

การใช้กลวิธีการอนุมานคำศัพท์ของผู้เรียนภาษาอังกฤษเป็นภาษาต่างประเทศที่มีระดับ  
ความสามารถทางภาษาต่างกันในการอ่านบทความเชิงวิชาการ  
DIFFERENT PROFICIENCY EFL LEARNERS' EMPLOYMENT OF LEXICAL  
INFERENCING STRATEGIES IN READING ACADEMIC TEXTS

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### บทคัดย่อ

งานวิจัยนี้มีจุดประสงค์เพื่อศึกษาพฤติกรรมการอนุมานคำศัพท์ เทคนิคการเลือกใช้กลวิธีการอนุมานคำศัพท์ และผล การอนุมานคำศัพท์ของผู้เรียนภาษาอังกฤษเป็นภาษาต่างประเทศที่มีระดับความสามารถทางภาษาสูง กลาง และต่ำในการ อ่านบทความเชิงวิชาการประเภทบรรยายและแสดงความคิดเห็น ผู้เข้าร่วมวิจัยคือนิสิตชั้นปีที่ 3 คณะครุศาสตร์ สาขาธุรกิจ และอาชีวศึกษาจุฬาลงกรณ์มหาวิทยาลัยจำนวน 9 คนเครื่องมือที่ใช้เก็บข้อมูลมี 3 ชิ้น ได้แก่ วิธีการบอกกระบวนการความคิด การสัมภาษณ์แบบกึ่งโครงสร้าง และเอกสารแบบฝึกหัดการอ่าน โดยข้อมูลที่ได้จากวิธีการบอกกระบวนการความคิดและการ สัมภาษณ์จะถูกรวบรวมโดยการวิเคราะห์เนื้อหา และคะแนนที่ได้จากเอกสารแบบฝึกหัดการอ่านถูกวิเคราะห์โดยใช้สถิติเชิง บรรยาย ได้แก่ ค่าเฉลี่ย ร้อยละ และค่าเบี่ยงเบนมาตรฐาน

ผลการวิจัยพบว่าผู้เรียนภาษาอังกฤษเป็นภาษาต่างประเทศที่มีระดับความสามารถทางภาษาต่างกันใช้แหล่ง ความรู้และกลวิธีต่างกันในการอนุมานคำศัพท์ที่ไม่รู้ในบทความเชิงวิชาการประเภทบรรยายและแสดงความคิดเห็นและ ผู้เรียนได้พิจารณาเกณฑ์ 10 เกณฑ์ก่อนใช้แหล่งความรู้และกลวิธีการอนุมานคำศัพท์ ได้แก่ ความเชื่อของผู้เรียน ประสบการณ์การฝึกใช้กลวิธีการอนุมานคำศัพท์ ความคุ้นเคยกับคำศัพท์ ความรู้ทางด้านระบบหน่วยคำ ความมั่นใจในผล การอนุมานคำศัพท์ รูปแบบของคำศัพท์ที่อนุมาน บริบทที่ไม่เพียงพต่อการอนุมานศัพท์ เวลา ความเข้าใจบริบทของผู้เรียน และรูปแบบการใช้กลวิธีการอนุมานคำศัพท์ นอกจากนี้ยังพบว่าผู้เข้าร่วมวิจัยที่มีระดับความสามารถทางภาษาสูงอนุมาน คำศัพท์ได้ถูกต้องกว่าผู้เข้าร่วมวิจัยที่มีระดับความสามารถทางภาษาต่ำกว่า และผู้เข้าร่วมวิจัยทั้งหมดอนุมานคำศัพท์ใน บทความเชิงวิชาการประเภทบรรยายได้ถูกต้องกว่าบทความเชิงวิชาการประเภทแสดงความคิดเห็น

**คำสำคัญ :** ผู้เรียนภาษาอังกฤษเป็นภาษาต่างประเทศที่มีระดับความสามารถทางภาษาต่างกัน, กลวิธีการอนุมานคำศัพท์, บทความเชิงวิชาการ

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## ABSTRACT

This study attempted to explore the lexical inferencing strategies, the selection criteria, and the inferencing results produced by high, mid, and low-proficiency EFL learners when reading descriptive and argumentative academic texts. The research participants consisted of nine junior students majoring in Business Education, Faculty of Education, Chulalongkorn University. To collect the data, three main instruments including think aloud protocols, semi structured interviews, and reading worksheets were used. The data obtained from the think aloud protocols and the interviews were analyzed using content analysis, and the reading worksheet scores were analyzed using descriptive statistics including mean, percentage, and standard deviation (SD).

The findings showed that EFL learners with different language proficiency employed knowledge sources and strategies differently when inferring the meaning of unknown words in descriptive and argumentative texts, and they considered ten criteria before using the knowledge sources and strategies including learners' beliefs, strategy training experience, word familiarity, morphological knowledge, confidence in lexical inferencing results, inferred word forms, insufficient context clues, time, learners' understanding of context, and patterns of lexical inferencing strategy use. It was also discovered that the high-proficiency participants outperformed those with lower language proficiency, and all of them performed better when inferring the vocabulary meaning in descriptive texts than in argumentative texts.

