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Does the Role of Contextual Cues Vary with L2 Listening Proficiency Level?

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The purpose of this study was to investigate whether high and low level L2 learners differ significantly in which information they rely on more in auditory L2 word recognition. This study used auditory stimuli composed of four 10-item-sub-tests: (1) identifying key vocabulary out of context; (2) identifying one in neutral sentences; (3) identifying one in congruent sentences; (4) identifying one in incongruent sentences. 246 subjects were selected from a population of college students and English listening proficiency levels were designated on the basis of TOEFL listening scores. Subjects were asked to choose the word they heard indicating whether they recognized the key vocabulary. To examine whether subjects' performance on the test varies with L2 listening proficiency levels and tasks, a one-between (Level) and one-within (Task) mixed design with repeated measures was used. A repeated measures ANOVA reveals that the high level L2 learners performed significantly better on all the sub-tests. In addition, subjects, irrespective of their L2 listening proficiency levels, produced the significantly smallest mean number of accurately answered items for the words in incongruent sentences. The result reflects a trend toward a greater reliance on contextual cues by L2 listeners where phonemic information and sentence meaning would conflict.

I. INTRODUCTION

Miller (1981) reminds us that "the human ear is a major undeclared asset of the telecommunications industry; it can dig a message out of the most degraded kind of signal" (p. 61). For many second/foreign language learners, however, the signal is not only weak, but the ear itself seems to become disabled when confronted by the stream of sounds that comprise the target language. Much of what we know about the listening process comes from first-language research. Studies have shown that the hearer's ability to dig out the speech signal depends not simply on being able to discern sounds and syllables but more

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importantly to imply meaning from a larger context. Redundancy of speech allows the listener to build meaning even when much of the signal is distorted. We know that rather than a passive activity, as it used to be called, listening is a process in which recognition of sound, knowledge of lexicon, syntax, discourse markers, and the world, all interact with each other (Dunkel, 1986; Glisan, 1988).

Understanding spoken language is essentially an inferential process based on a perception of cues rather than straightforward matching of sound to meaning. The L2 listener must find relevant links between what is heard and those aspects of context that might motivate the speaker to make a particular utterance at a particular time. It is demonstrated that the intelligibility of what is heard is reciprocally linked with the interpretability of what is heard though cognitive effects as the L2 listener attends to speech. (The listener utilizes aural cues and linguistic knowledge to identify a logical form—lexical items and syntactic organization.) Not everything that is present in the acoustic signal can be perceived by the hearer in real time. Thus, while sounds can be distinguished through their differences in length (time), pitch, loudness, and quality, not all of these differences can be calculated when one hears, as in normal speech, up to 25 individual sounds per second (Liberman et al., 1967 as cited in Rost, 1990). To compensate for this perceptual limitation, other kinds of linguistics and extra-linguistic information can be used by the hearer to anticipate auditory cues. It is inefficient and unnecessary to use only the 'bottom-up' cues that sound provides in order to make judgments about the significance of sounds that a speaker produces. Rather, it is by virtue of the expectations that listeners have that they need perform only a cursory examination of the acoustic signal. In terms of information processing, listeners perceive language according to the probabilities they have used to generate expectations about it (Rost, 1990)

Prediction is a key process in understanding spoken language, as many writers (e.g., Brown, 1978) have shown. Native speakers, when they listen, use their perception of the key features of context (Hymes, 1964 as cited in Sheerin, 1987) and their knowledge of the world to limit the range of possible utterances they are about to hear. This ability to set up predictions, both before and during the auditory input, means they do not have to pay attention to, and actively process, every phoneme, syllable, word, phrase, or even tone group of the message. They can simply process the message for deviations from what was expected, thus reducing their memory load in order to monitor the incoming message more efficiently and in order to set up further predictions. Therefore it is important that all listening material for foreign-language or second-language learners be fully contextualized, in order that their task of comprehension not be made more difficult than that of native speakers in normal interaction (Sheerin, 1987)

During a conversation, we are able to analyze the acoustic information we receive incrementally, select the proper words by mapping the sensory input onto stored lexical

knowledge containing phonological, semantic, and syntactic information, extract the meaning of those words, and integrate them into the ongoing sentential or discourse context to come to an overall interpretation of the utterance. The question of how these processes interact remains a matter of debate. In general, the spoken-word recognition process, which lies at the heart of spoken language processing, is assumed to consist of three basic subprocesses: lexical access, lexical selection, and lexical integration. According to Norris (1994), during lexical access multiple lexical candidates that share word onset are activated in parallel on the basis of an analysis of the initial phoneme(s) of a word. This is a purely autonomous or bottom-up process. As pronunciation of a word progresses over time, lexical candidates are dropped or become less activated as soon as they no longer correspond to the incoming acoustic signal. Selection of the proper candidate is said to take place when only one candidate is left that matches the acoustic signal best. Word recognition in sentences or discourse additionally requires that the selected word is integrated into a higher order meaning representation of the preceding context. The key issues relate to how bottom-up activation interacts with contextual information to establish an interpretation of the utterance. At some point during auditory language comprehension, semantic and syntactic properties of a word are evaluated with respect to constraints provided by the preceding context. An important question that needs to be answered pertains to the use of different sources of higher level context information in relation to phonological information during sentence processing (Brink & Hagoort, 2004).

