The Effect of Semantic Transfer on Iranian EFL Learners' Lexical Representation and Processing

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Introduction

Since 1980s and after the call of Meara (1980) for more research on the nature of vocabulary acquisition, there has been a considerable amount of literature devoted to the role of vocabulary in second and foreign language learning. These studies have attended mostly to the nature of vocabulary knowledge, vocabulary acquisition, the role of the context, vocabulary retention, lexical storage, receptive and productive vocabulary, vocabulary retrieval and vocabulary instruction (Laufer, 1998; Laufer and Paribakht, 1998; Webb, 2008; Zheng, 2009; Bell, 2009; Churchill, 2008; Schmitt, 1998). As Jiang (2004) reminds us, psychological processes underlying the learning of vocabulary of second language is still under-researched area in spite of the advances that have improved our understanding of the nature of vocabulary knowledge of second language as well as the way vocabulary is learned. He highlights the lack of theoretical frameworks which can explain the specifications of vocabulary learning processes in the mind in relation to concepts and overall lexicon of the learners. Jiang (2004) also proposes a three- stage model which incorporates the role of semantic transfer in adult second language vocabulary acquisition. These stages include; lexical association stage, L1 lemma mediation stage and lexical development stage. He finds experimental support for his theory (the focus is on the second stage which lemma mediation hypothesis) by testing it with Chinese and Korean learners of English as a second language (Jiang, 2002 & 2004). The purpose of this study is to test Jiang's model of vocabulary acquisition with learners of different language background (i.e. Persian) and under different learning conditions (learning English as a foreign language). In other words, it is a replication of his study in a totally different environment. The secondary purpose of this study is to discuss the pedagogical implication of the findings of the study in the light of new developments in the views toward SLA and TEFL. That is, the implications for curriculum design; teacher and student roles as well as testing vocabulary is discussed.

Statement of the problem

Though it took a long time for language teaching profession to admit the central role of vocabulary in learning additional languages, most language learners have intuitively recognized the importance of vocabulary in their development (Nation, 1990). This recognition may lead to memorization of lists of vocabulary which at best are part of passive vocabulary of learners or at best the learners might learn the usage of some vocabulary but not their native like use. Native-like choice of vocabulary is often a problem for language learners, especially in foreign language context (Skehan, 1998). This can at least partly be due to misunderstanding of the meaning of words of the target language or their inability to match form and meaning and use them appropriately in context. Matching form and meaning

is the major process in vocabulary acquisition (Saji, *et. al.,* 2011; Monaghan & Mattock, 2012) that students sometimes have problem with. This problem is more highlighted in foreign language context where the learners do not see the uses of words in their immediate context. Anyone who has practiced teaching language in Iranian context has in one way or another come across the question of 'what is the most appropriate way to teach (for teachers) and to learn (both for teachers and students) vocabulary?' Taking the context in which vocabulary are learned into account is sometimes neglected by the teachers involved in vocabulary teaching practices, that is, the context of learning, the socio-cultural situations and the views of the learners toward the foreign language and its vocabulary as well as the learners' first language are factors that can have effects on the very processes of vocabulary acquisition in its every stage. Getting to know the nature of vocabulary acquisition and the processes involved in the very processes of their acquisition can, on the one hand, improve the quality of vocabulary teaching practices and, on the other hand, to eliminate the problem of native-like use of vocabulary in desired context of situation.

