

Lexical Inferencing in Listening: Patterns of Knowledge Source Use across L2 Listening Proficiency Levels

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Abstract

Lexical inferencing as an efficient strategy to deal with unfamiliar words has attracted much attention in the comprehension literature. While literature abounds with studies focusing on the nature of lexical inferencing in reading, few studies have delved into the processes involved, the knowledge sources used and the factors influencing lexical inferencing in listening. This study sought to investigate the role of listening proficiency in lexical inferencing success and identify knowledge source patterns used by Iranian EFL learners for making inferences. To this end, a total of fifty-six Iranian EFL learners were assigned into three levels of listening proficiency and were required to infer the meanings of unknown words in listening excerpts. In the qualitative phase and to identify the patterns of knowledge source use, data were collected from 9 participants in individual interview sessions. Verbal reporting method was used where the subjects were asked to report the meanings of the unknown words in think-aloud sessions. The findings revealed the profound impact of listening proficiency on lexical inferencing. In-depth analysis of the protocols demonstrated the contribution of listening proficiency to making correct guesses and using more combinations of knowledge sources.

Keywords: strategy, lexical inferencing, knowledge sources, listening proficiency, protocols

INTRODUCTION

Vocabulary knowledge underlies a number of language abilities such as proficiency and reading (Grabe & Stoller, 2002; Schmitt, Jiang & Grabe, 2011). Nation and Coady (1988) believe that vocabulary can be an accurate predictor of a text's difficulty. Previously it was regarded that 95% (Laufer, 1989) and around 98 to 99% (Hu & Nation, 2000) coverage of a text is required for adequate comprehension of a text. Nation (2006) calculated that for accomplishing the 98% coverage, 6000–7000 word families are required. While in practice it is indicated that students achieve much less than the required level. As Laufer (2000) reported the real size of vocabulary for high-

school/university ESL and EFL students of English was around 1000 to 4000. This indicates a need for strategy use; No matter how much vocabulary a reader knows, there is always some vocabulary in every text that s/he doesn't know. According to Chamot and Kupper (1989), different strategies are related to different skills or sub-skills. For example strategies of elaboration, inferring... are most probably utilized in listening comprehension. Guessing and inferring are both handy for L2 listening and reading comprehension. In Fraser's (1999) study, for instance, 58% of the total strategy use was dedicated to inferencing. Paribakht and Wesche's (1999) study indicated a large 80% use of inferencing as a strategy. Nassaji (2003) also concluded that "lexical inferencing has been found to be the mostly widely used by L2 learners" (p. 647).

According to Haastrup (1991) lexical inferencing is "making informed guesses as to the meaning of a word in light of all available linguistic cues in combination with the learners' general knowledge of the world, her awareness of context and her relevant linguistic knowledge" (p. 197). Inferencing is an adequate strategy for learners; however as stated by Cai and Lee (2010a): "While much research has been done on unfamiliar word processing in reading comprehension, empirical studies specifically investigating this issue in listening comprehension are still limited. Not much is known about how L2 learners process unfamiliar words in listening comprehension" (p. 126).

REVIEW OF THE RELATED LITERATURE

Goh (2000) through self-reports studied the comprehension problems that ESL learners experience. 10 problems were distinguished, five of them related to word recognition and attention failure in the perceptual processing of the material. Reviewing the literature on listening comprehension. Kurita (2012) concluded that Vocabulary knowledge is a critical predictor of listening comprehension, he also noted that studies show that unknown vocabularies encountered might cause listening anxiety and might not be sufficient for deep comprehension. Therefore although knowing as much vocabulary as possible sounds useful, there's no possibility to know all the words necessary. Thus in dealing with vocabulary problems the learner needs to resort to strategies for comprehension. On the one hand, strategies of elaboration, inferring... are most probably utilized in listening comprehension (Chamot & Kupper, 1989). On the other hand a strategy which based on Nassaji (2004) is widely used by learners is lexical inferencing.

Factors Influencing Lexical Inferencing Success

Different factors might affect lexical inferencing of students, Paribakht (2005) categorizes these factors into two broad categories; contextual and learner-related factors. Based on the literature learner or reader-related factors include factors such as learners' previous L2 learning experience (Paribakht & Wesche, 1999), the learner's native language on the process (Paribakht, 2005), learners' attention to text details (Frantzen, 2003) learners' depth of vocabulary knowledge (Nassaji, 2003, 2004; Qian, 1998, 2002, 2005) learners' sight vocabulary, their background knowledge and topic familiarity (Pulido, 2004, 2007; Atef-Vahid, Maftoon & Zahedi, 2013).

Literature supports that learners' L2 proficiency also plays a role in the lexical inferencing process (Bengeleil & Paribakht, 2004; Fraser, 1999; Haastrup, 1991; Haynes, 1993; Morison, 1996); although Benessioan and Laufer's (1984) findings indicated no significantly different results for lower and higher proficiency students.