**Keywords :** Different proficiency EFL learners, Lexical inferencing strategies, Academic texts

### Introduction

As reading is an important way to obtain information and a valuable source of language input, it is regarded as necessary literacy for all English language learners, especially those in the university or college level. Sukwan et al. (2016) also asserted that reading is crucial for self-development, education, and making a living, and effective reading could lead to successful learning. For a majority of students, reading is the most essential among all four language skills, and comprehending texts is the primary goal of reading (Tavakoli & Hayati, 2011). According to Souvignier and Mokhlesgerami (2006) and Chegeni and Tabatabaei (2014), reading comprehension is a competence in reading and remembering a written text, reproducing it, learning from it, and understanding its explicit and implicit meanings. It is also considered both communicative process and product between an author and a reader (Wang, 2011). However, to comprehend the reading texts in a foreign language, the readers need a variety of reading strategies including the strategies for dealing with unknown vocabulary (Schmitt, 2000; Wang, 2011).

It is widely known that vocabulary knowledge is the most important area required for reading comprehension (Wang, 2011). Chegeni and Tabatabaei (2014) asserted that vocabulary size is one of the crucial factors that affect language learning and reading. In other words, the wider vocabulary the readers have, the better and deeper they comprehend the texts in other languages. The problem is a limited lexical knowledge which appears to be the most serious difficulty for EFL readers (Parel, 2004; Tavakoli & Hayati,

2011). Although it is not necessary to know the meaning of all the words in a reading passage, EFL learners with lower proficiency levels might not be able to understand it or able to understand only some small parts of the text, for they do not know the meaning of all important words. Furthermore, it is sometimes impossible for them to look up all unfamiliar words in the dictionary or ask someone with broader lexical knowledge for assistance. Therefore, an ability to generate the meaning of an unknown word or lexical inferencing strategy plays an important role in comprehending reading passages.

With a mutual agreement among L2 instructors and researchers on the significance of lexical inferencing strategy (Deschambault, 2012), a large amount of research has been conducted to examine the strategy use. According to Akpınar (2013), a majority of these studies mainly examined the beneficial impacts of lexical inferencing strategies on reading comprehension (Chegeni & Tabatabaei, 2014; Qian, 2004) and the readers' problems when handling unknown words (Shen, 2009). However, some studies have focused on the effect of individual factors including readers' proficiency levels and language knowledge on the employment of lexical inferencing strategies (Bengeleil & Paribakht, 2004; Kaivanpanah & Moghaddam, 2012; Nassaji, 2004; Riazi & Babaei, 2008; Shen & Wu, 2009; Tavakoli & Hayati, 2011). Most research findings indicated the difference in lexical inferencing success and strategy use all in terms of type, number, and frequency (Riazi & Babaei, 2008; Shen & Wu, 2009; Tavakoli & Hayati, 2011). Nassaji (2003a) also found that although some lower-level strategies were employed by both high and low proficiency ESL readers, they were still used differently. Additionally, some of the research results revealed the necessity in using various knowledge sources in guessing the meaning of unfamiliar words (Akpınar, 2013; Frantzen, 2003; Nassaji, 2003b). They claimed that using only one knowledge source could not lead to a successful vocabulary inferencing.

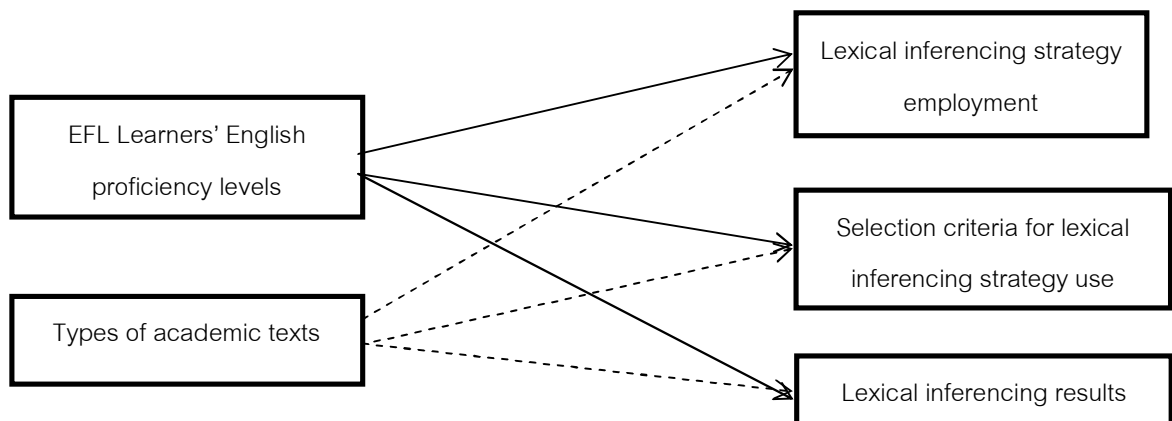
On the other hand, the research finding of Bengeleil and Paribakht (2004) is contrastive to these research results. They discovered that EFL students employed similar lexical inferencing strategies regardless of their proficiency levels. It was also found that less proficiency learners used some strategies more often and in more various combinations than the learners with higher proficiency. In the same way, Kaivanpanah and Alavi (2008) reported that all low, mid, and high-intermediate EFL learners similarly used both single and multiple knowledge sources to infer the word's meaning, but they were different in terms of frequency and variation in combining the knowledge sources. These results suggest that using more than one lexical inferencing strategies might not help EFL readers with lower proficiency to obtain the correct meaning of the words (Bengeleil & Paribakht, 2004; Kaivanpanah & Moghaddam, 2012).