The Significance of the Study

As Wilkins (1972) pointed out about four decades ago "without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (p. 111). Regarding it as the heart of second language comprehension and use (Hunt and Beglar, 2005) seems to be a natural compensation in favor of the lexicon which was a neglected area of research before mid-1980s. It seems that there is a general consensus today on the importance of the role of vocabulary acquisition in language learning (Coady and Huckin, 1997; Read, 2000; Meara, 2002, Bogaards and Laufer, 2004). The research on vocabulary has increased so drastically that Nation claims no one can stand on the top of the all trends in vocabulary acquisition studies (Nation, 2001). However, the central role of vocabulary has not yet received the attention it deserves in the reality of second language acquisition and in most of the language teaching practices. The role of first language concepts in learning second language vocabulary is also a neglected area of inquiry. There can be several reasons for being interested and studying the nature of second language vocabulary knowledge in relation to semantic transfer. First, it can contribute to enriching a theory which has developed to address the above-mentioned lack of theoretical framework in literature (Jiang, 2004) in a yet under-researched area. Second, word-meaning studies of all sorts can have a considerable role in defining the underlying factors for mutual understanding of participants in communicative acts and this understanding can, in turn, contribute to more universal understanding among people of the world with different linguistic cultural and ethnical backgrounds. Third, semantic content of a vocabulary is conducive for the learners in defining syntactic properties of a lexical entry (Koeing and Davis, 2006). Forth, the findings of the study can be beneficial for language teachers, since prior to any teaching practice teachers need to know the nature of what they are trying to teach and the nature of the processes involved in the actual teaching practice. Fifth, curriculum designers can also use the findings in planning the textbooks and setting objective for the courses and finally it is the learners themselves benefit by gaining a meta-knowledge of their knowledge of vocabulary. This can help them to proceed to the third stage of Jiang (i.e. lexical development) more rapidly.

Research Questions

This study will try to address the following research questions. Questions 1 and 2 will be addressed using statistical analysis and questions 3 and 4 will be answered using qualitative methods of analysis.

1. What is the effect of semantic transfer on foreign language lexical representation as measured by semantic judgment tasks?

2. What is the effect of semantic transfer on foreign language lexical processing as measured by the speed of the participants' responses?

3. How do learners view their foreign vocabulary learning in the light of their first language semantic knowledge?

4. What is the role of the context and socio-cultural factors in semantic transfer from first language vocabulary to foreign language vocabulary?

Research hypotheses

The hypotheses for quantitative section of the study are as follows:

H01. There is no effect of semantic transfer on foreign language lexical representation as measured by semantic judgment tasks.

H02. There is no effect of semantic transfer on foreign language lexical processing as measured by the speed of the participants' responses.

H3. The learners' view toward their foreign vocabulary learning in the light of their first language semantic knowledge can have a role in vocabulary acquisition process.

H4. The context and socio-cultural factors have a role in semantic transfer from first language vocabulary to foreign language vocabulary.

Jiang's Model of adult L2 vocabulary acquisition

Jiang believes that the processes of L2 vocabulary acquisition and the way L2 vocabulary is represented in the minds of learners as well as the stages of vocabulary acquisition process are not well addressed in literature. He points out that the lack of a coherent and comprehensive model about the mechanisms involved in adult L2 vocabulary acquisition has led to a situation in which we cannot make specific claims about the details of L2 vocabulary acquisition. He tries to fill this gap in literature by proposing a psycholinguistic model of language acquisition. His model takes into account the particularities of adult L2 vocabulary acquisition. One of them is that adults are not exposed to as much contextualized vocabulary as are children the challenge of meaning extraction and association is greater for them. Besides, adults have a well-developed conceptual system which they draw on in learning new lexemes. So, they do not require and perhaps more importantly, they cannot commence a new conceptual system without any reference to the already existing one at least in the earlier stages in language learning. This is totally distinct from children learning their L2 in which form and meaning are inseparable. Jiang mentions that the processes of meaning retrieval in L1 is automatic and consumes less amount of time comparing the retrieval of meaning in the earlier stages of L2 acquisition. He proposes a model of adult L2 vocabulary acquisition which involves three stages: He calls the first one lexical association stage in which "adult learners recognize an orthographic or phonological form, or both, as a word" (p. 417). That is, in the early stages the understanding of meaning of the words does not happen out of the semantic realm of the first language, instead it

