"The meaning of a word or expression is what it refers to, or denotes, in the real world. This is given in dictionaries as its definition. Occasionally a lexical item in English has no parallel in the learners' L1, and you will find yourself explaining an actual concept as well as the item that represents it" (Ur, 2012, p. 61).

Interestingly, Wilkins (1972) unequivocally asserts that "while without grammar very little can be conveyed, without vocabulary *nothing* can be conveyed" (p. 111). It is clear that vocabulary is the foundation of language; therefore, in order to achieve their respective goals, vocabulary knowledge is not only vital for language learners, but also translators. In short, translation is useful for acquiring lexical knowledge, and vocabulary is one of the integral elements of language. Therefore, it can be said that translation is beneficial for language learning if used appropriately. However, translation has been neglected for years because the anti-translation side has argued that translation is mostly regarded as a skill which does not directly link with the other four competencies, and thus should not be used in L2 teaching (Zojer, 2009).

2.2. Procedures of vocabulary learning

Some scholars (e.g. Anderson & Freebody, 1981; Hedrick et al., 2004; Nation, 1999; Stone & Urquhart, 2008) advocate that we should re-think and explore in depth the importance of vocabulary. In other words, vocabulary is the

foundation of language because without sufficient vocabulary knowledge L2 learners will not be able to express themselves satisfactorily or comprehend incoming information. Vocabulary items are thus the basic building blocks of language (Read, 2001) and their acquisition naturally leads to more efficient communication.

Hadley (1993) mentions that while native speakers of English possess vocabularies of 10,000-100,000 words, L2 learners of English typically have between 2,000-7,000 words when they start their post-secondary education. Since vocabulary acquisition is an incremental process, this can also be applied to learners of other languages. Kruidenier (2002) suggests that it is important for L2 learners to learn the meaning of new vocabulary items in context. Thus, it is essential to be exposed to a wide range of contextualised vocabulary. Interestingly, according to Whyatt (2009), such exposure in the context of translation tasks is naturally linked with the need to actively manipulate vocabulary. Moreover, from a teacher's perspective, it is said that since lexical knowledge including style, tone, connotations, etc., is difficult to teach explicitly in the classroom, translation is highly effective for developing vocabulary knowledge.

Ur (2012) states that there are two procedures for vocabulary learning: deliberate and incidental. Since the former is instructional while the latter is accidental, they are also called explicit and implicit vocabulary learning, respectively (Klapper, 2008). More specifically, the former refers to situations in which vocabulary items that are typically found in textbooks designed for foreign language courses are intentionally provided to learners for review to expand their lexical knowledge. The latter, on the other hand, applies to situations in which learners happen to encounter unknown vocabulary items through reading, listening, translation, etc. Therefore, the main difference between these procedures is whether intentionality is involved. However, as Laufer and Nation (2013) have observed, "the experimental and observational study of both deliberate and incidental vocabulary learning activities is a much neglected area of vocabulary studies" (p. 172). In a similar way, Taylor (1990) has claimed that even though vocabulary acquisition has been an undervalued area for quite some time now, it is essential for language mastery. The present study hinges on the

distinction between deliberate and incidental learning, particularly significant to the acquisition of lexical items, and thus attempts to identify the differences in effect of vocabulary retention between them.

Nation (2003) claims that deliberate learning in conjunction with opportunities for learning through communication is far more effective because it can result in a large amount of knowledge that is retained over substantial periods of time. In contrast, Krashen (1989) argues that language is subconsciously acquired and learners do not know exactly what they are acquiring. He goes on to assert that conscious attention is concerned with message, not form; therefore, the acquisition process of linguistic knowledge is identical to what has been termed 'incidental learning'. The dichotomy between both learning procedures is indeed a dilemma. With vocabulary learning, the former involves the way in which language learners memorise item after item by referring to their respective translation equivalents from vocabulary lists. Thus, although intentional learning is quick since it does not require the use of a dictionary, it is in a sense superficial because learners may not be able to use learned knowledge properly in context. In contrast, incidental learning involves learners coming across unknown items during target language activities such as reading and learning their usage in context. Even if it takes time to look them up in a dictionary, such physical action that engages cognitive processes will help learners retain knowledge better in their memory system. Therefore, when it comes to learning vocabulary, it is conceivable that combining these two procedures may be the ideal. As Ur (2012) states, "most researchers agree that we need to include some deliberate, focused vocabulary-teaching procedures as a supplement to - though not a substitute for - incidental acquisition through extensive reading and listening" (p. 65).