The results of Morrison's (1996) of study revealed that while the high proficiency group used various linguistic sources in the lexical inferencing process, the students in the low proficiency group were more reliant on world knowledge as a knowledge source. The higher group was more successful in guessing the meaning of unknown words, (in 74% of the times); however the lower group succeeded much less (only in 34% of the cases. Shen (2008) studied the lexical inferencing difficulties of students. He stated that students at different proficiency levels of his study encountered different difficulties and had a different strategy use. The results reported that the higher proficiency students used more inference strategies and tended to use more cognitive and metacognitive strategies when having comprehension problems. Learners' grammar knowledge (Alimorad, Ghalebi & Soozandehfar, 2010; Paribakht 2004) was also considered as an important factor in determining lexical inferencing success.

Lexical Inferencing in Listening

As Cai and Wu (2007) state, most research on lexical inferencing focuses on lexical inferencing in reading comprehension (Akbari & Tahririan, 2009; Riazi & Babaei, 2008; Bengeleil & Paribakht, 2004; Bensoussan & Laufer, 1984; Haastrup, 1991; Huckin & Bloch, 1993; Kaivanpanah & Soltani-Moghaddam, 2012; Nassaji, 2003, 2004; Paribakht & Wesche, 1999; Soltani-Moghaddam, 2010). While studies have investigated the role of listening strategies, Vandergrift (2003) for example studying the role of proficiency observed that the more advanced students of Russian and Spanish used more strategies than the lower level ones. And although it was not expected the beginners were more able to describe the process of strategy use (Vandergrift, 2003). There exist quite a limited number of studies internationally and none in an Iranian context, which have investigated the processes involved in guessing word meaning in listening.

Cai and lee (2010b) investigated the role of contextual clues and language proficiency on unfamiliar word processing in listening comprehension. The results suggested that contextual clues and learners' language proficiency levels influenced the use of strategies and knowledge sources. Lee and Cai (2010) also studied the effect of language proficiency on unfamiliar word processing in listening comprehension and demonstrated that language proficiency actually affects the students' use of strategies and knowledge sources, that more proficient learners were better able to use their overall understanding of the text for inferring the meaning of unknown words and that less proficient learners relied more on clues from the target words.

THE PRESENT STUDY

Studies have suggested that in their effort to use lexical inferencing, students appeal to different knowledge sources, but in most of the cases they cannot identify the cues or

make correct guesses. While the instruction of different knowledge sources for lexical inferencing seems to be crucial, in an Iranian context lexical inferencing in listening has been left untouched. Having this introduction in mind, the following research questions will be addressed in this study:

- Is there any relationship between Iranian EFL learners' listening proficiency and their lexical inferencing success?
- What knowledge sources do Iranian EFL learners with different listening proficiency levels use for lexical inferencing in listening comprehension?

METHOD

Participants

A total of 56 male and female students, from two language institutions in Iran, UTLC in Tehran and Zaban-Sara in Zanjan, participated in this study. The students were attending the TOEFL preparation courses and according to the institute placement test they were all upper-intermediate students with regard to their proficiency. The rationale for choosing this proficiency level was to make sure that the students were proficient enough to make inferences. The participants shared their first language as well as their cultural and societal backgrounds. They were university students in different fields both in state and open universities. In order to investigate the role of listening proficiency on inferencing success the students were categorized into three groups of proficiency based on their scores on the listening test. The scores were transformed into Z-scores and then divided into three categories based on the standard deviation; those with a score of 0.56 SD were placed in the High-group, those with their scores between -0.72 and 0.56 in the Mid-group and those with a score lower than -0.72 SD in the Low proficiency group.

Instruments

TOEFL-PBT Listening Comprehension Subtest

The listening section of a TOEFL-PBT from a TOEFL-PBT kit (published in 2005) was used to measure the subjects' listening proficiency. The participants answered the multiple choice items following the listening excerpts. The total test time was 40 minutes including the directions and the total score was 50.

Lexical Inferencing Task

Eight listening excerpts were chosen from a TOEFL-PBT listening subset, each containing 1 to 4 unfamiliar words for inferencing purposes. The listening materials consisted of 4 conversations and 2 lectures. The listening material ranged from a 6 second conversation to a 1.5 minute lecture in length. A panel of four teachers (in the same institution) was asked to check for the appropriateness of the excerpts.

In the next step and in order to increase the possibility of accurate guessing Liu and Nation's (1985) comprehension criteria, that suggested in order to infer a word

meaning a high percentage (at least 95%) of the words in the co-text should be familiar to the students, was checked for; the number of all the words unknown to the students was divided by all the words of the texts multiplied by 100. For all the texts the unfamiliarity percent was found to be ranging from 2 to 5 and in accordance with the 95% criteria. Also to make sure that there was a 95 to 98 % understanding. In order to meet the set of criteria proposed by Haastrup (1991) only content words were included and it was checked that the words instigate the use of different knowledge sources ("Chorus", "subsidized", "drilling" for example represented the use of interlingual cues. "unbeknownst" and "reenactment" were words to be inferred using only intralingual cues) and included diverse comprehension processes (for example the use of affixes; biosphere", "reenactment", "repellent"). Finally the students were allowed to ask for the meaning of unknown words other than those to be inferred and the panel of teachers checked for the inferencibility of the words. In order to check for the practical issues and the inferencibility a pilot test was conducted with 10 participants similar to the population of the main study in terms of proficiency. Finally all these processes resulted in the final version of the inferencing instrument with 17 target words in 8 listening excerpts in a fully comprehensible context and at an appropriate level for the students.

