

Technical University EFL Learners' Reading Proficiency and Their Lexical Inference Performance

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Abstract

This study investigated whether technical university EFL learners' reading proficiency affected their lexical inference performance and their responses to the contextual instruction. A total of 145 Taiwanese first-year technical university students participated in this study. The instruments in this study involved a GEPT test, a lexical inference task, and a vocabulary strategy questionnaire. Pearson Product Moment Correlations, simple Regression, and pair-wise t-test analysis were conducted to analyze the data collected from the GEPT test, the lexical inference task, and the vocabulary strategy questionnaire. The results indicated that there was significant correlation between EFL learners' reading proficiency and their lexical inference performance and their strategies. However, while instruction of contextual inference had a positive effect on the more proficient learners' lexical inference ability, a significant impact on their strategy use was not found. Discussions were presented, followed by a variety of pedagogical applications for EFL learners as well as suggestions for further study.

1 Introduction

Lexical inference involves the use of a variety of linguistic and nonlinguistic clues to guess the meanings of all the words when the learner does not know them (Oxford, 1990). It is defined as an important strategy that involves a deeper processing of information available in the text itself and that is likely to contribute to better comprehension of the text as a whole (Read, 2000). Contextually inferring meaning for unknown words is not only considered as a compensation strategy for low receptive vocabulary in relation to the demands of the text (Parel, 2004), but also an important inference strategy taught in EFL reading classes (Nation, 2001). However, several lexical inference research studies have found that although most EFL learners are able to infer word meaning from its context clues, they make frequent incorrect guesses (Frantzen, 2003; Huckin & Block, 1993; Nassaji, 2003; Shen, 2005).

Previous studies have shown some constraints that may affect learners' success in lexical inference. Those factors include word density, word part of speech (Hu & Nation, 2000), types of reading tasks (i.e. cloze v.s. global reading) and readers' reading profiles (i.e. knowledge of other languages, years of reading) (Levine & Reves, 1998). Others involve the context itself, namely the strength and explicitness of clues (Diakidoy & Anderson, 1991; Frantzen, 2003; Mondria &

Wit-De Boer, 1991). Another research study indicates that memory capacity (Cain, Lemmon, & Oakhill, 2004) is related to inference performance. The latest studies draw our attention to learners' vocabulary knowledge (Dycus, 1997; Frantzen, 2003; Nassaji, 2004, 2006) that is closely connected to readers' ability of inferring word meaning from context clues, revealing that depth of vocabulary knowledge makes a significant contribution to inferential success.

The above-mentioned factors imply a need to understand more about other factors that might affect contextual inference. In view of learners' individual differences in learning under the homogeneous context, this study explicates learner variables, intending to find out if learners' EFL reading proficiency has an effect on their lexical inference. It also expands this line of research by investigating whether learners with different FL reading proficiency benefit differently from the treatment. More specifically, this study attempts to answer the following questions:

1. Does technical university EFL learners' reading proficiency affect their lexical inference ability and strategy use?
2. Does technical university EFL learners' reading proficiency affect the treatment effect in terms of lexical inference ability and strategy use?

2 Literature review

A great deal of research has suggested that caution should be taken when teaching students inference strategies for unknown words. Several constraints on the use of context clues have been indicated: the context factors (i.e. rich context, local/global clues) (Diakidoy & Anderson, 1991; Frantzen, 2003; Mondria & Wit-De Boer, 1991), the student factors (i.e. limited ability and experience) (Frantzen, 2003; Levine & Reves, 1998) and the text factors (i.e. high and low density text) (Hu & Nation, 2000; Laufer, 1997).

