Lexical inferencing: perceptions and actual behaviours of Turkish English as a Foreign Language Learners' handling of unknown vocabulary

Kadriye Dilek Akpınar
Department of Foreign Languages Education, Gazi University, Türkiye
kadriyedılek@gmail.com

The purpose of this study was to examine Turkish English as a Foreign Language Learners' (EFL) handling of unknown words while reading English texts. The study also examines the relationship between these learners' perceptions and actual practices in the employment of knowledge sources while trying to guess the meaning of unknown words. The participants involved in this study were 40 pre-service teacher education students between the ages of 18-22 years old. Data were collected through mixed (qualitative and quantitative) methods, namely, by a twofold vocabulary strategy survey and a lexical inference test. Pearson correlation coefficients were conducted to determine what relationships exist among the perceived behaviours and actual practices of learners for unknown words. The results of the correlation analyses identified an insignificant correlation between the actual practices and perceptions of students for the contextual and intralingual knowledge sources.

Keywords: contextual knowledge sources; intralingual knowledge sources; lexical inference

Introduction

Recently, the role of the lexicon in language learning and communication has come to be widely understood by Foreign Language (FL) teachers and researchers since vocabulary knowledge is central to the development of language and literacy (Jordaan, 2011). Research (Harley & Hart, 2000; Paribakht, 2004; Qian, 2004) indicates that readers use a variety of strategies when they encounter new words in a FL text. These strategies include ignoring unknown words, consulting a dictionary for the meanings of these words, writing them down for further consultation with a teacher, or attempting to infer their meaning from context (Harley & Hart, 2000). Some studies (e.g. Laufer, 1997 cited in Nassaji, 2003; Paribakht, 2004; Qian, 2004) have shown that the most commonly used strategy among them is to infer the meaning of unknown words in order to compensate for the lack of comprehension. Lexical inference is defined by Oxford (1990:47) as "using a variety of linguistic and nonlinguistic clues to guess the meanings of all the words when the learner does not know them". It can be regarded as an important strategy since it 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).

The reason why lexical inference has been investigated widely by so many scholars (e.g. Haastrup, 1991; Hulstijn, 1992; Na & Nation, 1985; Mondria & Wit-de

Boer, 1991; Gao, 2012) mainly reflects the assumption that the greater the mental effort in processing a word, the more likely it is to be remembered. Most of these studies focus mainly on the positive effect of lexical inference strategies on reading comprehension (Mondria & Wit-de Boer, 1991; Paribakht, 2004; Qian, 2004) and problems in inferring the meanings of vocabulary from context (Wang, 2011). However, learners' approaches to making use of knowledge sources in the inferencing process in a FL setting have not been examined in terms of their perceptions and actual practices. Hence, this study specifically aims to compare Turkish FL learners' self-perceived and actual performances while trying to guess unknown words that they encounter in English texts.

The article is organized as follows. The first section reviews the related literature on lexical inferencing and the taxonomy of knowledge sources used in the inferencing process. The second section describes the research method, the third section presents the results and the final section discusses the results and their implications in FL pedagogy.

Review of literature

A number of recent studies have documented the range of knowledge sources that learners use during lexical inference. Using think-aloud protocols among pairs of students, Haastrup (1991a; 1991b) studied the lexical inferencing procedures of high-school students who were Danish-speaking learners of English. Based on Carton's (1971) framework of knowledge sources for inferencing, Haastrup (1991) identified three main sources of knowledge that foreign language learners may use in lexical inferencing: contextual, intralingual, and interlingual.

In her taxonomy, Haastrup (1991) divided contextual knowledge into two sub-categories: knowledge of co-text and knowledge of the world. Co-text includes four subcategories: (1) one or two words from the immediate co-text of the test word, (2) three or more words from the surrounding sentence, (3) any specific part of the co-text beyond the sentence containing the test word, and (4) more global use of the context knowledge of the world includes factual knowledge, attitudes, and beliefs.

Intralingual knowledge sources are cues based on the learner's knowledge of the target language. For example, learners of English may infer the meaning of words by making use of their knowledge that suffixes -er and -or express notion of agency (Carton, 1971). This is divided into two categories: the test word itself, and the syntax of the sentence containing the test word. Under the category of test word, six sub-categories were established: (1) phonology/orthography; (2) morphology; (3) lexis; (4) word class; (5) collocations; and (6) semantics. Under the category of the syntax of the sentence containing the test word, four subcategories were identified: (1) definite articles, (2) adjectives, (3) prepositions, and (4) number.

The third source of knowledge, interlingual knowledge, contains two categories, which are L1 and Ln. In L1, the informant makes use of his/her first language and Ln

refers to all other languages except the informants' L1 and the target language of the experiment (Haastrup, 1991:92-100).