Procedure

In order to study the relationship between students' listening proficiency and their lexical inferencing success, the students were categorized into three levels of High, Mid and Low proficiency based on the listening subset of TOEFL-PBT. The test was of three sections and 50 items and took 40 minutes including the directions as well as familiarizing students with the test purpose so they would be more willing to cooperate. A week before administering the lexical inferencing task, a pilot study with 10 participants with the same features as the participants of the study was conducted in order to check for the reliability of the task and for the consideration of possible flaws. In the third phase of the study, the lexical inferencing task was given to the students to examine their lexical inferencing success. The first 10 minutes of the lexical inferencing task was allocated to the lexical inferencing instruction with the five step procedure proposed by Clarke and Nation (1980). Bengelil and Paribakht's (2004) taxonomy was adopted to familiarize the students with the different knowledge sources they could use in making inferences. After the students were well familiarized with the process and the different knowledge sources they could appeal to while generating lexical inferences, they were informed of the purpose of the study and were given some overall information on what they were supposed to do. The unfamiliar vocabularies were played individually and to ensure that they did not have any previous knowledge of them they took the knowledge of the vocabulary scale developed by Wesche and Paribakht (1996). After indicating their knowledge of the list of vocabularies the papers were collected and they listened to the conversations and the lectures and reported the meanings they had guessed in the answer sheet they were provided with.

For the qualitative phase of the study, 9 students voluntarily participated in think-aloud sessions in they listened to the texts and then reported the inferred meanings and how

they reached the meaning. Data were collected using immediate retrospective verbal reporting method sometimes with recall support. In order to diminish the time gap limitation that normally exists between the guessing process and the reporting phase and as suggested by Gass and Mackey (2000), in order to enhance the efficiency of the verbal protocol method the delay between two phases was eliminated. Also care was taken with regard to the elimination of any interfering factors. In cases of longer conversations or lectures when the students seemed to have problems with remembering the process, the stimulated recall procedure was used, in which they were provided with cues and recall support when reporting. Care was taken to ensure that the cues were brief enough. This phase of the study was held in the form of separate individual interviews, in different sessions where the subjects listened to each text and reported the meaning of the unknown words which was presented to them before the listening started. Then they were asked to explain how they reached the meaning and what clues present in the text or their world knowledge helped them achieve the reported meaning. In each of the interviews the subjects were first familiarized with the nature of the task and the whole process and what they were supposed to do. The students were allowed to listen to the text twice in case there was a need in order to diminish their stress and ease the thinking process. Since in a natural conversation also there is an opportunity to ask for clarifications or rephrasing. They were also informed that they could ask for the meaning of any other unfamiliar word in the text if encountered. The students were free to use either L1 or L2 in the interviews in order to make sure that their inadequate communicative abilities did not interfere with reporting their thought processes (Paribakht, 2005). All the subjects chose to take the interview in Persian.

Scoring

The TOEFL-PBT listening subtest consisted of 50 items with each one having a value of one point thus the score the students obtained could range from zero to 50 based on which the participants were categorized into 3 groups of proficiency.

To check the inferencing task, the answer sheets were corrected by the researcher and another teacher separately. The process of scoring the success or failure of the inferencing task included 3 steps of scoring separately, matching the two sets of scores and finally adjusting for the difference for a high percentage of agreement. Each item could have a value of 0 to 2 points depending on the degree of correctness according to Nassaji's (2003) criteria, semantically, syntactically and contextually appropriate responses were regarded as totally successful receiving 2 scores, semantically appropriate but syntactically deviant responses or the opposite were regarded as partially successful and received 1 point, responses that did not meet any of the conditions were totally wrong and received 0. There were 17 target words in the lexical inferencing task thus the total score for the task ranged from 0 to 34 scores. After the scoring step the scores were matched and a 94 percent agreement resulted, disagreements were then discussed and then an agreement of 100 percent was achieved.

RESULTS

L2 Listening Proficiency and Lexical inferencing success

Table 1 shows the descriptive statistics for the total performance of each group. Quite obvious as it seems, the three proficiency groups' performance is evidently different comparing the mean scores, which means their proficiency level seems to be a determining factor of their lexical inferencing success.