One reasonable conclusion drawn from these previous comparative studies seems to be the fact that the readers' language proficiency or knowledge influences the frequency of strategy use and lexical inferencing success. However, the controversy of the results shows that the effect of language proficiency on lexical inferencing process is still inconclusive. Furthermore, it remains clear that the major focus of the earlier works is limited to a comparison between two extreme groups of learners (Bengeleil & Paribakht, 2004; Hu & Nassaji, 2014; Nassaji, 2004, 2006; Shen & Wu, 2009; Tavakoli & Hayati, 2011), and there is an inconsistency in the

participants' language ability defined in each research. That is, the language proficiency level of the high-ability group was between advanced and upper or high-intermediate learners, whereas the proficiency of the low-ability group could be ranged from elementary to intermediate learners. This difference makes a comparison of the research results less possible and might lead to a decline in the number of research findings to be applied in other similar contexts. Moreover, little attention has been paid on the role of the reading texts especially the influence of text types on lexical inferencing strategy use; thus, as Riazi and Babaei (2008) and Anvari and Farvardin (2016) suggested, more research is still needed especially in different context and with different types of text to fully understand the conditions which lead to lexical inferencing success of learners with different proficiency level.

To fill in the research gap and obtain a clearer insight about the effect of EFL learners' language proficiency on lexical inferencing process and outcome, it is interesting to examine the lexical inferencing strategies used by Thai EFL learners with three different language proficiency levels while reading two types of English academic passages, namely descriptive and argumentative. The justification for choosing these text types is mainly because they are the types of the passages used in the English courses the participants have been studying, and argumentative texts have not yet been investigated in the previous research.

#### Conceptual Framework of the Study



#### Research Objectives

1. To explore and compare the lexical inferencing strategies employed by different proficiency EFL learners while reading English academic texts
2. To explore and compare the criteria for selecting lexical inferencing strategies employed by different proficiency EFL learners while reading English academic texts
3. To investigate and compare the lexical inferencing results produced by different proficiency EFL learners while reading English academic texts

## Research Methodology

### Research Participants

The research participants were the students in Business Education major. Due to the practical constraints of verbal protocol and conversation transcribing and analysis, only 9 out of 18 students enrolling in English for Teachers course in the second semester of the academic year of 2017 participated in the study. These participants were selected through criterion and convenience sampling methods. In other words, the students' cumulative grade obtained from the three previous English courses and their willingness were used as main criteria for participant selection. The students whose accumulative grade received from the first three prerequisite courses are from 3.5 - 4 were categorized in the high-proficiency group. Those whose previous English courses' grade is from 2.5 - 3 were classified into the mid-proficiency group, and those whose accumulative grade for all prerequisite courses is between 1.5 and 2 were assigned into the low-proficiency group.

### Research Variables

There are two main variables in this research, namely independent and dependent variables. The independent variables are EFL learners' English proficiency levels and types of academic texts, while the dependent variables include an employment of lexical inferencing strategies, criteria for selecting lexical inferencing strategy, and lexical inferencing success.

## Research Instruments

### Think Aloud Protocols

To explore the lexical inferencing process of high, mid, and low-proficiency EFL learners, think aloud protocols were used in collecting data along with the observation checklists. To ensure the participants' ability to think aloud, the researcher provided some training before conducting the study, and the participants were allowed to verbally report their thought in the language they felt comfortable with. Moreover, as the participants' behavior and speech were also observed by the researcher, an observation checklist was developed based on Bengeleil and Paribakht (2004); (Hu & Nassaji, 2014); Nassaji (2003b, 2004) to facilitate the observation and to make the data collection more systematic and meaningful. This observation checklist was validated by the judgments of three experts in English language research and instruction, and the evaluation results showed that the observation checklist was acceptable and helpful to be used with the think aloud method with the IOC score of 1. Moreover, to ensure the reliability of the qualitative results obtained from the think aloud protocols, 2 out of 9 participants' think aloud protocols were randomly selected and provided to the inter-coder along with the constructed codebook, which contained the codes, the names of all the lexical inferencing knowledge sources and strategies found in the study, their definitions, and sample statements reflecting the use of each strategy for coding. Then the corresponding and non-corresponding codes were calculated for percentage agreement (Neuendorf, 2002). The result showed that the lexical inferencing strategy coding was highly reliable with the reliability coefficient of 1.