Other researchers (e.g. Cobb & Horst, 2004; Ellis, 2008; Hill & Laufer, 2003) also point out that incidental learning alone is not sufficient for the acquisition of L2 vocabulary items, and thus needs to be supplemented by explicit learning. Huckin and Coady (1999), on the other hand, suggest that as "a by-product of the main cognitive activity" (p. 182) incidental acquisition is the primary means by which L2 learners develop their vocabulary knowledge beyond the first

few thousand most common words which are usually acquired explicitly (i.e. deliberately). They also observe, however, that incidental vocabulary learning is still not fully understood, and that many questions are still unanswered.

2.3. Case studies of vocabulary learning strategies

As discussed in the previous section, the study of deliberate and incidental lexical learning activities is a neglected area. However, there have been few studies on the effects of each procedure conducted in the past. For example, Tabrizi and Feiz (2016) examined the effect of deliberate and incidental vocabulary learning strategies on Iranian high school students learning English. A total of 50 participants were randomly divided into two groups: one experimental group with 25 students using flashcards, and a second experimental group with 25 students using textual-pictorial glosses. A pretest composed of vocabulary items in multiple-choice format was administered in order to determine their pre-existing lexical knowledge. According to their findings, both groups were at almost the same level and thus the researchers concluded that there was no significant difference between them.

On completion of the three sessions, a posttest was administered in the same format as the pretest and included the new vocabulary items. Tabrizi and Feiz (2016) found that there was a significant difference between the groups. The deliberate group outperformed the incidental group by a large margin. The researchers account for this outcome by noting that deliberate learning is more focussed and goal-oriented than incidental learning.

In another case study, Ahmad (2011) conducted research on 20 Saudi English learners regarding the relative efficacy of deliberate and incidental vocabulary learning processes. His main goal was to compare the impact of direct learning on the acquisition of new vocabulary items with that of the incidental approach of guessing the meanings of new words via contextual clues. Ahmad concludes that the incidental vocabulary technique can be a good method for both teaching and learning vocabulary items because it helps learners develop reading comprehension and promotes lexical acquisition.

On the one hand, other researchers (e.g. Huckin & Coady, 1999; Krashen, 1989; Nagy, Herman, & Anderson, 1985) who have noted the effectiveness of incidental learning explain that language learners acquire more vocabulary knowledge through extensive reading and guessing the meaning of unfamiliar words. They further note that a large portion of the vocabulary children learn in L1 is incidental. On the other hand, some scholars (e.g. Elgort, 2011; Hulstijn, 2003; Nation, 2001; Schmitt, 2010) have claimed that experiments involving deliberate learning indicate that acquisition and longterm retention rates are better than those of incidental learning. In either case, what is important here is whether or not such information can be retained in the memory system for future use. However, according to one study group (Ornstein, 1992), the implications of the distinction between deliberate and incidental approaches for understanding memory retention remain unclear. Moreover, a number of studies (e.g. Braun & Rubin, 1998; Shahpari & Shamshiri, 2014; Zandieh & Jafarigohar, 2012) have found that there was no significant difference in vocabulary retention between deliberate and incidental learning techniques.

2.4. Gaps in the literature: research on translation and vocabulary learning

In order to explore which approach/process works better for L2 learners, past studies have examined the differences between deliberate and incidental vocabulary learning. It is problematic that the participants in all of the above-mentioned studies were divided into groups in which they only went through designated tasks once. The outcomes achieved by the deliberate learning group were juxtaposed with the incidental learning group. Researchers formed these groups based on pretests or language level proficiency tests given prior to the experiments. That is, it was assumed that both groups were formed neutrally. Nevertheless, what was disregarded was that these tests only administered one time were insufficient to accurately evaluate the subjects' proficiency levels, and thus apt to be biased unless they were grouped based on the result of multiple tests. Therefore, instead of classifying them into different experimental categories, researchers could have each subject participating in

their research go through both steps/phases of the overall process: deliberate and incidental learning.

2.5. Research question and hypothesis

There are mainly two sets of ways of encountering new vocabulary items (i.e. lexis). The first is when learners are outside the classroom and engaged in reading a book, watching a movie, listening to music, etc. Another is when they are in the classroom in which new items are introduced orally and/or visually by the teacher or are recognised by themselves through activities such as reading a text or doing a translation task. This study focusses on the latter as this research was conducted in the classroom, and will therefore address the following Research Question (RQ) and Hypothesis (H):

RQ: Does learning vocabulary through incidental translation help learners retain knowledge better than learning vocabulary through deliberate oral instruction (i.e. communication)?