Table 1. Descriptive statistics of inferencing success

| Group | N | Min | Max | Mean | Std. Deviation | Variance |
|-------|----|-----|-----|-------|----------------|----------|
| Low | 16 | 0 | 12 | 6.44 | 3.577 | 12.796 |
| Mid | 22 | 4 | 20 | 11.55 | 5.207 | 27.117 |
| High | 19 | 8 | 27 | 16.47 | 6.113 | 37.374 |

A One-way between-subjects ANOVA was run in order to compare the success of the learners in the inferencing task across the three proficiency levels. To check the equality of the variances Levene's test was also run. In this study the significance value is 0.079 which is larger than the determined 0.05 therefore the assumption of equality of the variances in the three groups is accepted. Table 2. Indicates a significant difference between the means of the three groups, $F(2, 54) = 16.5$, $p < .000$. Therefore the hypothesis that the mean scores of the three groups are not different is not accepted. Such a result could be predicted considering the large differences in the mean scores. The effect size calculated through eta squared is 0.38 which is higher than the proposed 0.14 by Cohen (1988) for a large effect.

Table 2. ANOVA results for differences in inferencing scores

| Inferencing Task | Sum of Squares | df | Mean Square | F | Sig. |
|------------------|----------------|----|-------------|------|-------|
| Between Groups | 876.433 | 2 | 438.216 | 16.5 | 0.000 |
| Within Groups | 1434.129 | 54 | 26.558 | | |
| Total | 2310.561 | 56 | | | |

In order to analyze the differences in the performance of the three groups a Post-hoc analysis was conducted. Despite the fact that a number of post-hoc tests are available Scheffe test was used because as Boslaugh and Watters (2008) suggest it is the most conservative test and there is no good reason not to use it.

Table 3. Multiple comparisons of the three groups on inferencing test

| (I) Group | (J) Group | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|-----------|-----------|-----------------------|------------|-------|-------------------------|-------------|
| | | | | | Lower Bound | Upper Bound |
| Low | Mid | -5.108* | 1.693 | 0.015 | -9.37 | -0.85 |
| | High | -10.036* | 1.749 | 0 | -14.44 | -5.63 |
| Mid | Low | 5.108* | 1.693 | 0.015 | 0.85 | 9.37 |
| | High | -4.928* | 1.614 | 0.014 | -8.99 | -0.87 |
| High | Low | 10.036* | 1.749 | 0 | 5.63 | 14.44 |
| | Mid | 4.928* | 1.614 | 0.014 | 0.87 | 8.99 |

* The mean difference is significant at the 0.05 level.

As indicated in Table 3. The performance of the three groups is significantly different with each other. The mean differences are also significant. All in all, the results of the ANOVA indicate a significant difference between the performances of the three groups. It can be concluded that listening proficiency might be a predictor of lexical inferencing success.

Knowledge Source Use Pattern across Listening Proficiency Levels

In order to determine the pattern of knowledge source use by learners at the three proficiency levels, think aloud protocols from the interview sessions were analyzed. The learners' recorded reports when making inferences were transcribed for a better analysis, the interviewer's notes was also added to the reports for a better understanding of the process of generating inferences. For the qualitative purpose of the study 9 participants were interviewed as stated earlier. In order to have the opportunity to study all the three proficiency levels, these interviewees were selected from among the three groups, three students from each group. The 9 students from the three groups represented their level therefore the three levels had an equal chance. In the next step based on the transcripts and the interviewer's notes and sometimes with reference to the recorded files, the different contextual cues and knowledge sources used by the students for making guesses were coded based on the taxonomy of knowledge sources and contextual cues developed by Bengelil and Paribakht (2004).

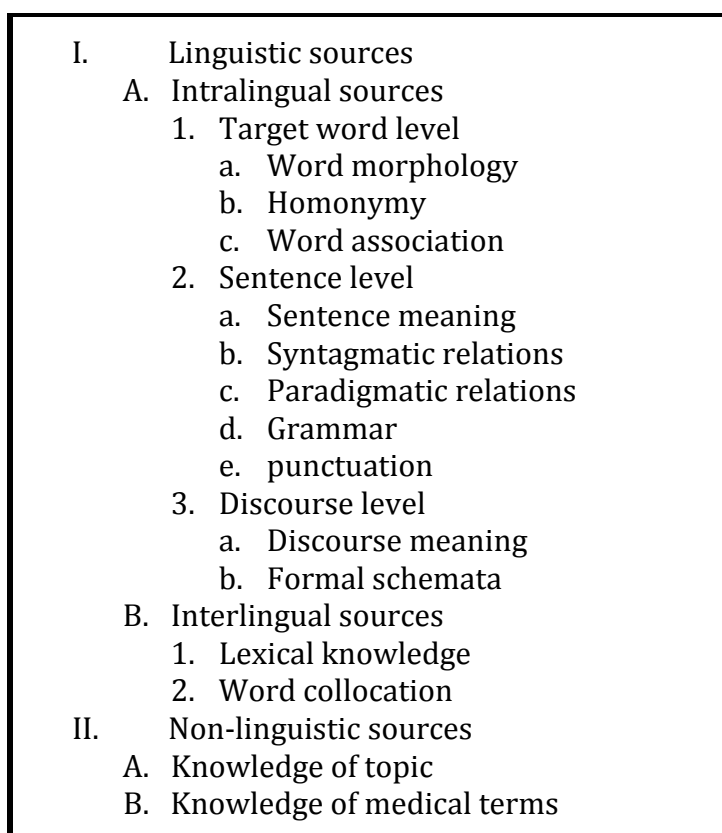


Figure 1. The taxonomy of knowledge sources used for making lexical Inferences (Bengeleil & Paribakht, 2004)