Little work has been done that explores the contribution to L2 listening comprehension of the two processing levels at the same time. As a consequence of the lack of studies looking at multiple processing levels, the present study investigated the roles of semantic information from sentence context along with those of phonological information from acoustic input during L2 auditory sentence processing. In particular, the study examined the extent to which these processes can discriminate skilled from less-skilled L2 listeners in a sample of multileveled EFL listeners.

II. THEORETICAL BACKGROUND

Listening research has focused largely on acoustical, phonemic, or morphemic perception, memory for nonsense or non-contextualized language. The phases of the listening process (as explained by Anderson, 1985) are interrelated and recursive. During the perceptual phase, listeners focus on the sounds of language and store them in echoic memory. Because the echoic memory is extremely limited, listeners almost immediately begin to process the sounds for meaning. One expects listeners to focus on sounds that are potentially meaningful as well as words that are key to determining meaning within the context.

Listeners use contextual information such as the environment in which the speech occurs, or the intonation, in order to build expectations of what they will hear. During the parsing phase, listeners use words and phrases to construct meaningful representations. They reorganize the information into a meaningful unit that can be stored into a short-term memory. The size of the chunk that listeners retain depends on several factors, including knowledge of language, knowledge of topic, and quality of the signal. In the final phase, utilization, listeners delve into long-term memory to connect what they hear with what they already know. Stored information is in the form of schemata and scripts, or interrelated concepts. Listeners draw on their knowledge of scripts to help them anticipate what they will hear (Bacon, 1992).

In particular, recognizing words in fluent speech is the basis of spoken-language comprehension. The two main tasks of the listener in word recognition are identification of words and activating knowledge of word meanings. Identification of words is a complex process. As Cutler (1997) notes, because there are not reliable cues marking every word boundary in listening to continuous speech, word recognition is often the most problematic process in listening. Misunderstanding or non-understanding of words in speech, whether through faulty identification of word boundaries or inadequate knowledge of word meanings, is the major source of confusion in language comprehension, particularly second language comprehension. Assuming that a listener possesses adequate knowledge of the lexis of the language spoken, there are several simultaneous processes involved in the way words are recognized (Rost, 2002, p. 20):

1. Words are recognized through the interaction of perceived sound and knowledge of the likelihood of a word being uttered in a given context.
2. Speech is processed primarily in a sequential fashion, word by word. Recognition of a word achieves two goals:
   a) it locates the onset of the immediately following word
   b) it provides syntactic and semantic constraints that are used to recognize the immediately following word
3. Words are accessed by various clues
   a) the sounds that begin the word
   b) lexical stress
4. Speech is processed in part retrospectively, by the listener holding unrecognized words in a ‘phonological loop’ of a few seconds duration (Baddeley, 1986) while subsequent cues are being processed.
5. A word is recognized when the analysis of its acoustic structure eliminates all candidates but one—in other words, when the listener identifies the most likely or most relevant candidate.

It is important to note that each individual process may produce imperfect or erroneous recognition of all of the words in an utterance. Fortunately spoken language comprehension can usually continue successfully even if all words are not recognized because the listener can make inferences about the meaning of an utterance through other sources of information.

How do more proficient listeners differ from less proficient listeners as they pass through each individual process? Murphy (1987) found that more-proficient English as s second language (ESL) listeners used a higher number and greater variety of strategies. Notably, less-proficient listeners tended either to base their comprehension exclusively on text characteristics or on their own background knowledge. The more-proficient connected efficiently between what they heard and what they knew. Murphy allowed subjects to control the pauses during which they reported on their strategies. Similarly Lund (1991) concluded that less-proficient listeners rely more heavily on background knowledge than do more-proficient listeners. He used an authentic-like text in a comparison of listening and reading comprehension of first to third semester German students.

Language proficiency is multifaceted, and almost no research on L2 listening has adequately addressed the relative contribution of the different dimensions of language proficiency to comprehension of L2 texts. Considering few studies exploring the extent to which L2 listening processes involved in the way words are recognized can discriminate skilled from less-skilled L2 listeners, it is useful to compare the listening process with that of reading. Both the reader and the listener must infer, guess, hypothesize, interpret, and otherwise go beyond the text in order to extract meaning. Findings that could inform the processes in listening comprehension come from research on cognitive processing of information in reading comprehension. Though listening involves a different perceptual channel than reading, information processing in reading and listening is similar (Rost, 1990) because both use symbolic representations in the form of modality-specific verbal codes and include similar cognitive processes that help learners develop mental models of the material (Chun & Plass, 1997).