H: Learning vocabulary through translation will outperform learning vocabulary through oral instruction. Unlike receiving vocabulary orally and visually, vocabulary encountered when working with translation materials will elicit the looking up of unknown items in their online dictionary, and this in turn will facilitate comprehension, memory consolidation, retention, and so forth.

3. Method

3.1. Participants

This is a classroom-based study which was conducted during the 2016-2017 academic year at a public university in the United States under the course name *Japanese Through Translation* designed for intermediate Japanese language learners. Twenty-one (nine female and 12 male) undergraduate students (ages

ranging from 18 to 22) studying at an intermediate level took part in this research project. The only prerequisite for this course was that participants must have taken at least two semesters of college-level Japanese or had equivalent experience, and their native languages were English (16), Chinese (4), and Korean (1).

3.2. Design and procedure

The purpose of the study using the following procedure was to determine which approach best helps participants develop vocabulary knowledge and retention. Participants were required to bring a dictionary (hardcopy, electronic, online, etc.) to class. They could use it to look up unfamiliar words anytime they encountered them in order to complete the given tasks, except during vocabulary quizzes.

3.2.1. Step 1

Throughout the semester, a variety of vocabulary was introduced to participants through both translation and communication. The former means that they encountered unfamiliar vocabulary during the given translation task as part of interactive classroom activities and had to use a dictionary in order to complete the translation. The latter means that, as in a traditional language classroom, the instructor orally introduced new vocabulary items by using the blackboard or PowerPoint.

3.2.2. Step 2

At a later date, participants took two vocabulary quizzes in succession (the quizzes were composed of an equal number of vocabulary items learned through both methods).

In order to assess participants' spontaneous knowledge learned through both methods, quizzes were unannounced to the students. The contents of both quizzes were identical, but formats were different. The first one was composed of 'fill in the blank' questions, and the second one consisted of 'multiple choice' questions. Figure 1 and Figure 2 are quiz question examples.

Figure 1. Fill in the blank

Please translate the	e following into Japan	iese.		
Context	Repetition	Omit	Theory	Depression

Figure 2. Multiple choice

Please choose the most appropriate translation for each item from the table below.				
Context	Repetition	Omit	Theory	Depression
 てんしゃ	りろん	はぶく	つうやく	いみ
	95%	14251	3,41	V 3 07
せいしょ	ぶんみゃく	うつ	こうかん	くりかえし

The reason for the use of different types of format is to investigate whether there is a significant difference between the formats as follows:

- test a class on vocabulary knowledge without a clue through 'fill in the blank' formats, and
- test a class on vocabulary knowledge with a clue through 'multiple choice' formats.

It is hypothesised that this is how the actual effects of acquiring lexical items through both methods and ideas regarding their relationship with cognitive processes are discovered. Although the quizzes were also a small part of the participants' grade, since this study values studious effort, it was later announced that students were allowed to drop one of them (i.e. keep the better one) in compensation for not announcing they were having a quiz and therefore not having the ability to study.

4. Results and discussion

The present study had all the participants take two vocabulary quizzes in two formats: 'fill in the blank' and 'multiple choice'. Each format contained a total of 20 questions consisting of two sets of ten questions from each learning method: oral and translation. The contents of both quizzes were identical. The aim was to examine which format would better help them retrieve vocabulary knowledge from their memory systems, and to observe which method worked better for L2 learners. Table 1 is showcasing the results obtained from the quizzes. This will be followed by Table 2 displaying its statistical data.

Table 1. Results of the vocabulary quizzes³

Format	Fill in the blank		Multiple choice	
Method	Oral	Translation	Oral	Translation
P 1	7	9.5	1	8
P 2	6.5	8.5	4	10
P 3	5	7	4	6
P 4	4	8	5	7
P 5	0	2	3	6
P 6	8	10	10	10
P 7	9.5	7.5	3	8
P 8	2	3.5	6	10
P 9	4	4	2	7
P 10	4	8	7	10
P 11	2	6	4	7
P 12	4.5	4	3	5
P 13	3	9	8	10
P 14	3	6	3	8
P 15	4	3	5	10
P 16	0	0	2	4
P 17	3	5	5	8
P 18	6	4	6	6
P 19	2	5	5	6
P 20	3.5	5.5	2	5
P 21	3.5	6.5	7	10
TOTAL	84.5	122	95	161

^{3.} In the table, all calculations were performed by ANOVA

There are four conditions: two different formats for two different methods. Therefore, the study adopted another statistical data analysis procedure called analysis of variance (ANOVA) using Statistical Package for the Social Sciences (SPSS) statistics and utilised one of the designs called repeated measures which allows one to compare three or more group means when participants are the same for each group. The results are as follows.