The taxonomy provides a comprehensive set of knowledge sources and has often been used in lexical inferencing studies in the literature (Cai, 2003; Soltani Moghaddam, 2010). It offers an account of different knowledge sources covering word level, sentence-level and more general discourse-level cues, as well as contextual cues coming from world knowledge. The original taxonomy by Bengelil and Paribakht (2004) was used to study medical students, and knowledge of medical terms could be of help to the students in making inferences, therefore they dedicated a knowledge source to the medical knowledge their students owned, namely knowledge of medical terms. So this knowledge source was omitted from the taxonomy since the students in this study majored in different non-medical fields. At the sentence-level cues, Bengelil and Paribakht (2004) had dedicated a source to punctuation, which was not an available source for the students of this study.

The participants applied a range of knowledge sources, from linguistic cues in the context to non-linguistic cues available in the context of the conversations and lectures. Also in some few cases they appealed to their own world knowledge in their attempts for making guesses; however the use of this knowledge source was limited to cases that the learners did not succeed in using other sources, so as the last chance they resorted to their own general knowledge of the world.

Results indicate that the students in the three groups of High, Mid, and Low proficiency used either single or multiple (two to four) knowledge sources for generating inferences; however more variation and combination of the knowledge sources was evident in the inferences of the High- and to some extent the Mid-group. Figure 2. presents the percentages of single and multiple knowledge sources used by the three groups.

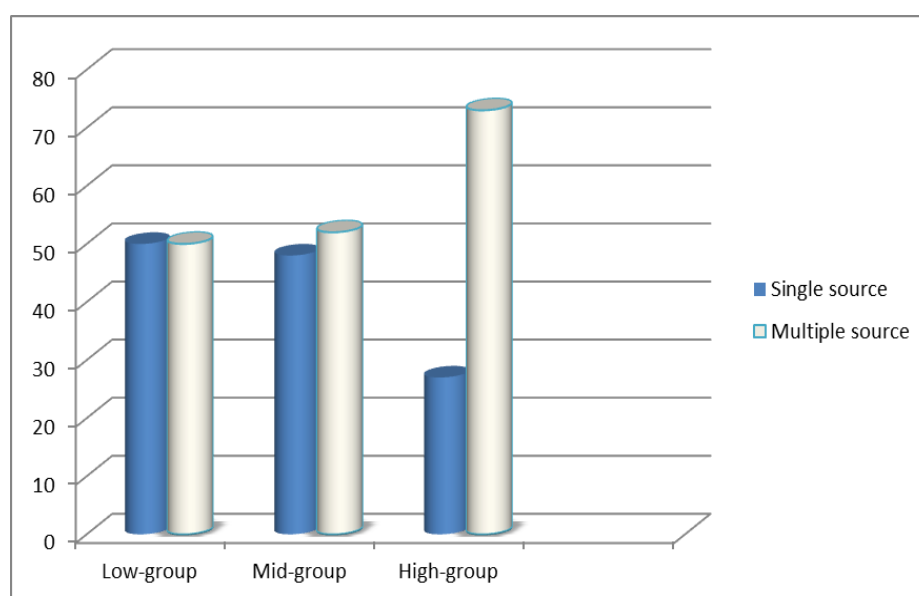


Figure 2. Percentages of single vs. multiple knowledge sources used by the three groups

The frequencies of use of each of the knowledge sources in the inferences of each of the three groups were counted and their percentages calculated for each of the three groups. The result is presented in Table 4.

Table 4. Frequency and percentages of knowledge sources used in L2 lexical inferencing

| | | Groups | | | | | |
|-------------|---------------------------|----------------------|-----|----------------------|------|-----------------------|------|
| | | Low-group (N = 3) | | Mid-group (N = 3) | | High-group (N = 3) | |
| | | N | % | N | % | N | % |
| I. | Linguistic sources | | | | | | |
| | A. Intralingual sources | | | | | | |
| | 1. Target word level | | | | | | |
| | a. Word morphology | 3 | 5 | 5 | 6.7 | 7 | 10 |
| | b. Homonymy | 2 | 3.3 | 3 | 4 | 1 | 1 |
| | c. Word association | 1 | 1.6 | 2 | 3 | 3 | 3 |
| | Total | 6 | 10 | 10 | 13 | 11 | 14 |
| | 2. Sentence level | | | | | | |
| | a. Sentence meaning | 3 | 5 | 4 | 5.4 | 7 | 9 |
| | b. Syntagmatic relations | 7 | 11 | 9 | 12 | 12 | 15.5 |
| | c. Paradigmatic relations | 4 | 6.6 | 6 | 8 | 10 | 13 |
| | d. Grammar | 0 | 0 | 0 | 0 | 0 | |
| | Total | 14 | 23 | 19 | 26 | 29 | 36 |
| | 3. Discourse level | | | | | | |
| | a. Discourse meaning | 28 | 46 | 36 | 48.6 | 25 | 33 |
| | b. Formal schemata | 0 | 0 | 1 | 1.3 | 0 | 0 |
| | Total | 28 | 46 | 37 | 50 | 27 | 33 |
| | B. Interlingual sources | | | | | | |
| | 1. Lexical knowledge | 5 | 8.3 | 4 | 5.4 | 6 | 7.8 |
| | 2. Word collocation | 2 | 3.3 | 2 | 2.7 | 3 | 3.8 |
| | Total | 7 | 12 | 6 | 8 | 9 | 11.5 |
| II. | Non-linguistic sources | | | | | | |
| | A. Knowledge of topic | 5 | 8.3 | 2 | 2.7 | 3 | 3.9 |
| | Total | 5 | 8.3 | 2 | 2.7 | 3 | 3.9 |
| Grand total | | 60 | 100 | 74 | 100 | 77 | 100 |