With regard to the context factors, some researchers suggest that the context does not clarify the full meaning of unknown words (Beck, McKeown & McCaslin, 1983). With a research on parts of speech and density of unknown words, Liu and Nation (1985) have concluded that words in low-density text are easier to guess; verbs are easier to guess than nouns, while adverbs and adjectives are ranked as the most difficult. Hu and Nation (2000) and Schmitt (2000) have further emphasized the percentage of known and unknown vocabulary as one of the important factors in determining lexical inference. In the same vein, Alderson (2000) further indicates that word inference is easier when the word is in context and the contextual information is closer to the unknown word.

Expanding the research on the context factor, however, the study by Diakidoy and Anderson (1991) argues that whether or not context clues promote word learning from context is a matter more complex than just their presence or absence, or of their strength and directiveness in pointing out a possible meaning for a given word. Instead, these features interact with others such as the type of word being learned, the text within which the word and the clues are embedded, as well as the ability of the reader.

Additionally, Levine and Reves (1998) indicate a different finding, confirming that the use of word treatment strategies is dependent on the type of reading task and learner factors. In other words, while close reading requires more bottom-up word-unit processing skills, global reading depends on more word-solving strategies. According to different reading goals, the learners use different word-solving skills.

The role of vocabulary in lexical inference has also been addressed in a number of research studies concerning learner factors. Hunt (1996) implies that inferring meaning from context works best when learners have the ability to recognize several thousands of high-frequency words in a context that is not too challenging for readers. This is consistent with Laufer's (1997) lexical threshold. Furthermore, Hunt (1996) suggests that learners should develop a sense of context type needed to make beneficial inferences and when to use other sources such as native speakers and dictionaries when necessary. Moreover, according to Laufer (1997), the problem of insufficient vocabulary may seriously cause an inability to infer unknown words correctly and impede reading

comprehension. Insufficient number of words in the learner's lexicon is by far the greatest obstacle to becoming an efficient reader. Since language threshold is essential for reading comprehension (Ridgway, 1997), Laufer (1997) claims 3,000 words or 5,000 lexical families to be the lexical threshold for general reading comprehension.

In addition to the factor of lexical threshold, Levine and Reves (1998) present that the reader's "reader profile" (i.e. educational background, reading strategies and preferences) also affects the treatment of unknown words. Their findings echo several previous studies which focused on the process of deriving word meaning, verifying that students experience many problems (Van Daa-len-Kapteijns, Elshout-Mohr, M., & De Gloppe, 2001) due to their limited ability or experience in intentionally deriving meaning from context (Shefelbine, 1990). Additionally, Alderson (2000) suggests that the learners' age should be a variable to be considered.

Another research conducted by Nassaji (2006) has examined the effect of learners' depth of vocabulary knowledge on lexical inference and indicated a significant link between the depth of vocabulary knowledge and the type of lexical inference strategy use. Those who had a stronger depth of vocabulary knowledge used certain types of lexical inference strategies more effectively than those who had a weaker depth of vocabulary knowledge. Depth of vocabulary knowledge made a significant contribution to inferential success. The finding supports the hypothesis that lexical inference depends heavily on the richness of the learners' semantic and conceptual system (Fukkink & Block, 2001).

A more complete framework with regard to factors affecting lexical inference was found in Frantzen's (2003) investigation into how Spanish students derive meaning from context. The findings indicated that some of the reasons leading to incorrect guessing might be placed on the context itself, the student's behavior, and the story's glossing. The context itself does not often seem beneficial because it is vague, ambiguous, or misleading. All readers in Frantzen's (2003) study were inattentive to details in context when reading both difficult passages and easier ones. Another learner factor is that at times students showed an oblivious certainty about words they think they know (i.e. "misplaced contextual memory") and consequently they clung to their original wrong answers despite the fact that context provided help. In addition, the story's glossing may have misled the students and caused misunderstanding of word meaning. In Frantzen's (2003) study, with the gloss provided in the text, the students did not verify the words from the context, resulting in numerous incorrect guesses.