De Bot, Paribakht and Wesche (1997) identify a set of eight knowledge sources used in inferring meanings of unknown words, based on evidence from their intro-spective verbal protocols of 10 English as Second Language (ESL) learners. They interpret this finding to support a foreign language lexical processing model which was adapted from Levelt's (1989, 1993) model for L1 speech production. The eight knowledge sources are: 1. sentence level grammar; 2. word morphology; 3. punctu-ation; 4. world knowledge; 5. discourse and text; 6. homonymy; 7. word associations; and 8. cognates. Although organized in a different way, these knowledge sources gene-rally correspond to categories of Haastrup's (1991) taxonomy.

Schmitt and McCarthy (1997) distinguish three categories of knowledge sources: linguistic knowledge, world knowledge, and strategic knowledge. Linguistic know-ledge includes syntactic knowledge, vocabulary knowledge, and word schema. The syntactic constructions are considered to provide information for learners at any stage of language acquisition. World knowledge refers to the readers' background know-ledge on what constitutes a certain word. Strategic knowledge is the third category of knowledge that involves conscious control over cognitive resources.

Nassaji (2003) further categorizes four types of knowledge sources, namely: grammatical knowledge, discourse knowledge, world knowledge, and morphological knowledge. In this category, grammatical knowledge refers to using syntactic cate-gories or grammatical functions such as relative clause (modification clue), verbs or adjectives. Discourse knowledge includes using knowledge of relations between or within sentences and the connectors between words or sentences, such as restatement clues, cause/effect clues, example clues and explanation clues (Nassaji, 2003). World knowledge involves using pre-existing schemata to infer the word meaning, while morphological knowledge refers to the internal clues, such as the prefixes and suffixes (Nassaji, 2003; Soria, 2001).

Researchers who study lexical inference claim that using a single knowledge source does not contribute to a successful inference. In a study with university stu-dents, De Bot et al. (1997) found that successful inference depends upon using various knowledge sources ranging from knowledge of grammar, morphology, phonology, and knowledge of the world, to knowledge of punctuation, word association, and cognates. Nassaji (2003) further emphasizes that successful lexical inference depends on how various kinds of knowledge sources connect to strategies. His findings indicate that success in lexical inference is directly related to the effective use of strategies and the use of various knowledge sources in and outside the text.

Other researchers suggest various factors which would contribute to a successful lexical inference, such as context factors (Diakidoy & Anderson, 1991; Frantzen, 2003), student factors (Frantzen, 2003; Levine & Reves, 1998) and text factors (Hu & Nation, 2000; Laufer, 1997 cited in Nassaji, 2003; Shefelbine, 1990). Hamada's (2009)

findings reveal that all the learners made a transition from employing global to local reading strategies, and that even the learner with the lowest comprehension score demonstrated a consistent increase in number and variety of strategies used. The author offers a discussion on instructional training and its effects on reading. However, very little attention has been paid to investigating whether learners are aware of the clues and knowledge sources that they employ during the inferencing process. Qian (2004) studied the relationship between the perceptions and actual behaviours of ESL learners when encountering a new word in an English text. He conducted a survey with a group of university students who had a Korean or Chinese linguistic background. Information gathered from the respondents indicates that the top-down approach to reading was popular among the learners surveyed and many respondents claimed that they frequently guessed unknown words from contexts. The data from the interviews showed that these learners' actual lexical inferencing practices were significantly different from the self-reported strategies they had indicated in the questionnaire. Loh and Tse (2009) also examine the relationship between reading attitudes, self-concepts as readers, and reading performance of fourth-grade Hong Kong Chinese students. It was found that there were no relationships between attitudes, self-concepts, and the performance of the learners. These surprising results are discussed in detail in their study with regard to the system in Hong Kong.

Within this perspective, the present study focuses on the relationship between the perceptions and actual practices of undergraduate Turkish EFL learners using knowledge sources during the lexical inferencing process. In contrast to Qian's (2004) study, which used interviews to collect qualitative data, the present study applies think-aloud techniques, and a version of verbal report in which participants state their thoughts and behaviours during the comprehension process. This may also help us to compare the pedagogical value of think-aloud and survey techniques while studying learners' cognitive processes in lexical inferencing in a FL setting. More specifically, this study addressed the following questions:

1. What are the most and least favoured behaviours utilized by Turkish EFL learners while dealing with unknown words in English texts?
2. Is there any relationship between the perceptions and actual practices of Turkish EFL learners in the employment of knowledge sources while attempting to guess unknown words in English texts? If yes, what is the nature of the relationship?

Methodology
This study was designed to look into the learners' perceptions and actual practices in deriving word meaning from English texts. The instruments included a vocabulary strategy survey and a vocabulary inferencing test collected through think-aloud techniques.

Subjects
The participants in this study were 40 (12 male and 28 female) intermediate level

juniors studying in the English Language Teaching Department (ELT) at Gazi University, Turkey. The study took place in the Lexical Competence course as part of their syllabus in the academic year 2011/2012. All participants in this study were volunteers, and they signed written informed consent forms before participating in the research. All the participants are native speakers of Turkish and none of them know any other foreign languages except English. Their ages range between 18 and 22.