The percentages of use of the broad categories of knowledge sources were also calculated. Figure 3 shows the three High, Mid, and Low proficiency groups' percentage of applying word- sentence and discourse level knowledge sources.

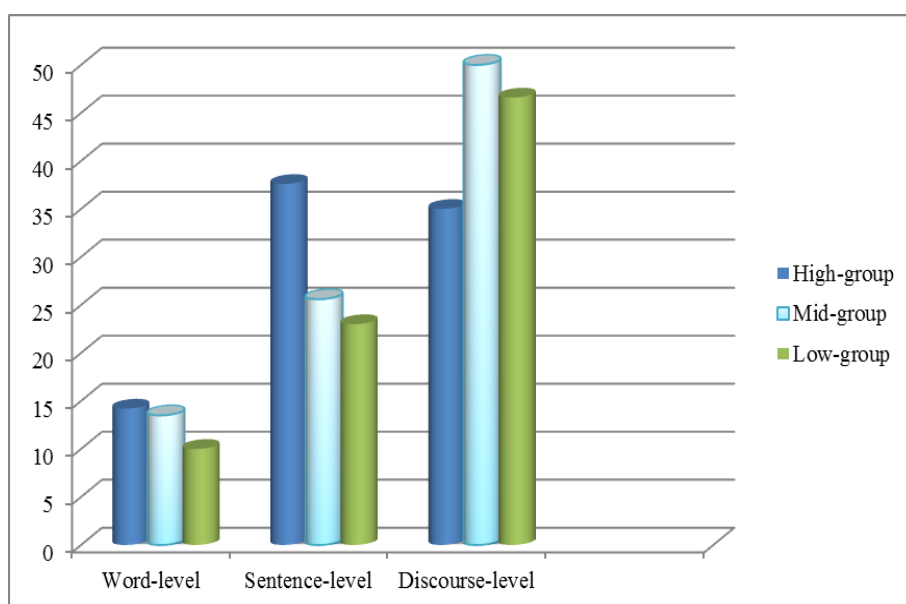


Figure 3. Percentages of use of word- sentence- and discourse level cues

As evident from the figure, sentence-level knowledge sources were mostly used among the higher group. And as opposed to the results of knowledge sources used in lexical inferencing while reading, the most popular source of making inferences among the low and relatively mid group appears to be discourse-level cues.

The relative frequencies of use of two major knowledge source categories in L2 lexical inferencing by the three groups is presented in *Figure 4*. As shown in the figure, Non-linguistic and interlingual cues were hardly used by the three groups of learners when trying to make inferences.

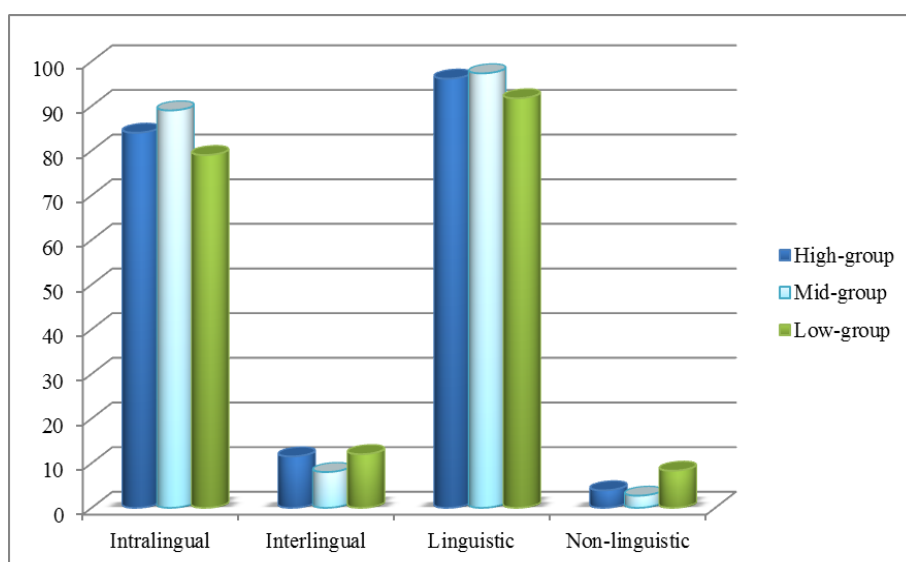


Figure 4. Relative frequencies of use of major knowledge sources

Detailed Analysis of the Results

Precisely analyzing the results unveils some more findings latent in the first steps of analysis. Taking a deep, closer look at the results provides some interesting findings