### Semi-structured Interviews

Semi-structured interviews were employed to collect the data concerning lexical inferencing strategies used when reading descriptive and argumentative texts as well as the selection criteria and to offer the participants an opportunity to clarify, explain, and confirm some points. The interview was conducted in Thai, which is the participants' first language in order to encourage them to provide rich and accurate data. All guideline interview questions were divided into two main parts: questions relating to the lexical inferencing process and the inferencing result and questions regarding the text types. To validate this instrument, after developing these guideline interview questions, three experts were asked to make judgment in terms of its appropriateness and clarity of the language use, validity, sequencing, and focused issues in the questions. The total IOC score obtained from all experts was 0.93, indicating that the interview questions were valid and could be used to collect the data.

### Reading Worksheets

The reading worksheet consisted of four authentic academic passages with bold and underlined words for inferencing. The first two passages were descriptive texts, and the others were argumentative texts. According to Flesch Reading Ease Readability, all passages were considered fairly difficult to read, with the readability scores of 51.8 – 58.3. The length of each passage was between 350 – 400 words, and the total number of the target words was 48 words.

Since this study requires the participants to read passages in the reading worksheet and infer the meaning of their unfamiliar words in the texts, all the target words for inferencing were selected based on two main criteria. First, the chosen words must be unknown by the learners. To meet this criterion, 22 sophomore students studying in Activating Skills in English course, the third previous English course for students in the Faculty of Education were asked to read the passages and underline their unfamiliar words. All of the underlined words were then counted for frequency, and the words whose frequency was at least 10 were selected for inferencing. Second, according to Wang (2011) and Anvari & Farvardin (2016), to ensure that the passages provide sufficient clues for lexical inferencing, all the selected words are content words including nouns, verbs, adjectives, and adverbs. Like the previous research instruments, to ensure the validity of the reading worksheet, it was also checked by three experts in English linguistics, English language instruction, and language assessment fields after it was developed. The IOC score was 0.94, showing that the worksheet was valid and appropriate for collecting the data on the participants' lexical inferencing ability.

The scores gained from the reading worksheet were used in evaluating the results of inferring the word's meaning, so the participants' inferencing responses were checked by the researcher using the three-point scale developed by Nassaji (2003b). According to the scale, 2 points were assigned for each successful inferencing which was semantically, syntactically, and contextually accurate and appropriate. The inferencing which was either semantically or syntactically appropriate was regarded as partially successful and was rated 1 point. Unsuccessful inferencing which was not correct or appropriate was considered the wrong answer and

received no point. Furthermore, to ensure that all of the participants' responses were correctly scored based on the criteria in the scale, another EFL teacher who teaches English reading and does research on English vocabulary was also asked to evaluate the reading worksheets.

### Data Collection and Analysis

On the appointment date and time, each participant was individually trained for the think aloud procedure using four think aloud training activities. Then the participant was asked to read the passages in the reading worksheet and try to infer the meaning of the target words. They were also allowed to infer the meaning of the unknown words other than the target ones. While reading, the participants were asked to verbally report what he or she was thinking while dealing with those unfamiliar words in the passages. After the participant discovered the meaning of the words, he or she was required to write the inferred meaning of unknown vocabulary in the worksheet in the space above the target words. While he or she was doing the lexical inferencing task, the researcher observed his or her speech and behavior and then took note the strategies and questionable or interesting issues in the observation checklist. Finally, after the think aloud session, the participant was subsequently asked to conduct a semi-structured interview with the researcher.

After collecting the data, the qualitative data obtained from think aloud protocols and semi-structured interviews were transcribed and analyzed using content analysis and thematic coding, while the participants' responses were evaluated and scored. This quantitative data were then analyzed using descriptive statistics including mean, percentage, and standard deviation (SD).

### Research Results

#### Lexical Inferencing Strategy Use

According to the results, the participants employed 13 knowledge sources while they were reading academic texts. These knowledge sources could be divided into eleven linguistic knowledge sources and two nonlinguistic knowledge sources. The linguistic knowledge sources referred to the participants' use of their language knowledge to infer the words' meaning, and they could also be further categorized into intralingual and interlingual sources. In this study, the intralingual sources could be categorized into target word level, sentence level, and discourse level. In the target word level, the participants used the prominent aspects of the target word to assist their inferencing. The sentence-level knowledge sources referred to the participants' use of their syntactic knowledge of the target language, and the discourse level involved the use of participants' understanding of discourse or discourse meaning to infer the meaning of unknown words.

In contrast to the intralingual sources, interlingual source involved the participants' employment of their L1 knowledge or the knowledge of languages other than the target language to make inferences. In this research, lexical knowledge was the only one interlingual source used by the participants. The nonlinguistic knowledge sources comprised two types of knowledge: the knowledge of topic and the knowledge of technical terms, both of which were not related to language. Instead, the participants inferred the meaning of unknown words based on their background knowledge or personal experience relevant to the reading texts.

It was also discovered that the participants with different language proficiency employed knowledge sources differently when reading different types of texts. In descriptive texts, the high and the low-proficiency participants used an equal number of knowledge sources to make inferences, which was more than those employed by the mid-proficiency ones. The higher proficiency groups also used more types of knowledge sources since the participants with high language proficiency employed both linguistic and nonlinguistic sources, and the mid-proficiency participants used both intralingual and interlingual sources to infer a word's meaning. In contrast, the knowledge sources used by the low-proficiency participants still limited to intralingual sources. Despite that, the frequency of the high proficiency group's use of knowledge sources was not considered the highest although it was higher than the mid-proficiency group of participants.