Data collection procedures and instruments
There were two stages for the data collection procedure. At the first stage, participants responded to a two-fold vocabulary strategy survey to indicate their perception of handling unknown words while reading an English text. At the second stage, participants took a lexical inference test with think-aloud techniques in order to indicate to what extent their self reports matched their actual practices when dealing with the target words.

Instruments
1. Vocabulary Strategy Survey
The survey was constructed to get a response regarding the first research question (RQ): "What are the most and least favoured behaviours utilized by Turkish EFL learners while dealing with unknown words in an English text?" The survey, written in learner L1 Turkish is composed of two parts. The first part focuses on what the learners assume they do when they encounter an unfamiliar word while reading an English text. The second part questions the clues, namely, knowledge sources that were reported as used by the learners when attempting to infer the meaning of an unfamiliar word in an English text.

In the first part of the survey, eight ways of dealing with a new word such as "Looking up the word in an English-Turkish dictionary" or "Guessing its meaning from the context" were described. This was adapted from Harley and Hart's (2000) study.

For the second part, 11 clues were described for making use of various levels and aspects of one's knowledge to handle an unknown word while reading an English text. The main body of the second part of the survey was adapted from Qian (2004) and Shen (2005, cited in Shen, 2009). However, some of the knowledge sources described in the survey were added depending on the participants' response in the pilot study. This part of the survey was pre-tested on a sample of 199 undergraduates who were randomly selected. However, these learners were not included in the respondents in the present study, since they may have recognized the target words which were the same within the main study. The purpose of the pre-testing was to determine the appropriateness of the survey for the target respondents.

2. The Reading Passage
The reading text used in the present study is a 374-word text used in Haastrup's (1991)

and Nassaji's (2003) studies (see Appendix). It contains 374 words, 10 of which are target words used to focus on inferencing strategies. The target words are all content words consisting of four nouns, four verbs, and two adjectives. The reading passage was chosen according to the following criteria:

- Student factors (Frantzen, 2003; Levine & Reves, 1998). The text should contain a minimum number of words that the participants would not know (see Laufer, 1989; Na & Nation, 1985; Nation, 2001). Related studies emphasize that readers should know a high percentage (at least 95%) of the words in the text in order to be able to infer the meaning successfully (Na & Nation, 1985). The text should also match the comprehension ability of the readers (Nation, 2003).
- Text factor (Hu & Nation, 2000; Laufer, 1997 cited in Nassaji, 2003; Shefelbine, 1990). The topic should also be relevant to students' real-life experience with its topic.
- Context factors (Haastrup, 1991; Diakidoy & Anderson, 1991; Frantzen, 2003). Words should invite the use of various knowledge sources and a range of word classes should be presented.

In order to test the text relevancy according to the above criteria, a pilot study was conducted:

a) Before the main part of the study, the same text was given to a group of students studying in the ELT department who were assumed to be similar to the participants in the main study with respect to language proficiency and level of reading comprehension. The students were asked to underline the words that they did not know in the reading passage. The percentage of unknown words was then calculated for each student (excluding the target words) by dividing the total number of words they underlined as unknown. The reported number of unknown words was less than 3% (ranged from 2.67% to 2.99%). In the main phase of the study, approximately the same percentage was found (2.78% to 3.01%). This indicates that the subjects knew approximately 97% of the words except the test words.

b) The pilot study was also carried out to ensure that while learners of intermediate or high-intermediate level would not normally know these words, they would still be able to infer the meaning of them with the help of clues from the text. The clues mentioned by the learners in the pilot study also helped the researcher to construct the second part of the questionnaire used in the main study.

c) Additionally, four experienced EFL teachers, including two native English speakers and two non-native English speakers, evaluated the suitability of the experimental text. The aim was to ensure that the contextualized meanings of the target words were indeed inferable and that helpful clues, beyond the morphological cues, were contained in the target words (Qian, 2004).

3. Lexical Inference Test

This qualitative part of the study was designed to gain a response to the second re-

search question: "Is there any relationship between perceptions and actual practices of Turkish EFL learners in the employment of knowledge sources while attempting to guess unknown words in an English text? If yes, what is the nature of this relation-ship?"

Two weeks after the survey, the text was presented to the participants and they were asked to read the text individually and to guess the meaning of the underlined words in the text by finding an English or Turkish word as the most likely translation equivalent. They were at the same time required to verbalize and report whatever came to mind. The data collected in the second stage regarding the use of knowledge sources were derived mainly from the think-aloud techniques because they involved more direct and online reporting of what learners are actually doing during the task (Olson, Duffy & Mack, 1984; Hamada, 2009; Riazi & Babaei, 2008). Despite some criticism of the think-aloud procedure which states that such data are not a true reflection of learners' actual practices, it has at least been assumed to be associated with the processes that participants employ in lexical inferences (Olson et al., 1984; Ericsson & Simon, 1993). Moreover, by internalizing and assimilating the text through the think-aloud process, students tend to remember the context of the words better (Peters, 2007).

The participants were given a total of 25 minutes to complete the task. They were asked to think-aloud in both English or in Turkish. Their think-alouds were tape-recorded and transcribed.