happens within the complex system of concepts of the first language. To recall the words, the learners have to relate the forms to their L1 translations. To specify, he uses Levelt's (1989) on the types of the knowledge of a word. In Levelt's proposal, the knowledge of a word is of four types: Meaning and syntax which are related to lemma structure and morphology and phonology/orthography in the lexeme. In jiang's view, in L1 vocabulary acquisition the learner acquires all above mentioned four types of knowledge related to L1 vocabulary. But this is not the case in acquiring L2 vocabulary in which the vocabulary only contains phonology or orthography and an index pointing to concepts of first language. This means that the three other types of knowledge are absent in the beginning. In Jiang's own words, "lexical processing and production at this stage rely on activation and mediation of L1 translations because no direct links exist between L2 words and concepts, or such links are very weak" (p. 417). So, the learner draws on the lemma structure of L1 entry and relates it to L2 orthography or phonology. As the frequency of the exposure to L2 increases, the lemma structure of L1 entry relocates in empty spaces of L2 word. This relocation is determinant of lexical representation and processing of L2 vocabulary. Now the previous non-existent or weak link between the L2 vocabulary and its concept has steadily strengthened which signals the second stage of Jiang's theory. He calls this stage 'L1 lemma mediation' stage (from a processing perspective) or hybrid-entry stage (from a representational point of view). There can also be a third stage in which L1 information is abandoned:

> In principle, there is a third stage in lexical development when lexical knowledge specific to a L2 word is integrated in its entry and L1 information is discarded. As a result, a L2 word can be used with not only more automaticity, but also more idiomaticity, with little influence from its L1 translation. However, it is suggested by the model (Jiang, 2000) that many words may stop short of this third stage and L1 lemma mediation may become a steady state of lexical processing in advanced L2 learners (p. 417).

These stages are shown in figure 2.1.

Contribution of this study

This study was an attempt to test Jiang's theory regarding the semantic transfer of first language vocabulary into the second language. We tried to replicate Jiang (2002 second experiment) in a totally different context (the context of the country in which English is practiced as a foreign language) and with different linguistic and cultural backgrounds. As well as, the different educational system and strategies of learning and teaching seems to be totally different from the three studies which Jiang (2002, 2003) had accomplished. Another difference of this study is in its approach which uses both qualitative and quantitative research approaches in a mixed method design to enrich the data collected and to make us able to view the lemma mediation hypothesis from different perspectives. .

The design of the study

This study has a mixed method design which uses both quantitative and qualitative methods of analysis. According to Ary, et. al. (2010), the purpose of mixed methods research is not to prefer one of the research approaches over the other, instead to integrate both approaches in a way that enables the researcher to benefit from the strengths of each of them

in one study. By adopting mixed-method paradigm, the researcher aimed to view the problem in the context that it occurs and at the same time not to lose the sight of generalizability of the results. Mixed method designs are of several types, the one the present researcher selected for the study is 'concurrent design' in which, "both qualitative and quantitative data are collected separately but at approximately the same time. Analyses are conducted separately and interpretations are made for each set of data. Results from one set of data are not used to build on during analysis. Following separate data collection, data analysis and interpretation phases, the researcher integrates the inferences" (Ary, *et. al.* 2010: 563).

Participants

A sample of 20 participants was selected for the present study. They were 9 female and 11 male graduate students of TEFL, whose age ranged from 23 to 26. A TOEFL sample test taken from TOEFL kit published by ETS (), was used to assure the homogeneity of the participants. This led the researcher to exclude five participants from 25 originally selected participants (their score was lower than 530). The test was taken in Pardis institute in Khodabande city in which 6 of the participants were teaching English as a foreign language. Five of the participants were selected randomly for the interview for qualitative study. To keep their privacy, they were anonymized in this study as: Sara, Saeed, Mina, Reza and Ali.

Variables of the study

The variables of the study are translation type; same translation word-pairs and different translation word-pairs. The scale of measuring both of these variables is nominal (yes or no response). It is hypothesized that same translation word pairs like "allow" and "permit" or "exact" and "accurate" have the same conceptual representation in the mind of the learners so they are answered more quickly in semantic judgment tasks than different translation word pairs (like "concept" and "thought") which have two different conceptual representations in the mind of the learners. Another variable is the speed measured in milliseconds whose scale of measurement is ratio.

Instrument and material

A software program was designed for the purpose of this research in order to measure the speed of the participant responses to three sets of words: One set 20 paired words which had the same translation in Persian and the other set 20 word pairs which were related but did not have the same translation. There were also 40 pairs of unrelated words which were randomly mixed with the related words in the software program. The first two sets of word pairs were selected from among, 90 word-pairs which were chosen based on frequency of their use and their relatedness. These 90 words were given to four Persian-English bilinguals to write the first translation that came to their minds. Then twenty of the word pairs that had the same translation for all of the informants were selected and twenty which did not have the same translation for all of the participants were chosen for different translation pairs.