Table 2. Report generated by one-way ANOVA with repeated measures for vocabulary

Descriptive statistics

	N	M	SD
Oral/Fill	21	4.02	2.39
Translation/Fill	21	5.81	2.61
Oral/Multiple	21	4.52	2.25
Translation/Multiple	21	7.67	1.98

Tests of within-subjects effects

Source	df	F	Sig.
Type Greenhouse-Geisser	2.226	18.338	.000
Error (Type) Greenhouse-Geisser	44.520		

4.1. Analysing research question

According to the data called the *Descriptive statistic* given in Table 2, the calculated means for each format and method are graphed below (Figure 3).

For each format, the participants performed better with translation. As proof, according to the Greenhouse-Geisser given in Table 2, there was a statistically significant difference between the methods (F(3, 80)=18.338, p<.05). However, this only tells us the overall significance. Therefore, we need to look at the pairwise comparisons given in the same table presenting the outcomes of the Bonferroni post-hoc test. As shown in Table 3, this provides the significance level for differences between each format and method.

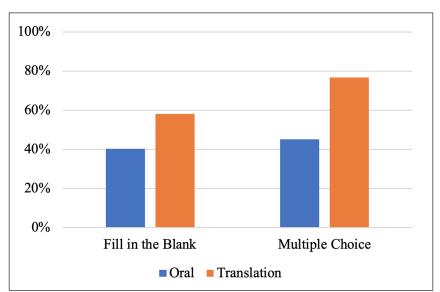


Figure 3. Means for each format and method

Table 3. Results generated by the Bonferroni for vocabulary

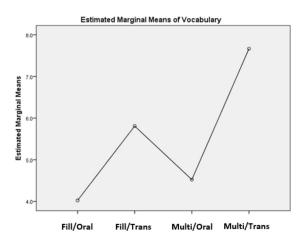
(I) Method	(J) Method	Sig.
1 Fill/Oral	2 Fill/Trans	.005
	3 Multi/Oral	.999
	4 Multi/Trans	.000
2 Fill/Trans	1 Fill/Oral	.005
	3 Multi/Oral	.255
	4 Multi/Trans	.008
3 Multiple/Oral	1 Fill/Oral	.999
	2 Fill/Trans	.255
	4 Multi/Trans	.000
4 Multiple/Trans	1 Fill/Oral	.000
	2 Fill/Trans	.008
	3 Multi/Oral	.000

As mentioned earlier, when *p*-value is smaller than .05, there is a statistically significant difference between the two groups. Interestingly, any combination involving 4 (Multiple/Trans) shows there is a statistically significant difference.

That is, the participants did best on the 'multiple choice' format through the translation method. Even when juxtaposing both outcomes yielded by 'fill in the blank' format, it is clear that the translation method produced better results.

Regarding the translation method, we first consider why the 'multiple choice' format was superior. Given the fact that all of the questions were identical, the former must have enabled students to access the knowledge retained somewhere in their memory systems. But, as the mean scores are about 58% for 'fill in the blank' and about 77% for 'multiple choice', if there was a specific cue that triggered some kind of information, the participants were more likely able to produce the correct output. Although multiple choice requires only recognition and results seem predictable, comparing the different formats is not as crucial as comparing the outcomes achieved by the two methods: incidental translation and deliberate oral instruction. This is because the research intended to examine the latter, and thus the formats were simply employed to see if there is a significant difference between the two. As proof, as shown in the profile plot below (Figure 4) created by ANOVA, it can be said that regardless of the format the translation method outperformed the other in both cases. Moreover, there is no significant difference between the two formats in the oral method.