Data analysis
Data collected from both the vocabulary strategy survey and the lexical inference test were analysed. The survey data investigated Turkish EFL learners' (i) perceptions of handling unknown words and (ii) use of knowledge sources; while the data of the lexical inference test examined the learners' actual inference practices.

Analysis of the survey
1. In the first part of the survey there are eight items which investigate the percep-tions of the learners' most and least favoured behaviours when dealing with unknown words in an English text (taken from Harley and Hart's study, 2000). Quantitative analysis of the survey was conducted by calculating Frequency percentages for each question, using a 3-point scale format. The frequency choices were: often, sometimes, and never. Table 2 illustrates the items and responses of the 40 participants to the first part of the survey.
2. The second part of the survey questions the perceptions of learners' making use of knowledge sources while guessing unknown words in an English text. It was mainly compiled from studies by Qian (2004) and Shen (2005 cited in Shen, 2009). The same 3-point scale format was used in the second part of the survey.
Prior to the principal components (PCO) analysis, the data of the survey were tested using the Kaiser-Meyer-Olkin (KMO) and the Bartlett's Test of Sphericity to determine

their factorability. KMO value has been measured at 0.79. The Bartlett's test of Sphericity value was significant ($p < 0.05$) indicating that a factor analysis may be useful using these variables.

Next, a factor analysis, using a PCO analysis, was undertaken to identify the construct validity of the survey. Two factors with eigen values greater than 1 were found accounting for 43% of the total common variance. They were converged under two categories as Contextual and Intralingual based on Haastrup's (1991) taxonomy. Although Haastrup's (1991) taxonomy of knowledge sources includes contextual, intralingual, and interlingual cues, depending on the results of the pilot study the interlingual knowledge sources were eliminated. Actually, interlingual knowledge contains two categories, which are L1 and Ln (Haastrup 1991). For example, second language learners may derive word meanings on the basis of cognates and regularities of phonological transformations from one language to another. Since our participants did not know any other foreign languages other than Turkish and the linguistic structure of Turkish (as a non Indo-European language) is not related to English, interlanguage knowledge sources were not employed by the participants. Haastrup (1991) also attributed learners' not making use of their first language while attempting to guess unknown words to the linguistic structure of the learners' native language. This claim is also supported by Soria (2001:80) who states that "Interlingual cues are judgments made by learners about the identity of similarity of structures in two languages".

The themes and sub-categories of the survey emerged on the basis of the classification of the researchers (see Nassaji, 2003, Qian, 2004; Wang, 2011) and the pilot study. The Cronbach Alpha coefficient for Contextual dimension is .70; and for Intralingual dimension it is .65. The survey reliability coefficient was found to be .77. Table 1 illustrates the survey options and their approximate corresponding knowledge sources.

Analysis of the Lexical Inferencing Test

The Lexical inferencing test, which was used to investigate learners' actual practices in the inferencing process, was collected through think-aloud technique (Olson et al., 1984; Hamada, 2009; Riazi & Babaei, 2008). Tape-recorded think-aloud data were first examined qualitatively using content analysis. The process of analysis involves identifying, coding, and categorizing the data (Patton, 1990).

The reliability of categorizing the think-aloud data was calculated by intercoder agreement with three EFL teachers, one of whom is a native speaker, on a sample of 20% of the data. The intercoder agreement for that 20% of the data was 97%. Then, through discussion, discrepancies were resolved to achieve 100% agreement. The data were coded by the researcher according to the agreement reached.

Table 1 Survey options and their approximate corresponding knowledge sources

Survey option	Knowledge sources	
	Sub-categories	Main categories
I use my background knowledge of the topic of the text to guess the meaning of the unknown word.	World knowledge	Contextual
I use the knowledge of the content or the topic that goes beyond what is in the text.	World knowledge	
I use the meaning of other words in the same sentence to help me guess the meaning of the unknown word.	Sentence level (local) context	
I make use of the meaning of the paragraph or text as a whole to guess the meaning of the unknown word.	Meaning (clues from global context)	
I use the knowledge about the relation between or within sentences and the devices that make connections between the different parts of the text.	Discourse knowledge	
I examine the specific parts of the text other than the sentence of the test word, for instance to the sentence immediately following it.	Discourse context i.e. outside the sentence in which the word occurred	
I examine the unknown word to see if it contains any grammatical clues to tell me what part of speech it belongs to.	Morphology (part of speech)	Intralingual
I look for grammatical clues in the surrounding sentence to help me guess the meaning of the unknown word.	Grammatical knowledge (Syntax)	
I examine the unknown word to see if any part of it is familiar in meaning.	Morphology (stem, affixation, and compounding)	
I make use of phonological features of the test word	Phonology/Orthography (knowledge of pronunciation and spelling)	
I make use of other expressions that go with the test word	Knowledge of Collocation	

Results
R.Q.1. What are the most and least favoured behaviours utilized by Turkish EFL learners while dealing with unknown words in an English text?