Procedures

Data collection procedures

The test including 80 word-pairs were presented to the participants one by one; i.e. each pair for three seconds. They were presented concurrently at the center of the laptop monitor. The distance between two words was approximately 15 millimeters. The participants individually without having an idea of what words will be in the list. They were required to

judge the relatedness of the two words by pressing yes or no. The two arrows right and left were designed for this purpose; left as 'No' response and right as 'Yes' response. For convenience, yes and no along with the picture of the arrow was presented at the bottom of the monitor screen. They were taught orally how to answer the test items, as well as, they were given a sample of 10-item-tests to practice before the main test. After the practice test was over, feedback about correctness and response latencies was given on the screen to each of the participants. The time duration between appearance of an item and the moment of response were recorded by software program.

Data analysis procedures

For quantitative analysis, since both sets of data (i.e. same and different translation word-pairs) were taken from the same group of participants, the data were analyzed using paired t-test to show the difference between the means. The analysis was conducted by SPSS software version16 . For lexical representation, the analysis was conducted by chi-square, since the data was nominal and the purpose was to compare the frequency of wrong responses of the same and different translation word-pairs. The qualitative analysis procedure used in this study was Straus and Corbin's (1998) systematic approach. The data gathered through semi-structured interview from five of the participants were transcribed verbatim. Then we used the constant comparative method which is the primary analysis technique in Straus and Corbin's model (Ary, 2010). In this model according to Ary (2010);

Open coding is used to develop major or core categories with axial coding to develop categories around the core. Think of a wheel with a center and spokes extending. The spokes are all related to the central category. A visual model is developed called an axial coding paradigm. Selective coding is then used to develop propositions or hypotheses based on the model, showing how the categories are related. The resulting theory can take the form of a narrative statement, a picture, or a series of hypotheses (p. 464).

The rational for using qualitative analysis was that they provide the researchers with a means for an in-depth analysis of research topic. As Genesee (2009) points out, they offer an opportunity to view the problem from many perspectives.

Results

Lexical representation

To get some insight into how foreign language lexical concepts were represented in the minds of learners, the present researcher conducted a frequency comparison with the nominal data acquired from the type of responses that the participants had given to same and different translation word-pairs. The procedure was to compare the frequency of wrong responses (i.e. the 'no' response for the same and different translation word-pairs). See table 4.1.
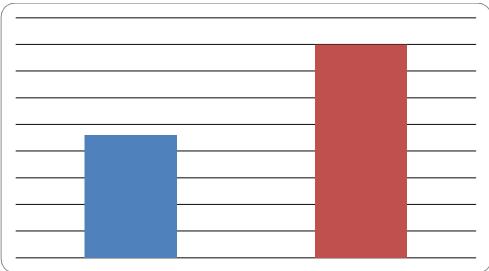
	observed N	expected N	Residual
Same	23	31.5	-8.5
different	40	31.5	8.5
	63		

As is evident from the table, the difference between the wrong responses of the same and different translation pairs is considerable.

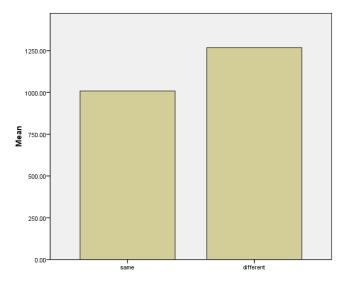|	Word-kind
Chi-square	4.587
Df	1
Sig.	.032

Figure 4.1

Reaction times of the participants

The means of the reaction time for the two sets of related items (i.e. same and

Figure 4.2. *The comparison of the mean of the reaction time for different and same translation word-pairs for all the participants*

different translation word-pairs) were calculated. The mean for the same translation word-pairs was 1002 seconds and for the different translation word pairs was 1248 seconds. The present researcher conducted a paired sample t-test for the analysis of the significance of the difference and it turned out to be .001 at *p*<.05. See tables 4.3 and 4.4.