The issue of the relative contribution of the different dimensions of language proficiency to comprehension of L2 texts is important because, as Koda (1994) pointed out, the development of general language skills, such as syntactic and semantic processing, may not simply reflect the development of lower-level decoding skills in L2 reading. If lower-level processes play any role in L2 reading, it may not be because L2 readers have good general language proficiency. More proficient readers, due to the fact that they are more skilled, may also have more efficient lower-level decoding skills than less proficient readers. It may be this efficient lower-level processing that makes syntactic and semantic information available for them to use. However, it is conceivable that limited efficiency of lower-level identification processes may cause a delay in processing higher-level syntactic and semantic information

and also retard other text integration processes involved in comprehending connected L2 text. This delay may then negatively influence the effectiveness of higher-level semantic and syntactic analyses by requiring readers to slow their reading pace in order to be able to deal with the input they receive from the text and to process it within the limits of the attentional resources available to them (Nassaji, 2003) There has been an ongoing debate in the reading research literature for the last two decades as to the relative importance of each of these processing levels in fluent reading comprehension. Some researchers have argued for the primacy of higher-level syntactic, semantic, and text integration skills, minimizing the role of basic decoding processes in fluent reading (e.g., Cziko, 1980; Goodman, 1988, 1996; Smith, 1994). Other researchers have argued for the importance of lower-level decoding processes in addition to that of higher-level processes even in advanced readers (e.g., Bell & Perfetti, 1994; Daneman, 1996; Stanovich, 2000).

In fact, students were observed to use contextual clues (Mori & Nagy, 1999; Shu & Anderson, 1997) as well as graphophonic clues (Mori, 1998) in order to recognize the words. Students must combine information from the surrounding context to clarify the meaning that is partially determined by word parts. Not all readers process words with equal efficiency. Although good readers are better able than poor readers to use contextual information, as Baker and Brown (1984) and Stanovich and Cunningham (1993) argue, and although readers perceive letters more accurately and more quickly when they occur in words than when they occur in nonword letter strings, good readers are less reliant on contextual information than poor readers in the process of word recognition (Stanovich, 1980).

Little research has been done on the simultaneous contribution of these processes and the role of these processes in L2 listening has remained mostly unexplored. Their exact roles cannot be explored without a design that takes into account the role of both higher- and lower-level linguistic variables in L2 listening comprehension. The present study was conducted using a component skills design involving measures of semantic processing skills along with measures of phonological processing skills, in order to investigate the role of higher- level semantic processes as well as lower-level decoding processes in L2 listening comprehension. In particular, the study investigated whether high and low level L2 learners differ significantly in which clues they rely on more in the process of L2 auditory word recognition: contextual clues or phonological clues.

III. METHOD

1. Subjects

A total of 246 university-level students participated in the study as intact classes (eight

classes), of whom 57 were males and 189 females. They were attending undergraduate (N=128) or graduate school (N=118) in a large metropolitan area in Korea. All subjects were non-native speakers of English and had studied English as a foreign language for 9 years and 7 months on average throughout secondary school and college. For purposes of discussion in this study, subjects were classified as either high (M=37.49; SD=4.72) or low (M=22.75; SD=5.57) level group based on a mean split of the listening section of the Test of English as a Foreign Language (TOEFL), the possible range of which is 0 to 50 (raw scores). Those subjects whose scores were over the mean were assigned to the High level group, and the others whose scores were below the mean to the Low level group; 130 were designated as High and 116 as Low. The category names 'high' and 'low' are used for comparison within this study only and they do not refer to similar terms used in the *ACTFL proficiency guidelines*. The purpose of this listening task was to assess subjects' listening comprehension skills in a normal standardized test setting. The mean score for the sample on the TOEFL listening section was 30.54 and standard deviation 8.98.

2. Materials

Materials for this study consisted of the background questionnaire by which personal background information was collected, the listening section of the TOEFL, and an auditory L2 word recognition test. To measure the students' L2 listening proficiency the listening section of the Test of English as Foreign Language (TOEFL) was administered. In the listening section, the testees listen to a short statement recorded on a tape and select an answer from the four choices printed in the test booklet. The statements cover a variety of topics selected from typical events in students' lives in the United States. The reliability reported for the listening section (0.89) is reasonably high (Conoley & Impara, 1995).