As illustrated in Table 2, 77.5 % of Turkish learners report that they sometimes look up the word in an English-Turkish dictionary. Another 20% stated that they always use an English-Turkish dictionary. Guessing the meaning from the context was another popular practice reported by the learners. Seventy percent of these learners stated that they sometimes guess the meaning from the context and another 30% reported that they always use contextual guessing. As Table 2 indicates, 60% of the subjects reported that they sometimes look for clues to meaning in the word itself, while 30 % of them always look for clues to meaning in the word itself. Parallel with Qian's (2004) study, asking for help from a teacher was perceived as one of the least used strategies in the present study, since 62.5% of the learners stated that they never ask for the teacher's help for an unknown word.

The high rate of guessing the word's meaning from the context is consistent with the earlier studies that identify lexical inferencing to be a favoured behaviour (e.g. Gu & Johnson, 1996; Harley & Hart, 2000; Qian, 2004). Surprisingly, the high rate of looking up the word in an English-only dictionary (with the rate of 67.5% sometimes and 27.5% always) does not corroborate with Harley and Hart (2000), who found the use of monolingual French dictionaries as an infrequent behaviour in their study. On the other hand, this finding is consistent with Qian's (2004) study, who found a high mean ranking for using monolingual English dictionaries. Additionally, 77.5% of the participants in the present study stated that they sometimes look up the word in an English-Turkish dictionary and another 20% stated that they always use bilingual dictionaries. This high rate is in line with Kudo's study (1999) where consulting bilingual dictionaries was stated as the most frequent behaviour.

Table 2 Frequency percentages of learners' responses on how they handle unknown words (*n* = 40)

The ways of handling unknown words	Never (%)	Sometimes (%)	Always (%)
Look up the word in an English-Turkish dictionary	2.5	77.5	20
Look up the word in an English-only dictionary	5	67.5	27.5
Guess its meaning from the context	0	70	30
Ignore the word	55	42.5	2.5
Ask the teacher for assistance	62.5	37.5	0
Ask a friend if they know the word	10	77.5	12.5
Look for clues to meaning in the word itself	10	60	30
Make a note of the word (i.e. write it down)	30	45	25

R.Q.2. Is there any relationship between perceptions and actual practices of Turkish EFL learners in the employment of knowledge sources while attempting to guess unknown words? If yes, what is the nature of this relationship?

Pearson's Correlation Coefficients were used to determine how the survey results relate to the findings from the think-aloud verbal protocols. The Turkish EFL learners in this study made use of the two knowledge sources identified by Haastrup (1991): contextual and intralingual. As for the contextual dimension, there is a negative insignificant relationship between the perceptions and actual practices of knowledge sources ($r = -0.23$; $p > 0.05$). As tabulated in Table 3, findings suggest that the higher the perceptions of the students are, the lower their actual practices for the contextual dimension.

Table 3 Correlation between Turkish EFL learners' perceptions and actual practices of knowledge sources for contextual dimension

	Perceptions	Actual practice	Significance
Perceptions	1	−0.231	
			0.15
Actual practice	−0.231	1	

As for the intralingual dimension, there was a negative but insignificant correlation between perceived and actual use of knowledge sources ($r = 0.03$; $p > 0.05$). We can conclude that there is no relationship between students' perceptions and actual practices of using knowledge sources for the intralingual dimension in the inferencing process.

Table 4 Correlation between Turkish EFL learners' perceptions and actual practices of knowledge sources for intralingual dimension

	Perceptions	Actual practice	Significance
Perceptions	1	0.27	
			0.86
Actual practice	0.27	1	

Tables 3 and 4 indicate that the two variables of the data, namely, learners' perceptions and actual performances, both for the contextual and the intralingual dimensions in the inferencing process, change independently from each other.

Discussion and conclusion

Second/foreign language readers often claim that the existence of even a limited number of unknown words may cause problems for the comprehension of the text (Coady, 1991; Huckin & Bloch, 1993). This problem exists even among university students

who have chosen teaching English as a FL as their field of study. The reason for this problem is beyond the scope of this study. What has been investigated here is how learners think they can overcome unknown words while reading, and to what extent their perceptions and real performances coordinate with one another.

Obviously, this study focuses on the question of whether students are aware of the strategies and knowledge sources they apply while guessing the meanings of the unknown words. As mentioned previously, some reported attitudes of the learners in the current study were not in line with their performances, which can be seen through various perspectives.