some of which will be mentioned in this section. Sentence grammar as a sentence-level knowledge source was never used by the learners, not in any of the three groups. This might have different reasons among which the most possibly available seems to be that the mode was listening thus demanding an acute memory with an ability to record every word in the sentence, which apparently has been beyond the students' capability. Another interesting finding is that quite contrary to what occurs in lexical inferencing in reading, here the students tended to use discourse level cues more often, this finding can also be justified with reference to the spontaneous nature of listening which does not let the learners to get back or repeat a sentence, and which drives more focus to the whole text.

Formal schemata was also used in only one case by an intermediate level student which might be a distinguishing factor between the Mid-group and the other two groups. In their frequency of use of target- sentence- and discourse- level cues, there was no significant difference between the three groups, except for the fact that while the lower and the mid group tended to use discourse-level cues, the higher group seemed to take advantage of sentence-level cues. This also refers to the fact that in listening it is more difficult to grab each and every sentence and have it in mind for further analysis of the meaning of the text, while reading; sentence appears to be a more available cue to perceive. *Homonymy*, *word association* and *formal schemata* were also among the least used cues by the three groups and rather used as alternatives to confirm or reject their hypotheses as to the meaning of the target words. Use of *knowledge of the topic* was more prevalent in the low group who supposedly did not have an efficient understanding of the texts, thus resorted to their own world knowledge for making inferences, which actually could be helpful in cases.

DISCUSSION

Lexical inferencing performance of Iranian EFL learners was investigated to determine the role of listening proficiency on their lexical inferencing success, and identify the patterns of knowledge source use. The results of the study suggest that learners with different listening-proficiency levels act differently when encountered with unknown words. In other words, listening proficiency can be a predictor of learners' lexical inferencing success, in the way that more proficient listeners attempted more lexical inferences, used a range of knowledge sources for inference generations and were more successful in their attempts. The thorough, detailed understanding that the more proficient learners grabbed of the text might appropriately justify this finding. The lower level was at a disadvantage as to perceiving the meaning of the text and therefore in using the appropriate knowledge sources in deriving the correct meaning of the target words. Thus the more proficient the learner was, the better the chances were for his/her lexical inferencing attempt and success. This finding somehow approves of the previous research in the literature which indicates that the more proficient students make a better use of lexical inferencing (Cain et al., 2004; Kern, 1989; Lee & Wolf, 1997; Nassaji, 2004; Mori, 2003; Mori & Nagy, 1999). Another justification for the success of more proficient learners with regard to listening might be that since they have a better

perception of the meaning of the text, they do not constantly attempt to understand what it is about, thus they are free to make guesses and attend more to the clues and knowledge sources.

The results of the study with regard to the knowledge source patterns among the three groups indicate that in making inferences the students used a variety of cues, ranging from linguistic to non-linguistic and interlingual vs. intralingual as well as their world knowledge. This in the words of Bengueleil and Paribakht (2004) " indicates that in the process of lexical inferencing L2 readers' prior linguistic and non-linguistic knowledge sources interact with contextual cues in the text to help them arrive at a meaning for the unfamiliar lexical items" (p. 239).

The findings also indicate that the students in the three groups, irrespective of their listening proficiency levels generally resorted to the same types of knowledge sources and contextual cues when generating inferences (except for *formal schemata* which was only used once and by the Mid proficiency group). The students at the three groups of proficiency displayed a greater degree of discourse-level knowledge source use which is contrary to previous research. Also in their knowledge source use, the learners of the High-group showed difference from those in the Low- group. While the less proficient listeners resorted more to discourse-level cues for generating plausible meanings of the text and of the target words, the more proficient group made use of sentence-level cues to construct the target word meanings. This finding is also in contrast with previous findings which focused on lexical inferencing in reading and indicated that the readers mostly relied on local cues for generating inferences, and this local cue use was more prevalent among the more proficient students (Bengueleil & Paribakht, 2004; Fraser, 1997; Haynes, 1993; Huckin & Block, 1993; Riazi & Babaei, 2008).

Previous research also indicates that the more proficient the students grow, the more significantly they will use contextual cues (Mori, 2003; Mori & Nagy, 1999). This is also in contrast with the finding that the lower level students rely more on discourse level cues or as stated in earlier research global clues.

One justification for this finding is that all these previous research focused on lexical inferencing while reading and this study investigated lexical inferencing while listening. Given that in reading comprehension the students have the opportunity to go back and recheck their understanding, refocus on the sentences and rebuild the semantic network they have once created in their minds these results are not a surprise. In the listening mode the words fade away once heard, thus diminishing the opportunities of local clue use for the less proficient learners. That is probably why the learners would have to focus on the whole text for inference generation clues and gain advantage of the repetition, and reinforcements available later in the texts. As for example in the process of guessing the target word "vacuum", most lower proficiency students ignored the definition given by the speaker and relied more on the whole text for constructing inferences. On the other hand this study is in line with the study conducted in the listening mode (Such as Cai & Lee, 2010b).