The auditory L2 word recognition test was composed of four sub-tests (See Appendix). Each sub-test consisted of 10 items. We focused on the subjects' performance on an auditory word recognition test in four different tasks: (1) identifying key vocabulary out of context (decontextualization); (2) identifying key vocabulary in neutral sentences where context does not disambiguate a confused pair of sounds; (3) identifying key vocabulary in congruent sentences (the target words were presented in their original form); (4) identifying key vocabulary in incongruent sentences where the target words were not in accordance with the neighboring context they were used in. The sentences presented in incongruent fashion were modified for our experiment from sentences that originally appeared in Clear Speech (Gilbert, 1993). In these sentences, the altered words were used to examine the relative reliance of acoustic or contextual cues in auditory word recognition. For the selected target words, the original word is transformed into a new altered word by changing a single phoneme. This manipulation produces an altered word that is

phonologically similar to the original word, but that does not fit the context of the sentence or story (e.g., “Where’s the road? It’s in the truck.” The original word is ‘load’). Therefore, listening correctly to the altered word is an indication of more reliance on acoustic cues; substituting the original word for the altered word indicates more reliance on contextual cues. Congruent and incongruent sentences in the word recognition test were randomly ordered. The words and sentences used for the test were recorded by an adult American male, who pronounced the distinction between minimal pairs clearly.

3. Measurement

The responses to the auditory L2 word recognition sub-tests were scored using the following two-point scale: 1 point = a correct answer; 0 point = an incorrect answer or no response. In terms of the congruent and incongruent sentences, even though those were randomly ordered in the test, those two kinds of sentences were separated into two different sub-tests (one consisted of 10 congruent sentences and the other 10 incongruent ones) when the sub-tests were scored. For each sub-test a perfect total score was 10 points.

4. Procedures

All subjects were tested during their regularly scheduled class periods in their usual classrooms. After filling out the background questionnaire, the subjects took the listening portion of the Test of English as a Foreign Language (TOEFL, henceforth) during one class period. Since the fatigue that students might feel from the TOEFL could have affected the main experiment listening scores, the auditory L2 word recognition test was carried out one week later. Students were informed that these tests would not be used as part of their course grade, but they were asked to complete them as carefully as possible, as if they were completing them for a course grade. The students were instructed to listen attentively to each item and mark the word they heard on the answer sheet where only pairs of words, not the whole sentences, were given. In other words, the vocabulary identification test was spoken once to the subjects by the English native speaker on tape and the alternatives were given to them in written form on an answer sheet. To enhance the reliability of the test, the subjects were instructed not to use guessing strategies. Of course, students were given enough time to mark the word they had just heard.

5. Data Analysis

A 2 X 4 analysis of variance (ANOVA) with repeated measures was utilized in the study to test the significance of means achieved by the two different groups of participants on the

four different tasks. The between-subjects factor was Level (high vs. low). The students were grouped into two levels based on their L2 listening proficiency test scores. Note that the students were divided by L2 listening ability because proficiency was thought to be a causal prerequisite for L2 listening. The within-subjects variable was Task (decontextualized words; words in neutral sentences; words in congruent sentences; words in incongruent sentences). The dependent variable was the scores on the auditory L2 word recognition test composed of four sub-tests. In cases when an overall F test was significant, post-hoc comparisons were performed to find the source of this effect. The alpha level was set at 0.05.

IV. RESULTS

The purpose of this investigation was to determine the effect of sentence context on the L2 word identification ability of Korean college students who vary in L2 listening proficiency level. Data in the form of the number of correct answers to the four sub-tests were collected for each of the 246 subjects. A one-between (Level) and one-within (Task) mixed design with repeated measures was computed to test for significant main effects and interaction across the different factors. Mean scores and standard deviations for the college students' performance on the four different tasks are presented by L2 listening proficiency level (see Table 1). The complete source table for the factorial analysis with repeated measures (see Table 2) reports the results of the main effects and interaction. For an alpha level of .05, the results show a highly significant main effect for Level, [$F(1,242) = 32.31$, $p = .00$]. As seen in Table 1, the distinction was in the expected direction, with the high level group subjects scoring higher on the four different tasks. The main effect for Task also reached significance, [$F(1,242) = 43.68$, $p = .00$]. In order to determine exactly which task was significantly different from the others, a post hoc test was used. When comparisons are made on a post hoc basis, a step should be taken to control for excessive family-wise error rate (the probability of making at least one Type I error in the entire set of comparison tests). This can be done by setting a maximum family-wise error rate adopting one of the Bonferroni principles (Hays, 1991). There was a series of six paired tests to be compared and the probability of making at least one Type I error should not be larger than .05. Thus the level of each test was set at .05/6 (i.e., .008). This made the maximum probability of at least one Type I error among all the tests be exactly equal to .05. Table 4 shows the results of pair-wise comparisons or the factor Task. According to the results of the pair-wise comparisons, subjects produced the significantly largest mean number of accurately answered items for the words in congruent sentences. The mean score for the words in incongruent sentences was significantly lower than that for

decontextualized words or the words in neutral sentences.