Conversely, in argumentative texts, each proficiency group of participants used knowledge sources differently although all participants regardless of their English proficiency equally employed eight knowledge sources to infer the meaning of the unknown words. In other words, the high proficiency group was the only group who employed both linguistic and nonlinguistic sources and did not rely on other familiar words to make inferences, while the mid and the low-proficiency groups similarly employed only linguistic knowledge sources. It was also found that the language proficiency of the participants had an impact on the frequency of the knowledge source use. Among three groups of participants, the low-proficiency group appeared to use the knowledge sources most often, whereas the mid and the high proficiency groups were in the second and the third ranks for this aspect. The number, type, and frequency of using knowledge sources when reading academic texts are shown in Table 1.

**Table 1** Different proficiency participants' use of knowledge sources employed when reading academic texts

Knowledge sources		Descriptive texts				Argumentative texts			
		HP	MP	LP	Total	HP	MP	LP	Total
Linguistic sources	Word morphology	3(27)	3(26)	3(28)	9(81)	3(13)	3(15)	3(31)	9(59)
<b><u>Intralingual sources</u></b>									
<i>Target word level</i>									
	Homonymy	2(8)	3(10)	3(10)	8(28)	2(8)	3(9)	3(11)	8(28)
	Other familiar words	1(2)		1(1)	2(3)		1(1)	1(1)	2(2)
<i>Sentence Level</i>									
	Syntagmatic relations	3(8)	3(5)	3(8)	9(21)	3(9)	3(5)	3(10)	9(24)
	Paradigmatic relations	1(1)		1(1)	2(2)	1(1)	1(1)	2(2)	4(4)
	Grammar	2(4)	3(4)	1(1)	6(9)	2(3)	3(5)	2(6)	7(14)
	Punctuation	2(3)		2(3)	4(6)				
	Phrasal meaning		2(5)	3(4)	5(9)				
	Sentence meaning	3(22)	3(27)	3(25)	9(74)	3(16)	3(16)	3(18)	9(50)



Knowledge sources		Descriptive texts				Argumentative texts			
		HP	MP	LP	Total	HP	MP	LP	Total
<i>Discourse level</i>	Discourse meaning	3(14)	3(9)	2(12)	8(35)	3(7)	3(11)	3(9)	9(27)
<u>Interlingual source</u>	Lexical knowledge		1(1)		1(1)				
<u>Nonlinguistic sources</u>	Knowledge of technical terms	1(1)			1(1)				
	Knowledge of					1(1)			1(1)

**Note:** HP = High-proficiency participants; MP = mid-proficiency participants; LP = Low-proficiency participants; Number = Number of participants who used the strategy; Number in the bracket = Frequency of using the knowledge source

With regard to lexical inferencing strategies, the participants employed 11 strategies to infer the meaning of unknown words, and they could be categorized into four types based on their features, namely form-focused strategies, meaning-focused strategies, evaluating strategies, and monitoring strategies. Each category consisted of three strategies except the meaning-focused type since there were only two strategies that focused on the meaning: using context clues and using prior knowledge. The form-focused strategies included analyzing, associating, and repeating. Evaluating strategies involved making inquiry, confirming or disconfirming, and commenting, and the monitoring strategies consisted of stating the failure or difficulty, suspending judgement, and reattempting. Therefore, this category consisted of three strategies.

Like the knowledge sources, the findings also showed that the participants employed lexical inferencing strategies differently when reading two types of texts. All participants regardless of language proficiency similarly employed 11 strategies to infer the meaning of the unknown words in descriptive texts, and these strategies could be classified into four groups according to the developed taxonomy. Nevertheless, each proficiency group differed in the frequency of lexical inferencing strategy use. The low-proficiency group was found to use lexical inferencing strategies with the highest frequency, which was much higher than the second highest frequency made by the high proficiency group. The mid-proficiency participants were still the group employing the lexical inferencing strategies with the lowest frequency.

On the other hand, in argumentative texts, although all high, mid, and low-proficiency participants employed all four types of lexical inferencing strategies, the number and frequency of the lexical inferencing strategy use were different. In other words, the high proficiency group used the greatest number of lexical inferencing strategies since they employed all available strategies in the taxonomy, but its frequency of strategy use was the lowest. The low proficiency participants used smaller number of strategies, but they employed them with the highest frequency, which was far higher than the one of the mid proficiency group – the second-ranked group for the most frequent use of strategies. The mid-proficiency participants appeared to use the lexical inferencing strategies least often. Still, its total frequency was slightly higher than the high proficiency one. Table 2 below presents the lexical inferencing strategies used by different proficiency participants along with the frequency of employment.