In terms of learner factors, the role of FL proficiency in lexical inference has also been addressed in a number of research studies (Arden-Close, 1993; Bengelil, 2004; Cain, Lemmon, & Oakhill, 2004; Haastrup, 1991; Haynes, 1993; Kondo-Brown, 2006). Haastrup's (1991) analysis of 62 pair think-aloud protocols of Danish-speaking learners revealed that high-proficiency learners made more successful guesses and showed more flexibility in using context clues than low-proficiency learners. She thus suggests a threshold level of FL proficiency for successful guessing. In Arden-Close's (1993) case studies, it likewise indicated that more proficient students appeared to be able to use a wider range of strategies than less proficient students. In contrast, lower-proficiency students were observed to show more difficulties in guessing a word meaning when comprehending longer sections of text (Haynes, 1993). Bengelil's (2004) think-aloud study of 17 Arabic-speaking medical students concludes that more advanced readers made more correct and partially correct inference than intermediate-level readers while reading an English expository text. Cain (2004) explores 9-10-year-old children's individual differences in vocabulary development and reported that children with reading deficits are poor at inferring the meanings of novel word items from context. Other lexical inference study by Kondo-Brown (2006) extends the issue to examine the role of reading proficiency in 42 advanced Japanese language learners' inferring unknown Kanji words in authentic texts, suggesting that more proficient students can use context better than less proficient students.

Regarding the success of lexical inference, Nassaji (2003) suggests an inference model that distinguishes between strategies and the ability to use them appropriately and effectively in conjunction with various sources of knowledge in lexical inference. His findings challenge a

uni-dimensional conception of the role of strategies in FL lexical inference by proposing that success in inference ability may depend on how effectively the use of strategies, in combination with the use of other knowledge sources of information in and outside the text.

Although the effect of learners' FL reading proficiency on their lexical inference has received some attention, little of the previous research explicates its impact on Chinese-speaking university learners. The present study, conducted in a quantitative approach with a larger scale of participation, addresses the issues on the effect of EFL university learners' reading proficiency on their lexical inference when reading English short stories. It extends this issue to its effect on the inferring ability, strategy use, as well as the treatment effect.

3 Research method

3.1 Participants

Participants in this study were 145 first-year Taiwanese technical university students with diverse reading proficiency. There were 86 female and 59 male English-majors, Engineering-majors, and Management-majors. At the beginning of the semester, they all took a GEPT (General English Proficiency Test) test on reading, which is a nationally-standardized test administered locally in Taiwan. The scores for the participants ranged from 40 to 102, as shown in Table 1. The mean score was 82.38 and the standard deviation was 14.90.

Scores	40~50	50~60	60~70	70~80	80~90	90~100	100~120
Frequency	3	8	18	30	36	32	18
<i>Means = 82.38; Std. Dev. = 14.895; N=145</i>							

Note: The full score for the reading test is 120.

Table 1: Descriptive statistics of technical university EFL learners' reading proficiency

3.2 Instruments

GEPT Test is a nationally-standardized test administered locally in Taiwan to test learners' general English ability in the four skills. The full score for the reading test is 120. The score obtained in this part is defined as each student's general reading proficiency.

Eight short stories with four stories for the pretest (Form A) and four for post-test (Form B), adopted from *Multiple Reading Skills (2nd edition) Book D* (Boning, 1995), were selected as the reading texts in the lexical inference test. The stories in the pre-test were paralleled with those in the post-tests in terms of their genre, namely a description of an animal, the origin of a kind of fast food, a touching story, and a description of an invention. This reading book is about 6th to 7th grade difficulty level according to Fry's (1968) Readability Graph. Two high school teachers helped verify the underlined unknown words and the sentence structures to ensure that the texts matched the comprehension ability of the participants. A permission letter from McGraw-Hill Book Company to copy the texts was obtained. There were a total of 16 unknown words (7 nouns, 7 verbs, 1 adjective and 1 adverb in Form A; 7 nouns, 7 verbs, 2 adjectives in Form B). The internal consistency of the resulting instrument was 0.87, which was measured by the test-retest method.