Figure 4. Profile plot for vocabulary learning



In the end, participants retained more lexical items learned through translation. Therefore, the hypothesis was supported. Kruidenier (2002) advocates that it is important for L2 learners to learn the meaning of new lexical items in context. Similarly, according to Whyatt (2009), such exposure in the context of translation tasks is certainly linked with the need to actively manipulate vocabulary. That is, incidental learning that involves learners coming across unknown items during target language activities such as translation and learning usage in context are highly effective for developing vocabulary knowledge.

5. Conclusion

The reason for investigating the efficacy of translation in academic settings is that it has heretofore been a largely neglected pedagogical approach. Language courses are typically designed to develop learners' language competencies in reading, listening, speaking, and writing, which have long been classified as core skills necessary for second language acquisition (Leow, 2015). In fact, however, in a broad sense, translation encompasses all of these basic skills since translation is defined as "the process of changing something that is written or spoken into another language" (Stevenson, 2010, p. 1899). Unfortunately, however, translation has been underappreciated due to its negative association with the grammar-translation method. This method was very popular a long time ago. Nevertheless, over time, it was gradually replaced with other teaching methods such as direct, audiolingual, and finally today's most popular method, the communicative approach, which is said to be most effective in helping L2 learners develop their communication skills (Lightbown & Spada, 2013). This is reflected in many aspects of the learning environments and teaching styles that we see today, but we have to recognise that learners have a better chance of coming across lexical items which are not found in textbooks when translating. What is more, when they encounter unknown items, they will look them up in a dictionary. This is very important because they are taking direct action, and if they do something physically, this information or knowledge will be stored in their memory system longer than when conventional classroom methods are employed.

As part of the effectiveness of translation, the study shed light on vocabulary acquisition. To reiterate, there are two procedures for vocabulary learning: deliberate and incidental. During the study, both procedures were employed as follows. For the former, lexical items were provided orally and visually in the classroom. For the latter, the participants used a dictionary when translating in order to complete the tasks given. Furthermore, there were two formats: 'fill in the blank' and 'multiple choice'. This was done to examine whether vocabulary learning was related to cognitive processing. The incidental procedure worked better for both formats, especially the latter. This suggests that lexical items learned through translation tend to be retained in the human memory systems longer and be recalled more easily when there is a specific cue. That is, using methods that entail some kind of deliberate physical action is a more effective way of learning vocabulary than traditional classroom approaches. In the case of this study, it was physical action that helped students retrieve learned information more efficiently.

Thelen and Lewandowska-Tomaszczyk (2010) state that "the translation process is a cognitive process in the first place" (p. 374) because there is constant transfer between source and target languages. Similarly, Sickinger (2017) claims that translation is firmly related to cognitive psychology and cognitive linguistics. As is well-known, the act of translation, including interpretation and transcription, is a practice that requires mental processes, decision-making, and the like. However, while translation practice is readily observable, cognitive activities are not. Therefore, mental processes of translation have been one of the main subjects in translation studies. This is part of the reason why this study examined how vocabulary learning took place. More specifically, this study discovered visible evidence that supports the efficacy of translation on vocabulary acquisition based on the fact that incidental vocabulary acquisition surpassed their opposing modes. It is now clear that acts of translation involving cognitive processes were more useful for storing information in and retrieving information from the memory system.

Traditionally, as referred to by many researchers (Dehn, 2008; Goldstein, 2014; Davey, Sterling, & Field, 2012) and as mentioned in Ito (2015, pp. 7-8), the

most widely accepted and used model of information processing is the stage theory based on the work of Atkinson and Shiffrin (1968). The hypothesis is that when new information is taken in, it is manipulated in some way before it is stored (Lutz & Huitt, 2003). The stage theory model identifies three stages of memory: sensory memory, short-term or working memory, and long-term memory. This is also commonly referred to as the information processing model. Carter (2014) says that one of the best ways to develop vocabulary is to read and look up new words in the dictionary. This is the same process the participants in this study encountered when they engaged in translation tasks. Detecting or noticing unknown items initially comes through the sensory system, and the act of using a dictionary is the next step towards pushing them deeper into the memory system. Thereafter, if one wants to memorise the items s/he will write them down and practise using them to retain that knowledge in long-term memory. Hence, compared to oral instruction, which L2 learners might simply listen to in traditional classroom settings, the act of translation requires extensive vocabulary knowledge in order to complete tasks given. This supports the results that the participants retained more lexical items learned through translation involving cognitive processes.

In the future a study such as the one presented should be expanded to include different target languages and different levels of language acquisition in addition to a more focussed attention on cognitive processes.

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