Table 2 Different proficiency participants' use of lexical inferencing strategies employed when reading academic texts

Strategies		Descriptive texts				Argumentative texts			
		HP	MP	LP	Total	HP	MP	LP	Total
Form-focused strategies	Analyzing	3(27)	3(26)	3(28)	9(81)	3(13)	3(15)	3(31)	9(59)
	Associating	2(8)	3(10)	3(12)	8(30)	2(8)	3(9)	3(11)	8(28)
	Repeating	2(5)	3(6)	2(4)	7(15)	1(1)	2(4)	3(5)	6(10)
Meaning-focused strategies	Using context clues	3(48)	3(50)	3(54)	9(152)	3(36)	3(38)	3(38)	9(112)
	Using prior knowledge	2(2)	2(4)	1(1)	5(7)	1(1)			1(1)
Evaluating strategies	Making inquiry	3(15)	3(8)	3(17)	9(40)	3(9)	3(7)	3(16)	9(32)
	Confirming or disconfirming	3(9)	3(6)	3(5)	9(20)	1(1)		1(1)	2(2)
	Commenting	2(4)	1(3)	2(3)	5(10)	2(2)	1(2)	2(3)	5(7)
Monitoring strategies	Stating the failure or difficulty	3(8)	2(9)	2(9)	7(26)	2(4)	2(5)	2(7)	6(16)
	Suspending judgment	3(3)	3(11)	2(4)	8(18)	2(7)	2(7)	2(2)	6(16)
	Reattempting	2(2)	1(1)	3(4)	6(7)	1(1)	1(1)	1(1)	3(3)

Note: HP = High-proficiency participants; MP = mid-proficiency participants; LP = Low-proficiency participants; Number = Number of participants who used the strategy; Number in the bracket = Frequency of using the strategy

### Criteria for Selecting Lexical Inferencing Strategies

Based on the data obtained from the semi-structured interviews, the participants have ten criteria for choosing the lexical inferencing strategies as follows:

#### 1. Learners' Beliefs

The participants regardless of the language proficiency employed the lexical inferencing strategies and knowledge sources that were believed to be useful and could help them infer the accurate meaning of the unknown words. However, each of them had different belief on effective lexical inferencing strategies. Some high-proficiency participants believed that analyzing strategy and word morphology were the most effective strategy and knowledge source, so they mostly analyzed the words using their morphological knowledge to infer the words' meaning as shown in the excerpt below:

*"I used it (word morphology) all the time. I mean it's the first thing that I used to guess the meaning of unknown words, and when I teach my sister, I tell her to memorize the prefixes and suffixes for the reading exam, too. Personally, I still think that guessing meaning from context clues is the easiest way, but context clue is easy for those who can understand the*

*meaning of the whole sentence. If you know the sentence meaning, you can guess the word meaning, but someone can't do that. Therefore, guessing from the context is difficult, and sometimes prefixes and suffixes may be more helpful.*"(Participant HP 1)

However, many participants especially those with lower proficiency seemed to believe that using context clues was more useful and more effective strategy for them to infer the meaning of unknown words, and the following excerpts show that in their opinion, the context played a significant role in successful lexical inferencing:

*"Different contexts can change the meaning of the words, so I choose to use the context more than any other strategies. And I think it is the way that helps me infer the word's meaning more correctly in comparison to using other strategies."*(Participant MP 2)

## 2. Strategy Training Experience

In this study, some participants were taught and trained to use some certain knowledge sources and strategies, such as using their morphological knowledge to analyze the unknown words and using context clues to help them make inferences. Therefore, these participants tended to employ the knowledge sources and strategies they had learned when reading the passages as indicated in the statement below:

*"When I was young, I was forced to memorize prefixes and suffixes, so when I see the word, I will automatically separate it into parts first. It's a habit. Then if I cannot separate it, I will look at context clues or use other ways to help, but I will separate it first."*(Participant HP 1)

## 3. Word Familiarity

If the participants felt that they had seen the word or part of the word before, they would attempt to recall its meaning by repeating the target word. They thought that the more they said that word, the higher possibility they could recollect what it means. The following statement supports this result:

*"If it's the word that I feel familiar, I'll repeat it in order to recall what it means. If it's an unfamiliar word or the word that I've never seen before, I won't do that because repeating that word can't help anything. Repeating seems to be the reminder that helps me remember and recall words."*(Participant LP 1)

## 4. Morphological Knowledge

If the participants knew the word roots or affixes of the target words, they would use their morphological knowledge to create the meaning of the words they did not know. However, if the affixes had more than one meaning, some participants would not use it for inferencing as reported in the following statement:

*"If I know prefixes and suffixes in the words, I will use them, but if I'm not sure, I won't use it, such as the prefix "in-." I don't care about this prefix at all because the meaning is uncertain. I will remember and use only the prefixes that I'm sure of."*(Participant LP 2)

### 5. Confidence in the Lexical Inferencing Results

When the participants were not certain about the accuracy of the meaning, they would make inquiries or comments on the inferred meaning. It seemed that both of these strategies helped encourage them to think more deeply and carefully about the words. The excerpt below supports this result:

*“When I was inferring the words’ meaning, I talked to myself or asked myself the questions like “Does this word have such meaning?” I talked to myself about what I thought of what I have inferred. It shouldn’t be correct, like this. Mostly, it will be when I’m not sure whether it is correct. I need to think more about it.”*(Participant LP 3)