In the *lexical inference test*, the participants were first required to complete a target word list without context (in either Chinese or English). Afterward, they were asked to read the texts and then determine the meanings of the target words by using the contexts. A retrospective description of the clues and strategies they exploited to infer the word meaning were required. The score on the pre-test and post-test was defined as each student's lexical inference ability. The mean difference between the pre-test and post-test directly measured the treatment effect of the contextual instruction.

A vocabulary strategies questionnaire adapted from Mineishi (1997) was given out to the stu-

dents before and after the treatment program to investigate their perceptions of strategy use for the unknown words. The Likert-type questionnaire consists of 25 items about word deriving strategies such as guessing, analyzing, reasoning, planning, monitoring, and evaluating. The students indicated “always,” showing that they perceived using the strategy all the time, or “never” revealing using the strategy none of the time. The questionnaire was sent to two evaluators for peer review for the purpose of determining content validity. A native speaker helped proofread the content for meaning clarity. Item analysis of each item indicated a significance of $p < .05$. The Cronbach's alpha reliability was 0.80.

3.3 The instructional program

By integrating strategy training into formal curriculum during a 15-week program, the teacher taught the context clues, inference strategies, followed by several practices. The instructional framework in this study was based on a combination of Winograd and Hare's (1988) explicit instruction model (i.e. consisting of six dimensions of good strategy instruction: what and why to learn, what the strategy is, how and when to use, and practice), Clark and Nation's (1980) inductive procedure as well as Hall's (2003) design and delivery components. The instruction program taught the inferring procedures and the use of strategy and knowledge as shown in Table 2.

Strategies	Procedures
<i>*Lexical Knowledge: Using feature analysis to figure out word meaning based on its similarity with other words (i.e. similar spelling) or word parts (i.e. verb, noun, or adjectives)</i>	Step 1: Decide on the part of speech of the unknown word.
<i>*Monitoring: Elaborating the meaning by talking to themselves, such as “Let me think,” “well...” “Oh-oh” “Is this right?”</i> <i>*Repeating: Repeating a word or a phrase either to show their difficulties in decoding the meaning or to allow themselves sufficient time for processing.</i>	Step 2: Look at the immediate context surrounding the unknown word, simplifying it grammatically if necessary. Examine the relationship between the unknown word and the known words surrounding it.
<i>*Syntactic Knowledge : Using knowledge of grammatical function within or between sentences & Monitoring</i>	Step 3: Look at the wider context of the word; that is, the relationship with adjoining sentences or clauses. Examine the relationship between the unknown word and the known words before or after the sentences with the unknown word.
<i>*Prior Knowledge: Associating a word together with another word based on background knowledge of the real world.</i> <i>& *Self-inquiring: Asking oneself questions about the words already inferred</i>	Step 4: Make connections between prior knowledge and text information. Step 5: Guess.
<i>Self-inquiring, Monitoring & *Evaluating: Evaluating and judged themselves on their accuracy when inferring the meaning of a word.</i>	Step 6: Check the guess by arousing metacognitive knowledge. For example, substitute the guess for the unknown word. Monitor the guess by asking yourself: “Does it fit comfortably into the context? Does it make sense?” Evaluate the guess to decide whether to accept the idea or reject it and then try again or seek outside assistance.

Table 2: The inference strategies and procedures in the instructional program

3.4 Data collection procedures

The data was collected in three stages. In the first stage (week 1), students took a nationally-standardized GEPT Test to determine their FL reading proficiency. In the second stage (week

2), all participants took the first lexical inference test (pretest) and responded retrospectively to the vocabulary strategy questionnaire. The test and survey lasted for ninety minutes to allow students time to read and describe how they derived the meanings for the unknown words. The instructor read the items aloud to the students and explained each statement to assure that the students understood what was asked of them.