TABLE 1
Descriptive Statistics for Performance Scores

Level	Task	N	Mean	SD
Low	Decontextualized words	116	8.80	.56
(M = 7.78)	Words in neutral sentences	116	8.87	.55
	Words in congruent sentences	116	9.33	.47
	Words in incongruent sentences	116	4.13	2.37
High	Decontextualized words	128	9.42	.43
(M = 8.49)	Words in neutral sentences	128	9.23	.49
	Words in congruent sentences	128	9.57	.33
	Words in incongruent sentences	128	5.74	2.97

TABLE 2
Source Table: A Repeated Measures ANOVA by Variables of Level and Task

Source	SS	df	MS	F	p
Between					
Level	121.84	1	121.84	32.31	.00
Error	912.36	242	3.77		
Within					
Task	3346.63	1	3346.63	475.00	.00
Task x Level	70.15	1	70.15	9.95	.00
Error	1705.01	242	7.04		

TABLE 3
Cell Means for Task

Task	Mean	Standard Error
(1) Decontextualized words	9.11	.07
(2) Words in neutral sentences	9.05	.07
(3) Words in congruent sentences	9.45	.05
(4) Words in incongruent sentences	4.49	.17

At the same time, the significant interaction between Level and Task must be taken into account when interpreting the significant differences between these two factors. Table 2 shows that the interaction Level x Task was also statistically significant. This means that the significant distinction lies at the different task types and the effect of Task varied according to L2 listening proficiency level. The cell means for all combinations of Level x Task (see Table 1) were graphed as shown in Figure 1. In order to examine the significant interaction and determine exactly which combinations of Level and Task were significantly different from the others, a post hoc test was used. Table 5 shows the results of pair-wise

TABLE 4
Pair-wise Comparisons for Task

Task	Task	Mean Difference	Standard Error	p
1	2	.06	.07	.39
	3	-.33*	.08	.00
	4	4.17*	.17	.00
2	1	-.06	.07	.39
	3	-.40*	.09	.00
	4	4.11*	.17	.00
3	1	.33*	.08	.00
	2	.40*	.09	.00
	4	4.51*	.19	.00
4	1	-4.17*	.17	.00
	2	-4.11*	.17	.00
	3	-4.51*	.19	.00

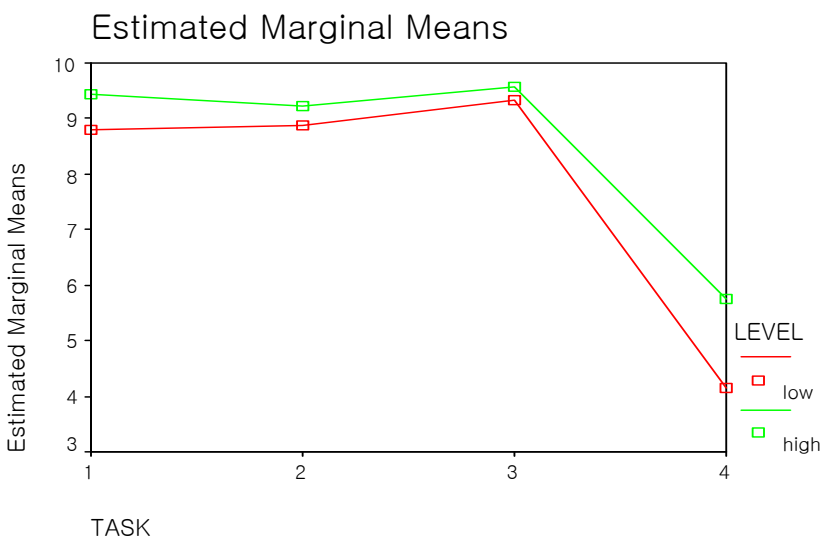
*The mean difference is significant at the .008 level.

TABLE 5
Pair-wise Comparisons for Level by Task

Level	Task	Task	Mean Difference	Standard Error	p
Low	1	2	-.06	.10	.51
		3	-.53*	.12	.00
		4	4.66*	.24	.00
	2	1	-.06	.10	.51
		3	-.46*	.13	.00
		4	4.73*	.24	.00
	3	1	.53*	.12	.00
		2	.46*	.13	.00
		4	5.19*	.27	.00
	4	1	-4.66*	.24	.00
		2	-4.73*	.24	.00
		3	-5.19*	.27	.00
High	1	2	.19	.10	.05
		3	-.14	.11	.23
		4	3.68*	.23	.00
	2	1	-.19	.10	.05
		3	-.33	.12	.01
		4	3.49*	.23	.00
	3	1	.14	.11	.23
		2	.33	.12	.01
		4	3.82*	.26	.00
	4	1	-3.68*	.23	.00
		2	-3.49*	.23	.00
		3	-3.82*	.26	.00

*The mean difference is significant at the .008 level.