### 6. Inferred Word Forms

Some participants associated the unknown vocabulary with the words that were pronounced or spelled similarly since they believed that there might be some semantic relation between these words, and this connection could help them discover the correct meaning of the vocabulary as indicated in the following conversation:

**Researcher:** *Normally, when you use each strategy to infer the meaning of unknown words, do you have any criteria for choosing it?*

**Participant:** *Umm. I think it’s the words that I have seen before such as the word “motive.” When I saw it, I thought of the word “motivate.” It seems that I used my existing vocabulary knowledge to infer the meaning of “motive.”*(Participant MP 3)

### 7. Insufficient Context Clues

The participants decided to postpone their inference making if there was not sufficient clue in the first context. They expected that the target word would be used again in other parts of the reading text, and those contexts might help them construct the words’ meaning. Otherwise, broader context might enhance their understanding of the text, and based on this understanding, they could finally infer the meaning of the unknown word, as reported in the statement below:

*“If I read and still couldn’t infer the meaning from the context, I will skip it first. That’s because there might be other context that use this word. Then I could guess the word’s meaning from that context. Otherwise, reading further could make me see the overall picture of the text, and I could use this general understanding to infer the word’s meaning.”*  
(Participant MP 3)

### 8. Time

To save the reading time, the participants skipped the word they did not know and continued reading the text. They would try to infer the meaning of the skipped word again after they finished the passage as shown in the following statement:

*“I don’t want to waste time, so I skipped it first and came back to infer it again later. But there’re also cases that I couldn’t infer the meaning of the word at the first time I saw, but*

*when I read the whole passage, I understood the text and could infer the meaning of that word.”(Participant MP 2)*

#### 9. Understanding of Context

For most of the participants, repeating the sentence or some parts of the text could reflect their attempt to understand the meaning of a sentence or a discourse so that they could use these knowledge sources to construct the meaning of unknown words. The following excerpt shows this:

*“Instead of a word, I will repeat the sentence to understand the sentence meaning or the meaning of the text that contains the unknown word.”(Participant LP 2)*

Apart from repeating, some participants also employed the strategy of making inquiry to help them understand the context as shown in the following statement:

*“Repeating or asking myself while inferring the words’ meaning helps me understand the context easier. It’s similar to when we want memorize something, we need to say it again and again until we understand and remember.”(Participant LP 1)*

#### 10. Pattern of Using Lexical Inferencing Strategies

A few participants mentioned the patterns of lexical inferencing strategy use, and in this study, two patterns of strategy use were reported of employment. The first pattern was using analyzing strategy and their knowledge of word morphology to infer the meaning of the unknown words before using context clues as shown in the excerpt below:

*“I will havesteps to use the strategies. That is, if I know the vocabulary, it’s done. But if I don’t know the word, yet I know its prefix and suffix, I will use them to find out the words’ meaning. For example, the word “rapid” has no prefix or suffix, so I can’t use this way to infer the words’ meaning. Then I will guess the meaning from contexts. But if it’s the word “malicious,” I don’t know what it means, but I will first infer the meaning from mal- which means bad.” (Participant HP 1)*

The second pattern of lexical inferencing strategy use found in this study was using analyzing strategy and their knowledge of word morphology before using context clues. Then when using context clues, they started with inferring the word’s meaning from the meaning of the sentence containing that word, and if they still could not guess the meaning, they would use discourse meaning to make inference. The following excerpt shows this.

*“I will have the steps of using strategies. First, I will look at the word. If I don’t know that word, I will then look at its components to see whether there are prefixes, suffixes, or any word parts that I know. If I still don’t know, I will look at the context. I will read the sentence containing this word first to understand what it is about to infer its meaning, and finally, if I still can’t get the meaning, I will read the whole paragraph and may be the paragraph that comes before or after*

*to understand what they are talking about to help me find out the meaning of that word.*"(Participant MP 1)

### Lexical Inferencing Results

Among three proficiency groups of participants, the findings showed that the high proficiency group of participants obtained the highest scores (Mean = 22.67) with the highest percentage of 45.34%. The average scores of the mid and the low-proficiency groups were relatively lower. That is, the mean scores of these proficiency groups were 16.33 and 12.33, which could be calculated into the percentages of 32.66% and 24.66% respectively.

A descriptive statistical analysis of the scores also revealed similar results for the argumentative texts. The average score of the high-proficiency participants was 17.67 or 38.41% which was the highest of all, and this showed that they had the greatest lexical inferencing ability among three proficiency groups. The mid proficiency group's score was in the second rank with the mean score of 14.33 or 31.15%, and the average score of the low proficiency group was the lowest with the mean score of 6 or 13.04%. These results indicated that language proficiency of the participants affected the lexical inferencing results when reading both descriptive and argumentative academic texts.

Moreover, it was found the scores obtained from argumentative texts were clearly lower than those obtained from descriptive texts. Each proficiency group's percentage of the lexical inferencing results on descriptive texts were 45.34%, 32.66%, and 24.66% respectively, while for argumentative texts, their percentages of the results declined to 38.41%, 31.15%, and 13.04% respectively. This suggests that apart from language proficiency, text types also played an important role in lexical inferencing results. The participants' scores are illustrated in Table 3.