Upon completion of the 15-week treatment program, a post-test was administered to all the learners. As with the pre-test, four short stories in the same test format and same level of difficulty were used in the post-test, thus eliminating the test-retest effect. After the test, the teacher administered the same strategies questionnaire to examine if each student's perception of strategy use changed after instruction.

3.5 Scoring and data analysis

Word inference scores were calculated from the numbers of words in the passage from which each student correctly derived the meaning. Each correct answer received one point. The researcher gave full credit for semantically related and approximate meanings in Chinese, because this encouraged the students to deliberately and actively derive the meaning for unknown words. For example, a full credit was given if a student wrote “攤販” (vender) for the meaning of “a cart” on the street which means 推車 (a two-wheeled or four-wheeled vehicle pulled or pushed by hand). For example, if the student indicated s/he did not know ten words in the no-context list, but then correctly inferred the meaning of five of those words when reading them in context, s/he would receive a score of fifty percent, as $5/10=50\%$. The percentage was transformed to a score of fifty points.

Two raters calculated the scores and resolved issues of ambiguous meaning. The students' descriptions were rated on a two-point scale, in which one point was given for the totally correct or partially correct answer and zero was for the incorrect answer. The inter-rater reliability coefficient was 0.95. The raters highlighted the unclear descriptions and then resolved the disagreements through reexamining the data and repetitive discussions until 100% agreement on all items. The inter-rater coefficient was $r=0.93$.

With regard to the five-point scale vocabulary strategies questionnaire, five points indicated “strongly agree” and one point “strongly disagree.” A mean score of five indicated that the students perceived using the strategy all the time, whereas a score of one indicated that the students perceived using the strategy none of the time.

Pearson Product Moment Correlations, simple Regression, and pair-wise t-test analyses were conducted in the study to examine the relationship between learners' reading proficiency and other variables: lexical inference ability, strategy use, and the treatment effect.

4 Results

4.1 FL Reading Proficiency and Lexical Inference Ability and Strategy Use

The results of Pearson Product Moment Correlations between learners' reading proficiency and lexical inference ability are reported in Table 3. There is a significant correlation between learners' reading proficiency and their lexical inference ability ($r=0.431$, $p<0.01$); that is, the higher their reading proficiency, the better their performance in lexical inference ability. The tendency of the increase between the learners' reading proficiency and their lexical inference ability is shown in Figure 1.

	Reading proficiency	Lexical inference ability (pre-test)
Reading proficiency	1	.431
		.000
	145	145
Lexical inference ability (pre-test)	.431	1
	.000	
	145	145

$P < .01^{**}$

Table 3: Correlation between technical university EFL Learners' reading proficiency and their lexical inference ability

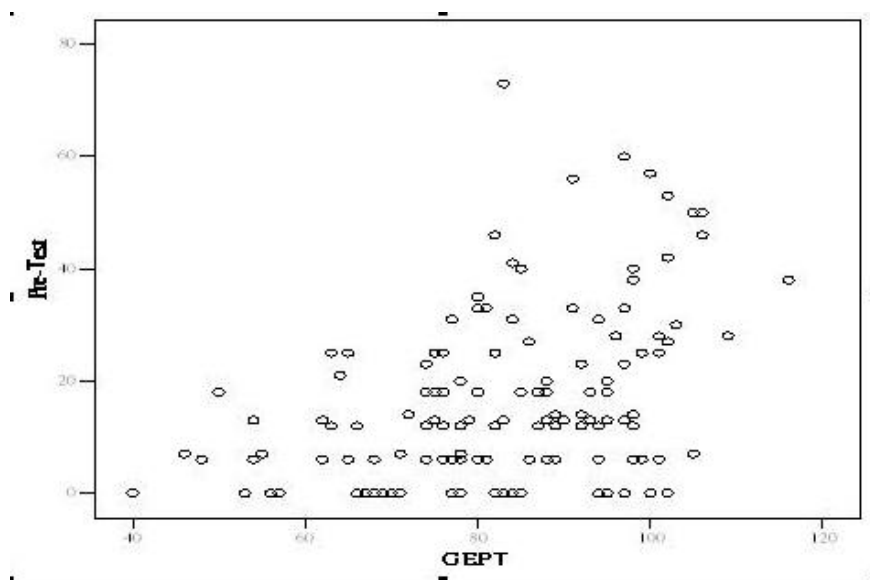


Figure 1: Scattergram of the EFL learners' reading proficiency and their lexical inference ability (pre-test)