FIGURE 1
Means for the Four Sub-test Scores for the Interaction between Task and Level



comparisons (t-tests were performed for pair-wise comparisons) for the Level x Task interaction. There was a series of six paired tests to be compared for each level and the probability of making at least one Type I error should not be larger than .05. Thus the level of each test was set at .05/6 (i.e., .008). This made the maximum probability of at least one Type I error among all the tests exactly equal to .05. According to the results of pair-wise comparisons across Level and Task, low level group subjects produced a significantly larger mean number of accurately answered items in listening to the words in congruent sentences than in listening to the decontextualized words or words in neutral sentences. This result indicates that relevant context had increased the low level group subjects' ability to recognize the target words and low level group subjects had taken advantage of sentence context. Although this finding was in evidence for the low level group, the means did not differ as markedly for the high level group. For high level group subjects the means in listening to the decontextualized words, words in neutral sentences, or words in congruent sentences were not statistically significantly different from one another. In contrast with low level group subjects, there seemed to be little obvious use of relevant context by high level group subjects.

Of central interest in the present study was the effect of sentence context depending on the L2 listening proficiency level. It was predicted that if L2 listening proficiency is the cause of differences between subjects' use of contextual clues in L2 listening comprehension, high L2 listening ability would prevent subjects from relying on the contextual cues where phoneme categorization and sentence meaning would conflict.

However, high level group subjects exhibited the same tendency in the use of contextual clues as low level group subjects on this task. There appears to be direct evidence that sentence context has unique relevance to a L2 listening process regardless of L2 listening ability.

V. CONCLUSION

In this study we raised the question: Do high and low level L2 learners differ significantly in which clues they rely on more in the process of L2 auditory word recognition: contextual clues or phonological clues? The result of this study showed sentence context did affect subjects' categorization decisions in L2 auditory word recognition regardless of the L2 listening proficiency level. For example, when subjects indicated that they heard the target word MARVEL, the sentence was anomalous as in "*What does MARBLE mean? It means an amazing thing.*" Even though the sentence was nonsensical, high level and low level L2 learners appeared to be more reliant on contextual clues than on phonological clues to recognize the L2 target word.

It is quite possible to understand the meaning of a word before decoding its sound, because we have many different types of knowledge, including knowledge of the world around us. In most situations we know what normally happens, and so we have expectations about what we will hear. These may be very precise, or very vague, but while we are listening, we almost always have some hypotheses about what is likely to come next. In such cases it is not necessary to utilize all the information available to us—we can just take in enough to confirm or reject our hypotheses. To take a well known example, if we hear the following uncompleted sentence, '*she was so angry, she picked up the gun, aimed and _____*' (adapted from Grosjean, 1980), we know what is going to happen, and we probably need very little acoustic information to understand the final word, be it '*fired', 'shot'* or whatever. As we listen, we will expect a word such as *fired*, and we will probably process only enough of the sound to confirm our expectations, or we may not even bother to listen to the last word at all. Our background knowledge about guns and what angry people do with them helps us to determine what the word is. However, we should not underestimate the importance of the acoustic input nor the importance of the linguistic information. The point is simply that listening comprehension is the result of an interaction between a number of information sources, which include the acoustic input, different types of linguistic knowledge, details of the context, and general world knowledge, and so forth, and listeners use whatever information they have available, or whatever information seems relevant to help them interpret what the speaker is saying (Buck, 2001).

L2 listeners exhibit a wide range of strategies. More successful listeners seem to be

more flexible, moving from bottom-up to top-down strategies as they progress from the perceptual to the parsing phases (Bacon, 1992). However, our collected data indicate that L2 listeners, irrespective of L2 listening proficiency, made a greater use of context in word identification when they were not able to process subsequent linguistic inputs that contradicted the initial schemata activated and revise it accordingly. Having the benefit of listening to the words in context more often than not does not lead the students to a correct or even close answer. At times, the contexts are at least partially responsible for this failure, due to their lack of clarity. These contexts are not clear enough to direct the students to the exact meanings of the target words and illustrate why students had difficulty deriving them. The present findings support both L1 and other L2 research that has shown that vague and ambiguous contexts do not reliably lead readers to correct meanings of target words (Frantzen, 2003). Therefore teachers would be wise to instruct their students—whether L1 or L2—to verify their guesses by checking the context, as others have recommended (Clarke & Nation, 1980; Dubin & Olshtain, 1993; Haynes, 1984; Nagy, 1997). Haynes (1984), to cite one example, stresses that "learning to re-evaluate initial guesses is as important as learning to make first guesses" (p. 174). Students should be encouraged to re-evaluate guesses, even when they are certain of a word's meaning because, as shown in this study and others, learners' answers were occasionally wrong when they stated that they "already know" a word's meaning. Students should be told to have the healthy skepticism about the trustworthiness of contexts. After all, having relied on the context—and not having verified their assumptions—led subjects in the present study to make wrong guesses as to the target word.