4.3. The mean obtained for the same and different translation word-pairs

	Mean	N	Std. Deviation	Std. Error Mean
Same	1.0082	**20**	85.624 81	19.146 29
different	1.2719	**20**	46.101 60	10.308 63

Table 4.4. The comparison of the mean for two word-pair groups

	t	f	Sig (two-tailed)
same - different	- 11.628	9	.001

Learners' view towards foreign vocabulary learning

The participants' views toward learning foreign language vocabulary differed. Ali believed that "learning vocabulary is an easy task but keeping them in mind and turning them to active vocabulary is not that easy and it depends on the vocabulary learning strategy that we use". Saeed similarly emphasized on the point that the strategy for learning vocabulary (like learning them in their context of use) can make them easier to learn and recall. Not surprisingly (due to foreign language context of learners) the examples Saeed gives for the

context are that of books and target language movies. Sara believed that when the phonology of the word is difficult and the words we are trying to learn are not used frequently, learning gets difficult. Three of the participants believed that there are at least some vocabularies that have exact equivalent in Persian but two of them thought we do not necessarily have word by word equivalent. Reza gives an example of the word 'develop' and says I have never been able to find a word in Persian which can be equivalent to this word. All of the participants except Sara said that they prefer to use monolingual dictionaries but sometimes when they translate a text into English they need to use bilingual dictionaries. Sara says she uses both mono and bilingual dictionaries.

Effects of socio-cultural factors

Regarding cultural differences between native language and the target language, all of the participants believed that the effects of socio-cultural differences are considerable in learning vocabulary and other aspects of the target language but some mention that the effect is not necessarily negative. Reza said:

"I am sometimes confused when I do not find exact equivalent for Persian words in English, maybe…. they do not behave in that particular way ….I wish to convey by the words, these differences sometimes make me think…. that they are strange people, at other times appreciating their culture , I think I can never be one of them".

Mina similarly emphasizes the effect of cultural differences and the integration of language and culture:

"SLA experts believe that culture and language are inseparable …. If we do not learn the culture of a country … I don't want to say it is impossible but it is very difficult to learn its language…or maybe we can say it is incomplete attempt. Cultural differences have sometimes very strong effects on vocabulary that…. if we do not take them to account we might come to a misunderstanding…. When I get to know their culture better I know more about the uses of words in their right place.

Ali also similarly mentioned the integration of language and culture and since he got gradually familiar with the English language he has not found any negative effects.

For Saeed the effect was always negative. He gave the example of "khaste nabashid" (whose literal meaning is do not be tired) in Persian which in his view does not have equivalent in English and this and other similar cases which have their roots in the culture make learning of some idioms and vocabulary difficult. Sara also regards culture as a very effective factor in learning her vocabulary especially when she started learning English. She thinks that she has reduced the problem of cultural differences considerably now.

Regarding the conceptualization of the text that they hear or read as well as the text they write or speak, Sara says that she prefers to translate the texts word by word to understand them better and nearly always thinks in Farsi and then puts her thought into English. Something that Saeed sees as a barrier in his learning:

I don't like my native language be a barrier for my learning another language I always try to think in English when speaking or writing English. But sometimes in reading some difficult… texts I feel I understand better if I translate and sometimes I have problem with finding exact equivalent of what I want to say in English.

Reza, Mina and Ali all similarly commented on disadvantages of thinking in their native language. Ali disagreed slightly when he talked about specialized courses. He said that since these texts demand deeper understanding he preferred to translate them into Persian.