The results of the quantitative data in the first part of the survey reveal the most and least frequent behaviours of the learners when they encounter unknown words. The frequency percentages indicate that Turkish EFL learners handle unknown vocabulary in various ways. Among other strategies such as consulting a dictionary for their meanings, attempting to infer their meaning from context is a popular way of handling unknown vocabulary by the learners. This is similar to some of the previous studies such as Gu and Johnson (1996); Harley and Hart (2000); Qian (2004); Laufer (1997 cited in Nassaji, 2003) and Paribakht (2004). The first and most important matter here is whether the learners make use of knowledge sources consciously while attempting to infer the meaning of unknown words from the context or not. The comparison between the survey data and think-aloud procedure reveals that learners' perceptions and actual practices of making use of knowledge sources are surprisingly different from each other. For example, although they report that they generally use contextual knowledge sources such as "world knowledge" in the survey data, in their actual performances gathered from think-aloud data, it was found that they make use of intralingual clues such as looking for grammatical clues in the surrounding sentence or examining the unknown word to see if any part of it is familiar in meaning. This finding of the present study is in line with Bensoussan and Laufer's (1984:27) observations that "Some words do not have clues in the text in which they appear; when there are clues for such words foreign language learners will not necessarily look for them; and when readers do look for these clues very often they cannot locate or understand them."

The surprising discrepancies between the two parts of the data are consistent with Qian's (2004) study which reveals that Korean or Chinese learners' actual lexical inferencing practices were significantly different from the self-reported strategies they had indicated in the questionnaire.

Similarly, the results support the findings of Loh and Tse (2009) who also found no relationships between attitudes, self-concepts, and the reading performance of the Chinese students.

There may be a few possible reasons for this difference. Learners' metacognitive strategies for FL learning (O'Malley & Chamot, 1990), learners' habitual use of strategies dictated by their teachers, and the way some target words appeared in the ex-

perimental text can be counted among these reasons. Thus, the attempts of learners' lexical inference practices were not successful on every occasion. Additionally, their choice of knowledge sources both perceived and practised may be affected by their native languages and cultural background.

We assume that lack of awareness of the knowledge sources they employ while inferencing lexical items may also interfere with successful guessing and comprehension. Therefore, the lack of comprehension adversely affects academic performance (Bharuthram, 2012). Consequently, as suggested by Shen (2009), it is necessary to make the students aware of the taxonomy of knowledge sources and strategies and to train them how to use various sources effectively for developing their lexical inference skills.

Implications

This study has some implications primarily for teachers to enhance FL learners' awareness of the lexical inferencing process. Firstly, they should be aware of the fact that expecting a favourable result from lexical inference practice without training the learners is difficult. "When the instruction is given to them, a systematic training with a robust lexical knowledge for FL vocabulary development in both breadth and depth might help undergraduate university EFL learners benefit more" (Shen & Wu, 2009: 199). Furthermore, the effect of guidance regarding the use of lexical inference strategies was also supported by Macaro and Mutton (2009). In their study they observed a higher level of performance in inferring the meaning of unknown words and in the learning of function words by the graded French readers who were given instruction, when compared to the students who were simply exposed to more text without any strategy instruction.

However, they should be cautious while developing strategies and techniques of vocabulary teaching since students may not always do in practice what they believe or report is right for them. The findings of the present study reveal that learners' self-reports on handling vocabulary do not always reliably reflect their actual practices.

The results of the study should be handled cautiously, especially in terms of questioning the reliability of survey data while assessing the inferencing process of the learners. Since it is impossible to control the students' attitudes in responding to the survey, research on vocabulary instruction solely based on survey data is ambiguous. This may have a practical implication for language teachers and researchers of the necessity of collecting more in-depth data, and utilising a think-aloud procedure to examine the actual practices of learners' ways of handling vocabulary. This is consistent with the results of Qian (2004:167), who explains that "In learning English vocabulary, students might not always do what they believe or say is right for them". Their actual performances may differ significantly from what they believe they use. It would therefore be helpful if teachers and researchers take into consideration this possible deviation when teaching or planning and organizing vocabulary acquisition

studies. Further studies may be necessary to focus on the comparison of the different methods of collecting and analysing data to assess the inferencing performances of the learners.

Finally, we strongly suggest that further studies should attempt to identify affective factors that might cause success or failure in lexical inferencing. Future research should focus on more salient individual difference factors, such as learning styles, cognitive styles, motivation, anxiety; pedagogical factors such as metacognition, prior knowledge, and content area reading (Oboler & Gupta, 2010); and social factors such as cultural and language variables that affect the reading process.

References

Bensoussan M & Laufer B 1984. Lexical guessing in context in EFL reading comprehension. *Journal of Research in Reading*, 7:15-32. doi: 10.1111/j.1467-9817.1984.tb00252.x

Bharuthram S 2012. Making a case for the teaching of reading across the curriculum in higher education. *South African Journal of Education*, 32:205-214.

Carton AS 1971. Inferencing: A process in using and learning language. In P

Pimsleur & T Quinn (eds). *The psychology of second language learning*. Cambridge: Cambridge University Press.

Coady J 1991. *Rapid recognition of vocabulary in reading: Bottom-up automaticity ensures top down comprehension*. Paper Presented at the Twenty-fifth Annual TESOL Conference, New York.

De Bot K, Paribakht TS & Wesche MB 1997. Toward a lexical processing model for the study of second language vocabulary acquisition: evidence form ESL reading. *Studies in Second language Acquisition*, 19:309-329.

Diakidoy I-A & Anderson RC 1991. The role of contextual information in word meaning acquisition during normal reading. *Technical Report*, 531:1-19.