One pedagogic implication drawn form this finding is that students have to be flexible in using available clues. There is no doubt that students must pay attention to available clues, but they also need to learn to use them appropriately in order to become strategic learners. In particular, when the two sources provide incompatible information, or when one source is far less informative than the other, students should be able to handle inconsistent information and choose the most suitable strategy of a given situation. Successful strategy users actively draw on a wide range of listening strategies, being flexible in using them depending on the nature and needs of a learning task (Gu & Johnson, 1996). Less successful learners are often familiar with multiple strategies but cannot use them as effectively and flexibly as successful learners do (O'Malley & Chamot, 1990; Oxford, 1992). Teachers who want to encourage students to integrate information from phonological clues and context must clarify what would happen if the students based their guesses solely on a single source. They should also be able to explain the differences between the two types of information. This study has demonstrated that the two sources generally work additively but could affect each other negatively under certain circumstances. Given that L2 listeners are sometimes confused over words with slightly different phonemes and seem

to depend on parts which might provide some clues or clarifications, it may be worthwhile to set aside some time to engage students in distinguishing minimal pairs. An effort to raise students' awareness about the nature of local acoustic information and contextual information may pay off in the long run.

REFERENCES

Anderson, J. R. (1985). *Cognitive psychology and its implications*. New York: Freeman.

Bacon, S. (1992). Phases of listening to authentic input in Spanish: A descriptive study. *Foreign Language Annals, 25*(4), 317-333.

Baddeley, A. (1986). *Working memory*. Oxford: Oxford University Press.

Baker, L., & Brown, A. L. (1984). Metacognitive skills and reading. In P. D. Pearson, R. Barr, M. L. Kamil, & P. Mosenthal (Eds.), *Handbook of reading research* (Vol. 1, pp. 353-394). White Plains, NY: Longman.

Bell, L. C., & Perfetti, C. A. (1994). Reading skills: Some adult comparisons. *Journal of Educational Psychology, 86*, 244-255.

Brink, D., & Hagoort, P. (2004). The influence of semantic and syntactic context constraints on lexical selection and integration in spoken-word comprehension as revealed by ERPs. *Journal of Cognitive Neuroscience, 16*(6), 1068-1084.

Brown, G. (1978). *'Listening comprehension' in the teaching of comprehension*. London: The British Council.

Buck, G. (2001). *Assessing listening*. New York: Cambridge University Press.

Chun, D. M., & Plass, J. L. (1997). Research on text comprehension in multimedia environments. *Language Learning & Technology, 1*(1), 1-35.

Clarke, D. F., & Nation, I. S. P. (1980). Guessing the meanings of words from context: Strategy and techniques. *System, 8*, 211-220.

Conoley, J. C., & Impara, J. C. (Eds.). (1995). *The twelfth mental measurements yearbook*. Lincoln, Nebraska: The Buros Institute of Mental Measurement of The University of Nebraska-Lincoln.

Culter, A. (1997). The comparative perspective on spoken language processing. *Speech communication, 21*, 3-15.

Cziko, G. (1980). Differences in first- and second-language reading: The use of syntactic, semantic, and discourse constraints. *Canadian Modern Language Review, 34*, 473-389.

Daneman, M. (1996). Individual difference in reading skills. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (Vol. 2, pp. 512-538). Hillsdale, NJ: Erlbaum.

Dubin, F., & Olshtain, E. (1993). Predicting word meanings from contextual clues:

Evidence from L1 readers. In T. Huckin, M. Haynes, & J. Coady (Eds.), *Second language reading and vocabulary learning* (pp. 181-202). Norwood, NJ: Ablex.

Dunkel, P. (1986). Developing listening fluency in L2: Theoretical principles and pedagogical considerations. *Modern Language Journal, 70*, 99-106.

Fantzen, D. (2003). Factors affecting how second language Spanish students derive meaning from context. *The Modern Language Journal, 87*(2), 168-199.

Gilsan, E. W. (1988). A plan for teaching listening comprehension: Adaptation of an instructional reading model. *Foreign Language Annals, 21*, 9-16.

Goodman, K. S. (1988). The reading process. In P. Carrell, J. Devine, & D. Eskey (Eds.), *Psycholinguistics and reading* (pp. 21-29). New York: Holt, Rinehart and Winston.

Goodman, K. S. (1996). *On reading*. Portsmouth, NH: Heinemann.

Grosjean, F. (1980). Spoken word recognition and the gating paradigm. *Perception and Psychophysics, 28*(4), 267-284.

Gu, Y., & Johnson, K. R. (1999). Lexical processing strategy use and vocabulary acquisition in French as a foreign language. *Language Learning, 46*, 643-679.

Koda, K. (1994). Second language reading research: Problems and possibilities. *Applied Psycholinguistics, 15*, 1-28.

Haynes, M. (1984). Patterns and perils of guessing in second language teaching. *Canadian Modern Language Review, 35*, 567-580.