Discussion

The results of this study support Jiang (2002 & 2004). As it is evident from tables above and the comments of the students, the concepts of their first language, as well as, the socio-cultural factors have a considerable role in forming their interpretation of the vocabulary they come across and try to learn. The idea underlying the lexical representation was that since the two groups of word pairs were conceptually related, as was checked in many dictionaries, there cannot logically be considerable differences between the concepts of the same and different translation word pairs. In other words, for a native speaker, as was investigated by Jiang (2002 & 2004), there was not substantial differences for two groups of word pairs. The analysis of the data from our non-native participants in this section was focused on their wrong responses. The total number of wrong responses was 63 which show the number of times that the participants have failed to recognize semantic relatedness. This failure can partly be contributed to how the words are represented in their minds. The fact that 40 cases of wrong responses were for the different translation and 23 cases were for the different translation word-pairs and the significance of the differences between them provides some evidence for the support of our initial idea, that is, because the same translation word-pairs are represented by the concepts of their first language, it is less likely that the participant will recognize them as unrelated. On the other hand, since the different translation word-pairs are represented by different concepts it is more likely that the learners commit errors in recognizing their semantic relatedness. What intensifies this result is the online nature of our data collection procedure. The participants were asked to respond as quickly as they can and this enhances the possibility of drawing on the most immediately available concepts in their mental lexicon. This claim is also supported by our qualitative data. Sara believed that when the pronunciation of a word is difficult, learning the word which here is matching form to already existing concept, is difficult for her. Why is it so? Perhaps it can be explained in the light of the findings of this section of the study: Since the concepts are ready there, in their first language, they feel no need to acquire the new concepts at least at the beginning stages of their learning. In other words the learning of new vocabulary here involves learning the pronunciation and matching. The problem of turning passive vocabularies to active ones can also be related to conceptualization. When the learners know a vocabulary, they know how to match the sound sequences to the concepts. But to be able to use them automatically requires them to develop a new concept for the word and internalize it in the target language conceptual network which is the third stage of vocabulary as suggested by Jiang (2004). It can, however, be argued that automaticity can be achieved by still drawing on the first language concepts, but due to time constraints, the mediation of first language concepts can severely influence native like choice of vocabulary and automaticity of using them.

The differences between the mean of the two groups of word pairs calculated for the time of responses were also significant. The mean of the response time for same translation was 1.0082 and for the different translation word-pairs the mean was 1.2719. The significance of the difference between these two means as measured by paired sample t-test

indicates that the participants have processed the same translation-pairs more significantly faster than different translation- pairs. This can support the lemma mediation hypothesis indicating that the learner draws on the lemma structure of L1 entry and relates it to L2 orthography or phonology. In other words, since both of the same translation word-pairs have the same conceptual representation, the access to it is considerably faster than the access to two different concepts in the mental lexicon. That three of our participants believed there are exact English-Persian equivalents at least for some words indicates that the Persian concepts have been an issue for them from the very beginning of their learning so that they have found exact equivalent for them (or have they?). The integration of culture and language which also our participants have observed is an issue that should ring a bell of substantial differences between the two languages regarding the choice of vocabulary. Even if we can find some exact equivalent words in two language, we must recognize the fact that the words as combined to make sentences are only used as on utterance. That is, we cannot deal with mental knowledge of participants I communicative acts. What we are dealing with is the utterances which placed upon any of them are socio- cultural and contextual variation taking into account the normative backgrounds of both participants and society.

Conclusion

The findings in this research have provided information to answer the research questions that were set out at the beginning of this study which are repeated as a matter of convenience here:

1. What is the effect of semantic transfer on foreign language lexical representation as measured by semantic judgment tasks?

2. What is the effect of semantic transfer on foreign language lexical processing as measured by the speed of the participants' responses?

3. How do learners view their foreign vocabulary learning in the light of their first language semantic knowledge?

4. What is the role of the context and socio-cultural factors in semantic transfer from first language vocabulary to foreign language vocabulary?

As discussed in chapter 4, regarding the first and second research question, semantic transfer did affect the lexical processing and lexical representation   in the minds of the participants. This supports the lemma mediation hypothesis put forward by Jiang (2002 & 2004). The further evidence comes from the participants view toward their first language and their reliance on it especially in earlier stages of language development. Also the importance of socio-cultural factors which in a sense filters the formation of second language concepts has been evident from the data. This is in line with the finding of some of the interlanguage pragmatics studies which highlight the learner-specific pragmatic performance and its relationship to learners' L1 . This line of research shows that advanced learners' communicative behavior may often deviate from L2 conventions which can partly be the result of their first language (e.g. Kim, 1995; Takahashi and Beebe, 1987; Wolfson, 1989).