With regard to the application of inter- vs. intra-lingual cues, all the students regardless of their proficiency level displayed a rare application of interlingual cues. One explanation for this finding might be that the students' L1 (Persian) had less commonalities with the target language (English), and in some cases the similarities did not appear obvious for the students, making the use of such clues demanding.

The results of students' world knowledge use shows that the lower group tended to use it in more cases than the other two groups. Given that the lower group is at a disadvantage regarding the linguistic resources, it is quite expected that they use it more often. This finding is consistent with previous findings (Graesser et al., 1994; Nassaji, 2003). As Nassaji (2003) claims background knowledge is a convenient source to use for making inferences.

Another finding of the study was that sentence-grammar as a sentence level knowledge source was not used by any of the three groups in making inferences of the target words. This might be due to the spontaneous nature of the listening mode which makes it demanding if not impossible to go backwards and recheck the sentences. Therefore it is quite acceptable that when spoken words fade away, there is a great load on the mind to process every word in the sentences, to acquire a knowledge of the grammar of the sentence and to maintain it for further analysis in the process of generating inferences, which also in this study was apparently beyond the participants' capability.

Some other cues were *Homonymy*, *word collocation*, *word association* and *formal schemata* which were only used minimally for making inferences. Formal schemata and word association were the least used knowledge sources among the three groups. The other two sources were only used as alternatives to confirm or reject their hypotheses as to the meaning of the target words.

All in all the most frequent knowledge source used by the participants of this study belonged to discourse-level cues, and the subcategory *discourse meaning* which accounted for 43 percent of all the knowledge sources. *Sentence level* cues with all its sub-categories ranked second and dedicated 28 percent of knowledge source use by the three groups to itself. Next in the row was *word-level* cue and its subcategories, which was used equally by the participants of the three groups of High Mid and low and included 12 percent of all the knowledge sources used. As stated earlier and displayed in Figure 4, *interlingual* and *nonlinguistic* cues were the categories of knowledge sources which were least used by the students when encountered with the target words and when attempting to make lexical inferences.

CONCLUSION

Vocabulary is a vital component for understanding any language and lexical inferencing seems to be an efficient strategy for learners to deal with unknown words both in the classroom and outside. However in this study and in other similar studies it is reported that the students, even the proficient ones have difficulties in identifying the appropriate knowledge sources and in making efficient use of them for generating plausible meanings for the unknown words. Therefore it is crucial that teachers

familiarize students with lexical inferencing strategy and the types of knowledge sources and contextual cues available both inside and outside of the texts. In some cases the students use lexical inferencing but since they are not trained before, they are not able to make correct guesses and their incorrect inferences continue all through the text, hence the teachers should be cautious with regard to the students' lexical inference use and train them

The findings of this study suggested that listening proficiency deeply influences the lexical inferencing success of students and enhanced our understanding of the knowledge source use by the students at different proficiency levels. Based on the range and pattern of knowledge sources used it can be concluded that lexical inferencing success is affected both by the employment of these knowledge sources as well as effective use of them. A suggestion for teachers is to implement lexical inferencing exercises in the classroom, basically in the form of listening activities including some unfamiliar words which encourage students inference generation. In conducting lexical inferencing tasks, students' level should be taken into account; higher-level students are better able to identify the cues and thus can better use the strategy. Also it should be pointed that the teachers should emphasize that not all the unknown words encountered are to be inferred. The students should be trained to identify the key words first and then be required to generate inferences.

Based on the findings of this study, the students relied heavily on discourse meaning for generating inferences. When training the students to make lexical inferences, the students should be warned to check and recheck their understanding of the text and their guessed meanings against other cues available and not to base their inferences on only one knowledge source. This is in line with Field's (2008) suggestion to check inferences with the upcoming new information.

This study was an attempt to shed some light on lexical inferencing as a strategy to deal with unknown words when listening and tried to identify the influence of listening proficiency on the lexical inferencing success of students. However among the limitations of the study were that gender differences were not taken into account and that the number of the participants for the qualitative section was 10. Although the number is comparable to other qualitative studies done in this field, similar studies can be carried out with more participants and with taking gender factor into account. With regard to the findings of the study and the complex nature of lexical inferencing, studies might be conducted to investigate the other factors that might influence lexical inferencing success of students. As mentioned in chapter II, different factors might affect lexical inferencing process and success of Iranian EFL students, such as reader-related factors as gender, proficiency level, course of study or text factors, for example texts with different genres can be subject to further studies of lexical inferencing. Also further research can be conducted to investigate the vocabulary retention that might occur as a result of lexical inferencing tasks implemented into language classes. The retention also might be subject to some variables such as the activity types, the proficiency level of students, and the other factors that might enhance learners' focus on the task.

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