Hymes, D. (1964). Towards ethnographies of communicative events. In P. P. Giglioli (Ed.), *Language and social context* (pp. 68-81). Harmondsworth: Penguin.

Liberman, A., Cooper, F., Shankweiler, D., & Studdert-Kennedy, M. (1967). Perception of the speech code. *Psychological Review, 74*, 431-461.

Lund, R. (1991). A comparison of second language listening and reading comprehension. *The Modern Language Journal, 75*, 196-204.

Miller, G. A. (1981). *Language and speech*. San Francisco: W. H. Freeman and Company.

Mori, Y. (1998). Effects of first language and phonological accessibility on kanji recognition. *The Modern Language Journal, 82*, 69-82.

Mori, Y., & Nagy, W. (1999). Integration of information from context and word elements in interpreting novel kanji compounds. *Reading Research Quarterly, 34*, 80-101.

Murphy, J. M. (1987). The listening strategies of English as a second language college students. *Research & Teaching in Developmental Education, 4*, 27-46.

Nagy, W. (1997). On the role of context in first and second language vocabulary learning. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition, and pedagogy* (pp. 64-83). Cambridge: Cambridge University Press.

Nassaji, H. (2003). Higher-level and lower-level text processing skills in advanced ESL reading comprehension. *The Modern Language Journal, 87*(2), 261-275.

Norris, D. (1994). Shortlist: A connectionist model of continuous speech recognition. *Cognition, 52*, 189-234.

O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. New York; Cambridge University Press.

Oxford, R. L. (1992). Language learning strategies in a nutshell: Research update and ESL classroom implications. *TESOL Journal, 2*, 18-22.

Rost, M. (1990). *Listening in language learning*. New York: Addison Wesley Longman Inc.

Rost, M. (2002). *Teaching and researching: Listening*. Essex: Pearson Education Limited.

Sheerin, S. (1987). Listening comprehension: teaching or testing? *ELT Journal, 41*(2), 126-131.

Shu, H., & Anderson, R. C. (1997). Role of radical awareness in the character and word acquisition of Chinese children. *Reading Research Quarterly, 32*, 78-89.

Smith, F. (1994). *Understanding reading: A psycholinguistic analysis of reading and learning to read* (5th ed.). Hillsdale, NJ: Erlbaum.

Stanovich, K. E. (1980). Toward an interactive compensatory model of individual differences in the development of reading fluency. *Reading Research Quarterly, 16*, 32-71.

Stanovich, K. E., & Cunningham, A. E. (1993). Where does knowledge come from? Specific associations between print exposure and information acquisition. *Journal of Educational Psychology, 85*, 211-229.

Stanovich, K. E. (2000). *Progress in understanding reading: Scientific foundations and new frontiers*. New York: Guilford.

APPENDIX

Auditory L2 Word Recognition Test

Directions: Mark the word you hear.

1. ray/lay
2. reap/leap
3. lead/read
4. very/berry
5. volt/bolt
6. have/half
7. fat/pat
8. paint/faint
9. peel/feel
10. leave/leaf

11. Where does she (pray/play)?
12. I watched the (clouds/crowds) go by.

13. It's new (copy/coffee) machine.
14. How do you spell ("have"/"half")?
15. How do you spell ("believe"/"belief")?
16. He's gone to (back up/pack up) the car.
17. He's (serving/surfing) in Hawaii.
18. Where's the (base/vase)?
19. How do you spell ("lane"/"rain")?
20. How do you spell ("wife"/"wipe")?

21. She's driving (past/fast). She should slow down.
22. What does ("veer"/"fear") mean? It means to be afraid.
23. Is it (right/light)? No, it's wrong.
24. What's a (ban/van)? It's a kind of truck.
25. What's a (pool/fool)? It's a place to swim.
26. Do you think I have a (few/view)? No, I don't have any.
27. What does ("leaf"/"leap") mean? It is a part of a plant.
28. Do you know what happened with the (boat/vote)? Our candidate won.
29. Where's the (base/vase)? It's on the table, isn't it?
30. What's a (folly/volley)? It's a foolish act.

31. I want to buy your (boat/vote). Will you sell it?
32. What does ("bend"/"vend") mean? It means to curve.
33. What does ("marble"/"marvel") mean? It means an amazing thing.
34. It's a (pact/fact). Do you think I have proof?
35. What's a (rope/robe) for? It's for tying up something.
36. The (copy/coffee) machine doesn't work. Go to the cafe.
37. What's a (bat/vat)? It's a flying mouse.
38. Where's the (load/road)? It's in the truck.
39. What does ("vine"/"fine") mean? It's something like "good."
40. What does ("veil"/"fail") mean? It's a covering for the face.

Applicable levels: college/university
Key words: contextual cues, auditory L2 word recognition, L2 listening proficiency level

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