The results of Pearson Product Moment Correlations between learners' reading proficiency and their strategy use are reported in Table 4, revealing the value of the significance levels $r=0.378$, $p<0.01$. In other words, there is a significant correlation between learners' reading proficiency and their strategy use for lexical inference. The higher the learners' reading proficiency is, the more frequent the learners use strategies for lexical inference. Figure 2 further supports the result indicating the tendency of the increase between the learners' reading proficiency and their strategy use.

	Reading proficiency	Strategy use (pre-test)
Reading proficiency	1	.378**
		.000
	145	145
Strategy use (pre-test)	.378**	1
	.000	
	145	145

$P < .01^{**}$

Table 4: Correlation between technical university EFL learners' reading proficiency and their strategy use for lexical inference

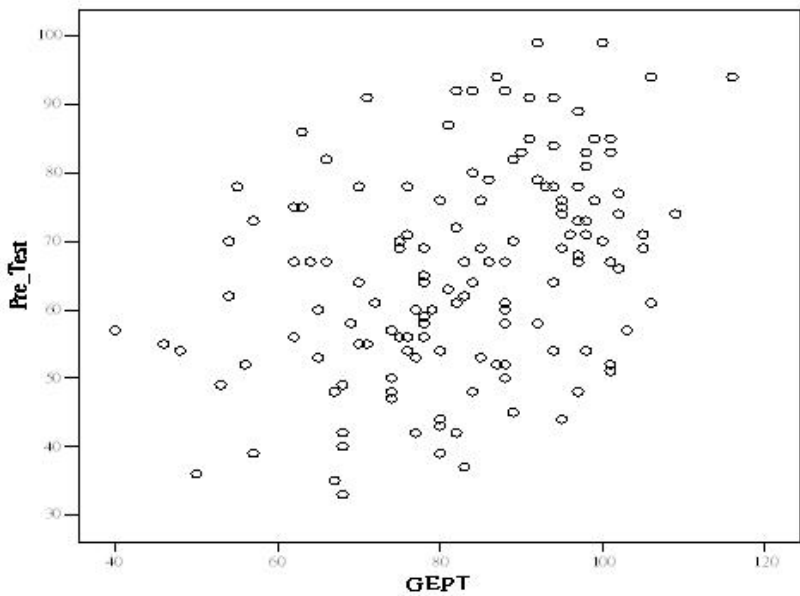


Figure 2: Scattergram of the EFL learners’ reading proficiency and their strategy use

4.2 FL Reading Proficiency and Treatment Effect

To examine whether the learners’ FL reading proficiency has an effect on their responses to the treatment of lexical inference ability and strategy use, this study calculated the score difference between the pre-test and post-test and then analyzed the relationship with individual factors by Pearson Product Moment Correlations and simple Regression. Table 5 presents the positive correlation between the learners’ reading proficiency and their pre-post-test lexical inference score difference ($r=0.231$, $p<0.01$), which indicates that the higher their reading proficiency is, the higher the score difference is. In other words, the learners with better reading proficiency demonstrated better treatment effect on their lexical inference ability.

	Reading proficiency	Pre-post-test mean difference
Reading proficiency	1	.231**
		.005
	143	143
Pre-post-test mean difference	.231**	1
	.000	
	143	143

$P<.01$ **

Table 5: Correlation between technical university EFL learners’ reading proficiency and their treatment effect on lexical inference ability

The analysis of the simple Regression generates the same results. As shown in Table 6, the beta coefficient for GEPT reading proficiency is 0.346, indicating that the mean difference increases 0.346 points when GEPT increases by 1 point. In other words, the higher reading proficiency the learners have, the better treatment effect they benefit from the instruction.