Pedagogical implications

The semantic transfer from first language vocabulary to the second language as an inevitable process in learning the second language vocabulary has some implications for teaching and learning vocabulary. First and for most when we are going to teach something

the natural and logical questions are; what is that 'something' we want to teach and how is it learned? As Robinson (2001) warns us it is not important what teachers teach but what is important is what students learn. No matter how teachers try to make their classes communicative it is the way that the students (to use Vygotsky's term) internalize the vocabulary which is important. Second, and along the same lines, whatever the teaching methodology the teachers adopt in their classes (whether grammar translation or communicative approaches), the words the new words finally are seen through the lens of students first language. That is, adopting strategies of teaching vocabulary like guessing from context which is based on the assumption of avoiding first language translation and also avoiding bilingual dictionaries may have results similar to strategies like word by word translation regarding semantic transfer. The present researcher has discussed the implications under three major themes; teachers and teaching practices, curriculum designing and testing.

Teachers and teaching practices

There are many ways by which teachers can teach vocabulary. For example, Oxford (1990) suggests memory strategies to aid learning which can be divided into:

- creating mental linkages: grouping, associating, placing new words into a context;
- applying images and sounds: using imagery, semantic mapping, using keywords and representing sounds in memory;
- reviewing well, in a structured way;
- Employing action: physical response or sensation, using mechanical techniques.

Vocabulary is commonly taught using strategies such as defining synonyms and antonyms, illustrating the word in its different texts and contexts, giving the context or co-text that the vocabulary cannot be used and trying to relate the words to students' own lives and things that they are more interested in. In all of these and other methods of teaching, teachers should be concerned with the fact that how the concepts are formed in the students' minds. Since students, as the findings of this study suggest, use the most immediate available concepts (thqt is theur native l), the teachers are required to present different uses of vocabulary to facilitate the students to go to the third stage of Jiang (i.e. to form new concepts).

Curriculum designing

"Curriculum designing is a 'how-to-do-it' activity" (Nation & Macalister, 2010, p. xv) which is considerably based on needs analysis of the learners. The knowledge of what the students know and how is the mechanism of gaining this knowledge can be a valuable resource for curriculum designers. The findings of this study can give some insight on the selection of vocabulary to be included in the textbooks.

Testing

One of the major concerns of language testing is the validity of language tests. Trends in validity studies have moved towards a unified framework of validity in which construct validity is regarded as an umbrella term subsuming other kinds of validity of tests (Messik, 1989). Construct validity is concerned with the nature of the trait we are measuring. In measuring lexical ability of language learners, a priori question is what is the nature of the ability we are testing. The findings of this study can provide some insights into this validity question. That is, getting to know the semantic content of the foreign language learners'

lexical competence can provide the language testers with theoretical rationales and experimental evidence (to use Messik's terms) which can serve as a basis of validity claims. For example, when the context provided for elicitation of specific vocabulary is similar to the context of the learner's first language, they may be able to answer the question correctly. This correct answer can be regarded as the respondents' mastery of that vocabulary, but if the context changes to a dissimilar one, they may not be able to answer the same vocabulary correctly.

Another application of the finding to language testing can be the use in test bias. In especially large scale testing where different groups are involved the similarity of the use of vocabulary of being tested to that of the native language one group may be in favor of that group. The language testers, therefore, are required to have a contrastive study of the native language of the test taker to be able to design bias-free tests as much as possible.

Limitations of the Study

Unlike Jiang (2002 and 2004), we did not use group type as a variable due to lack of access to native group. To compensate the lack of native benchmark, we based our criteria for related or unrelated pairs on the dictionary definition of synonyms. This can, however, be a limitation for this study. One of the limitations of this study is that relying on semantic judgment tasks of participants cannot be free from criticism. As Griffiths (2006) argues the "knowledge [of vocabulary] is not immediately available in the form of reliable intuitions" (p.11). So, the claims based on semantic judgment tasks can be criticized on the basis of the fact that learners must have some knowledge of the words without necessarily having meta-knowledge about them; that is, their knowledge is know-that knowledge without necessarily being know-how. Another limitation is related to the control of other variables that might interfere in lexical processing. In other words, the speed of responses might be due to some other unknown variable as well as semantic transfer.

Suggestions for Further Research

All of the experiments reviewed as well as this study are conducted on participants learning English as second or foreign language. It is possible to do the experiment with learners' of a language other than English. This study also raised the question that whether semantic transfer is always higher in foreign language context comparing second language condition.

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