Ericsson KA & Simon HA 1993. *Protocol analysis: Verbal reports as data* (rev. ed). Cambridge, MA: MIT Press.

Frantzen D 2003. Factors affecting how second language Spanish students derive meaning from context. *The Modern Language Journal*, 87:168-199. doi: 10.1111/1540-4781.00185

Gao H 2012. A quantitative study into Chinese EFL learners' lexical inference ability and strategy use in EFL reading. *Linguist. Cult. Educ.*, 1:58-77.

Gu Y & Johnson RK 1996. Vocabulary learning strategies and language learning outcomes. *Language Learning*, 46:643-679. doi: 10.1111/j.1467-1770.1996.tb01355.x

Haastrup K 1991b. *Lexical inferencing procedures or talking about words: Receptive procedures in foreign language learning with special reference to English*. Tubingen: Günter Narr.

Hamada M 2009. Development of L2 word-meaning inference while reading. System: An *International Journal of Educational Technology and Applied Linguistics*, 37:447-460.

Harley B & Hart D 2000. Vocabulary learning in the content-oriented second-language classroom: Student perceptions and proficiency. *Language Awareness*, 9:78-96. doi: 10.1080/09658410008667139

Hu M & Nation ISP 2000. Unknown vocabulary density and reading comprehension. *Reading in Foreign Language*, 13:403-430.

Huckin T & Bloch J 1993. Strategies for inferring word-meanings in context: A cognitive model. In T Huckin, M Haynes & J Coady (eds). *Second language reading and vocabulary learning*. Norwood, NJ: Ablex. Available at http://www.savingthewahyanites.net/wp-content/uploads/2012/01/Huckin-Bloch-1993-StrategiesForInferringWordMeaingInContext-ACognitiveModel.pdf. Accessed 8 July 2013.

Hulstijn J 1992. Retention of inferred and given word meanings: Experiments in incidental vocabulary learning. In P Arnaud & H Béjoint (eds). *Vocabulary and applied linguistics*. London: Macmillan.

Jordaan H 2011. Semantic processing skills of Grade 1 English language learners in two educational contexts. *South African Journal of Education*, 31:518-534. Available at http://reference.sabinet.co.za/webx/access/electronic_journals/educat/educat_v31_n4_a5.pdf. Accessed 8 July 2013.

Kudo Y 1999. *L2 vocabulary learning strategies* (NFLRC NetWork #14) [HTML document]. Honolulu: University of Hawai`i, Second Language Teaching & Curriculum Center. Available at http://nflrc.hawaii.edu/Networks/NW14/NW14.pdf. Accessed 8 July 2013.

Laufer B 1989. What percentage of text-lexis is essential for comprehension? In C Lauren & M Nordman (eds). *Special language: From humans thinking to thinking machines*. Clevedon: Multilingual Matters.

Levelt WJM 1989. *Speaking: From intention to articulation*. Cambridge, MA: MIT Press.

Levelt WJM 1993. The architecture of normal spoken language use. In G Blanken, J Dittman, H Grimm, JC Marshall & CW Wallesch (eds). *Linguistic Disorders and Pathologies: An International Handbook*. Berlin: Walter de Gruyter.

Levine A & Reves T 1998. Interplay between reading tasks, reader variables and unknown word processing. *Teaching English as a Second or Foreign Language (TESL-EJ)*, 3:1-12. Available at http://www.cc.kyoto-su.ac.jp/information/tesl-ej/ej10/a1.html. Accessed 8 July 2013.

Loh EKY & Tse SK 2009. The relationship between motivation to read Chinese and English and its impact on the Chinese and English reading performance of Chinese students. *Chinese Education and Society*, 42:66-90.

Macaro E & Mutton T 2009. Developing reading achievement in primary learners of French: Inferencing Strategies versus Exposure to "Graded Readers". *Language Learning Journal*, 37:165-182. doi: 10.1080/09571730902928045

Mondria JA & Wit-de Boer M 1991. The effects of contextual richness on the guessability and the retention of words in a foreign language. *Applied Linguistics*, 12:249-267. Available at http://www.rug.nl/staff/j.a.mondria/applied_linguistics_1991.pdf. Accessed 1 December 2012.

Na L & Nation ISP 1985. Factors affecting guessing vocabulary in context. *RELC Journal*, 16:33-42. doi: 10.1177/003368828501600103

Nassaji H 2003. L2 vocabulary learning from context: strategies, knowledge, sources, and their relationship with success in L2 lexical inferencing. *TESOL Quarterly*, 37:645-660. Available at http://www.jstor.org/discover/10.2307/3588216?uid=3739192&uid=2&uid=4&sid=21102177272781. Accessed 1 November 2012.

Nation ISP 2001. *Learning Vocabulary in Another Language*. Cambridge: Cambridge University Press.

Nation ISP 2003. Vocabulary. In D Nunan (ed.). *Practical English LanguageTeaching*. New

York: McGraw Hill.