<i>Model</i>	<i>Non-standardized Coefficient</i>		<i>Standardized Coefficient Beta Distribution</i>	<i>t</i>	<i>Sig.</i>
	<i>Estimate B</i>	<i>Standard Error</i>			
1	-.966	10.231		-.945	.346
GEPT on reading	.346	.122	.231	2.85	.005

a. dependent variable: pre-post-tests

Table 6: Coefficient of regression analysis for treatment effect on lexical inference ability

However, with respect to the treatment effect on strategy use, Table 7 shows a slightly negative correlation between the learners' reading proficiency and the post-and pre-test difference on their strategy use, $r = -.0.168^*$, $p < 0.05$. This means that the higher their reading proficiency, the less treatment effect their strategy use. In other words, the learners with higher reading proficiency did not demonstrate more treatment effect on their strategy use for inferring word meaning.

	Reading proficiency	Pre-post-test mean difference
Reading proficiency	1	-.168*
		.049
	138	138
Pre-post-test mean difference	-.168*	1
	.049	
	138	138

$P < .01^{**}$

Table 7: Correlation between technical university EFL learners' reading proficiency and treatment effect on their strategy use

The analysis of the Simple Regression generated the same results. As shown in Table 8, the beta coefficient for GEPT reading proficiency is -0.168, indicating that the mean difference increases 0.189 points when GEPT raises 1 point. In other words, the higher reading proficiency the learners have, the less treatment effect they have on their strategy use for unknown words.

<i>Model</i>	<i>Non-standardized Coefficient</i>		<i>Standardized Coefficient Beta Distribution</i>	<i>t</i>	<i>Sig.</i>
	<i>Estimate B</i>	<i>Standard Error</i>			
1	32.5577	.909		4.116	.000
GEPT on reading	-.189	.095	-.168	-1.987	.049

a. dependent variable: pre-post-tests

Table 8: Coefficient of regression analysis for treatment effect on strategy use

5 Discussions

The findings of this study suggest that Technical University EFL learners' FL reading proficiency did significantly affect their lexical inference ability and strategy use. It is consistent with the previous studies (Arden-Close, 1993; Bengueleil, 2004; Haastrup, 1991; Haynes, 1993) that there is a close connection between the learners' FL reading proficiency and their level of success in FL lexical inference and strategy use. As shown in Haynes (1993), inference is apparently more difficult for the low proficient students when comprehension of longer context is required. Furthermore, there is empirical evidence from two studies conducted by Cain, Lemmon, and Oakhill (2004) that learners with weak reading comprehension skills, vocabulary knowledge, and memory capacity are consistently poorer at inferring the meaning of unknown word from context. Thus, it is reasonable to conclude that in an EFL context, learners' poor comprehension skills and vocabulary knowledge may be the main factors that cause the difficulties in inferring word meanings

successfully.

The particular nature of the EFL learning context might be another reason that helps explain why the low proficiency learners have difficulties in the inference task. The low achievers in an EFL context usually have low motivation and low self-efficacy (Krieger, 2005) and were found to be less skilled reader (Joe, 1995). Research has shown that motivation is one of the main determinants of L1/L2 learning achievement (Dornyei, 2001) and students' motivation and attitude have a great effect on their classroom achievement (Kuhlemeier, van den Bergh, & Melse, 1996). It is necessary for a further study to provide a complete framework with a range of affective factors that might cause success or failure in lexical inference and strategy use.