**Table 3:** Lexical inferencing results obtained when reading academic texts

Lexical inferencing scores	Descriptive texts			Argumentative texts		
	HP	MP	LP	HP	MP	LP
Mean	22.67	16.33	12.33	17.67	14.33	6
Percentage	45.34%	32.66%	24.66%	38.41%	31.15%	13.04%
SD	1.53	7.09	1.15	2.08	5.03	3

### Discussion

The results of this study suggested that L2 proficiency and text types could be factors affecting the lexical inferencing strategy use. It is clear that the participants with higher language proficiency were likely to use more types of knowledge sources when reading both descriptive and argumentative texts, and this implies that greater language knowledge and proficiency could offer more opportunity for L2 readers to use more types of available cues to help them guess the meaning of the words. This finding lends supports for the study conducted by Riazi and Babaei (2008), which revealed that learners with different proficiency employed

different types of knowledge sources, but it seems inconsistent with the findings of some research such as the investigation done by Bengeleil and Paribakht (2004) and Kaivanpanah and Moghaddam (2012) which reported that different proficiency learners used similar kinds of knowledge sources when reading passages in English. It was also found that some proficiency groups of participants could not employ a few knowledge sources and strategies when reading argumentative texts, so they used smaller number of knowledge sources and strategies while reading this type of text. This might reflect the participants' ability to apply their linguistic and background knowledge to infer the meaning of unfamiliar vocabulary.

Furthermore, it is possible that there might be a relationship between the adopted selection criteria and the popularity of lexical inferencing knowledge source and strategy use. In other words, these criteria could lead to a greater possibility of employing some certain lexical inferencing knowledge sources and strategies. It could be noticed that learners' beliefs, strategy training experience, morphological knowledge, and patterns of strategy use could reinforce the tendency of using four popular knowledge sources and two strategies including word morphology, syntagmatic relations, sentence meaning, discourse meaning, analyzing strategy, and the strategy of using context clues. Besides, the participants asked questions when they felt uncertain about the accuracy of the inferred meaning, so it is probable that their confidence in the lexical inferencing results could also be the reason why making inquiry strategy became one of the most-used strategies when reading both descriptive and argumentative texts. Similarly, these reported criteria did not encourage the participants to use interlingual knowledge sources, nonlinguistic knowledge sources, and the strategy of using prior knowledge. Consequently, these types of the knowledge sources and this strategy were not popular among the research participants, and there were a few participants with higher proficiency employing them.

Apart from the strategy use, the participants' language proficiency and text types were also found influencing the lexical inferencing results. In this study, the higher proficiency participants scored higher than the lower proficiency ones, and their scores were better when reading descriptive texts. One possible reason for the effect of language proficiency might be inappropriate use of lexical inferencing strategies. The participants especially the lower proficiency groups appeared to use analyzing strategy to infer the meaning of the words that could not be separated into parts or associate the target words with the words that had no relation to the unknown ones. Therefore, they could not infer accurate meaning of the words. According to Anvari and Farvardin (2016) and Hu and Nassaji (2014), it is important to appropriately use L2 readers' language and background knowledge because it offers a conceptual framework that assists them to close the semantic gaps in the texts when making inferences and bring about successful lexical inferencing. This finding is in agreement with the results of numerous studies such as the research conducted by Bengeleil and Paribakht (2004); Kaivanpanah and Moghaddam (2012); Hatami and Tavakoli (2012); Nassaji (2004, 2006); Riazi and Babaei (2008) and Tavakoli and Hayati (2011). With regards to the text types, its effect could be explained by considering the participants' reading comprehension and their use of monitoring strategies and confirming or disconfirming strategy. According to the interview data, some of the participants did not

understand the argumentative texts well enough to infer the meaning of unknown words, and this limited understanding might affect their lexical inferencing ability and effectiveness of the strategy use. Moreover, it is clear that there were more participants employed monitoring strategies and confirming or disconfirming strategy when reading descriptive texts, and these types of strategies could help them infer the correct meaning of unknown words (Hu & Nassaji, 2014).

## Recommendations

### Recommendations for Language Teachers

Based on the above results, three recommendations could be made for L2 teachers. First, to enable different proficiency learners to use proper knowledge sources and strategies, language teacher should introduce all the knowledge sources and strategies that can be used to infer the meaning of unknown words to them. Then the teachers should teach them how to use each of the knowledge sources and strategies to make inferences. With wider knowledge, EFL learners would have more opportunity to use more appropriate lexical inferencing knowledge sources and strategies and have higher possibility to infer the correct meaning of the words. Second, language learners should be trained to use those available knowledge sources and strategies appropriately to achieve a success in lexical inferencing. Third, language teachers should use a wide range of text types in teaching or training learners to infer the meaning of unknown vocabulary in order to familiarize them with different text types and to enable them to use strategies more effectively.

### Recommendation for Further Research

Besides, as one limitation of this research was the limited number of participants, the future study could collect the data from more research participants or use other types of texts to obtain clearer and richer information on the lexical inferencing process and outcome.

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