Oboler ES & Gupta A 2010. Emerging theoretical models of reading through authentic assessments among preservice teachers: Two case studies. *The Reading Matrix*, 10:79-95. Available at http://www.readingmatrix.com/articles/april_2010/oboler_gupta.pdf. Accessed 8 July 2013.

Olson GM, Duffy SA & Mack RL 1984. Thinking-out-loud as a method for studying real-time comprehension processes. In DE Kieras & MA Just (eds). *New methods in reading comprehension research*. Hillsdale, NJ: Erlbaum.

O'Malley JM & Chamot AU 1990. *Learning strategies in second language acquisition*. Cambridge: Cambridge University Press.

Oxford RL 1990. *Language learning strategies: What every teacher should know*. New York: Newbury House.

Paribakht TS 2004. The role of grammar in second language lexical processing. *RELC Journal: A Journal of Language Teaching and Research*, 35:149-160. doi: 10.1177/003368820403500204

Patton MQ 1990. *Qualitative evaluation and research methods*. London: Sage Publication.

Peters E 2007. Manipulating L2 Learners' Online Dictionary Use and Its Effect on L2 Word Retention. *Language Learning & Technology*, 11:36-58. Available at http://llt.msu.edu/vol11num2/pdf/peters.pdf. Accessed 1 December 2012

Qian D 2004. Second language lexical inferencing: Preferences, perceptions and practices. In P Bogaards & B Laufer (eds). *Vocabulary in a second language: Selection, acquisition and testing*. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Read J 2000. *Assessing vocabulary*. Cambridge: Cambridge University Press.

Riazi A & Babaei N 2008. Iranian EFL Female Students' Lexical Inferencing And Its Relationship to Their L2 Proficiency and Reading Skill. *The Reading Matrix*, 8:186-195. Available at http://www.readingmatrix.com/articles/babaei_riazi/article.pdf. Accessed 1 December 2012.

Schmitt N & McCarthy M 1997. *Vocabulary: Description, Acquisition and Pedagogy*. Cambridge, UK: Cambridge University Press.

Shefelbine JL 1990. Student factors related to variability in learning word meaning from context. *Journal of Reading Behavior*, XXII:71-97. doi: 10.1080/10862969009547695

Shen MY 2009. Technical University Learners' Ability, Difficulties in Lexical Inference and Perception of Strategy Use. *Applied Sciences Journal of Kaohsiung University*, 39. Available at http://academic.kuas.edu.tw/ezcatfiles/b001/download/attdown/20100802135139.pdf. Accessed 10 July 2013.

Shen MY & Wu WS 2009. Technical University EFL Learners' Reading Proficiency and Their Lexical Inference Performance. *Electronic Journal of Foreign Language Teaching*, 6:189-200. Available at http://e-flt.nus.edu.sg/v6n22009/shen.pdf. Accessed 10 July 2013.

Soria J 2001. A Study of Ilokano learners' lexical inferencing procedures think-aloud. *Second Language Studies*, 19:77-110. Available at http://www.hawaii.edu/sls/uhwpesl/19(2)/Soria.pdf. Accessed 1 April 2012.

Wang Q 2011. Lexical Inferencing Strategies for Dealing with Unknown Words in Reading — A Contrastive Study between Filipino Graduate Students and Chinese Graduate Students. *Journal of Language Teaching and Research*, 2:302-313. doi: 10.4304/jltr.2.2.302-313

Appendix

Reading Passage: Health in the Rich World and in the Poor

An American journalist, Dorothy Thompson, criticises the rich world's health programmes in the poor world. She describes her trip to Africa where she got food poisoning and her friend malaria:

The town is very dirty. All the people are hot, have dust between their toes and the smell of sewage in their noses. We both fell ill, and at ten o'clock in the morning I got frightened and took my friend to the only private hospital in town, where you have to pay. After being treated by a doctor, we caught the next aeroplane home.

Now, I believe that the money of the World Health Organisation (WHO) should be spent on bringing health to all people of the world and not on expensive doctors and hospitals for the few who can pay. But when we ourselves become ill, our beliefs waver. After we came back to the States we thought a lot about our reaction to this sudden meeting with health care in a poor country. When assessing modern medicine, we often forget that without more money for food and clean water to drink, it is impossible to fight the diseases that are caused by infections.

Doctors seem to overlook this fact. They ought to spend much time thinking about why they themselves do not contract some of the serious and infectious diseases that so many of their patients die from. They do not realize that an illness must find a body that is weak either because of stress or hunger. People are killed by the conditions they live under, the lack of food and money and the squalor. Doctors should analyze why people become ill rather than take such a keen interest in the curative effect of medicine.

In the rich world many diseases are caused by affluence. The causes of heart diseases, for instance, are far from being mysterious and unfathomable — they are as well known as the causes of tuberculosis. Other diseases are due to hazards in the natural conditions in which we live. Imagine the typical American worker on his death-bed: every cell permeated with such things as chemicals and radio-active materials. Such symptoms are true signs of an unhealthy world.

From Haastrup (1991:234) and Nassaji (2003:670)