The findings also reveal that the learners' FL reading proficiency has an effect on the treatment effect of their lexical inference ability; however, the effect on their strategy use was not found. It is consistent with Ehrman and Oxford's suggestion (1995) that more proficient learners did not rely on the instruction of compensation strategies because they did not need to develop additional conscious strategies because their strategy use might have been automatic; they could be able to take what they already have to solve word problems. In contrast, however, less proficient learners in this study became more aware of strategy use after instruction.

The factor relating to the instruction might be one reason that explains why the low proficient learners benefited more from the treatment on strategy use. The instructional program in this study aimed at developing the learners' awareness of strategy use by encouraging strategy evaluation and monitoring the inferring process during practices. It could be the repeated emphasis on the strategy use that made them aware of the methods to deal with unknown words.

However, the low proficient learners still could not perform better than their more proficient counterparts, although they showed more strategy use after the treatment. One explanation is that strategic reading is not only a matter of knowing about strategies, but also the learners must be able to apply the strategies strategically and successfully (Anderson, 1999), since inference involves using a variety of linguistic and nonlinguistic clues to guess the meanings when the learner does not know all the words (Oxford, 1990). As shown by Haastrup (1991), the low-proficiency learners showed less flexibility in using available cues and strategies in the inference process, which might result in unsuccessful guessing. Moreover, Nassaji's (2003) study might provide another explanation for why low proficiency learners benefit more from the treatment on the strategy use, but could not infer word meaning successfully. He suggests that unskilled readers showed a tendency to use previous knowledge that was irrelevant to the context, leading to unsuccessful guessing. A third possible explanation lies in the nature of the learners and the task. Some of the low proficiency learners had probably never been taught to decode meanings and might have made a rash response to the questionnaire in reporting more strategy use than they actually did when making aware of the strategies they could use to deal with unknown words. It is thus worthwhile to qualitatively investigate how the low proficiency learners actually use the strategies to infer word meanings from the context.

6 Conclusion and implications

The results of this study show that Technical University EFL learners' FL reading proficiency has an effect on their lexical inference ability and strategy use. This means that in the process of word inference EFL learners' lexical inference ability and strategy use interact with their FL reading proficiency. The more proficient readers demonstrated better performance on the lexical inference tasks and used strategies relatively more often. The results from the correlation analysis also reveal that the more proficient the learners, the higher the mean gains on lexical inference ability after instruction; however, the more proficient the learners, the lower the mean frequency on the strategy use. The more proficient readers benefited more from the treatment on the lexical inference ability, but more frequency of strategy use after the treatment was not found. In sum, the ultimate goal of the word-solving strategy training in this present study is to make the learners become efficient readers. Unfortunately, there are individual variables, i.e. the FL reading proficiency,

that affect this process.

Given the evidence that reading proficiency is consistently correlated with lexical inference ability and strategy use, this study has some implications for teachers. Firstly, it suggests that teachers in the technical universities should not expect a favorable result from lexical inference training when their students' reading proficiency is limited. When the instruction is given to those with low proficiency, a systematic training with a robust lexical knowledge for FL vocabulary development in both breadth and depth might help technical university EFL learners benefit more. Additionally, making the students aware of the taxonomy of knowledge sources and strategies and training them to effectively use various sources may help to enhance their inference skill.

Examining the technical university EFL learners' reading proficiency and lexical inference offers important insight to EFL teachers by giving them a better understanding of lexical inference. However, results should be interpreted cautiously because the students' retrospectively reports on the use of strategies may have caused them to reveal those they may not have actually used. Being unable to control the students' attitude in responding to the questionnaire could be one of the flaws when conducting the retrospective method.

In view of this above-mentioned limitation on learners' variables, it is thus necessary to further examine to what extent the less able learners actually use the strategies during the inference process. In attempt to collect more in-depth data, a think-aloud procedure should be conducted as a supplementary approach in future research to examine the actual use of strategies. It is also worthy for future research in the area of individual differences on other affective factors for lexical inference and vocabulary acquisition. Future research should include many more salient individual difference factors, such as learning styles, motivation, and anxiety.

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