Effects of Phonological Input as a Pre-Listening Activity on Vocabulary Learning and L2 Listening Comprehension Test Performance

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Abstract

The purpose of the present study is twofold. The first goal is to examine the effects of phonological input on students' vocabulary learning. The second is to discuss how different pre-listening activities affect students' second language listening comprehension. The participants were first-year students at a Japanese university. There were two experimental groups, each given a different type of lexical support prior to the listening test. One group was assigned an activity with phonological input, and the other group, an activity without phonological input. Then, the respective groups took different types of vocabulary test. There was also a control group that received no pre-testing preparation. All of the participants took the same listening tests. The results indicated that phonological input did not play a significant role in either vocabulary test or listening comprehension test performance; however, pre-listening activities did positively affect listening comprehension test performance regardless of the type of activity.

Introduction

The implementation of pre-listening activities in the classroom has been the subject of an increasing number of studies (Berne, 1995; Buck, 1991; Chang, 2005, 2007; Chang & Read, 2006, 2008; Chiang & Dunkel, 1992; Lingzhu, 2003; Markham & Latham, 1987; Sherman, 1997; Sui & Wang, 2005). To help students perform better on L2 listening comprehension tests, the implementation of some kind of pre-listening activity is considered useful.

So far, researchers have examined four types of pre-listening activities: *repeated input*, *question preview*, *topic preparation*, and *vocabulary pre-teaching*. Repeated input and question preview seem to be especially common practices in the classroom. However, in tests such as the Test of English for International Communication (TOEIC), the Test of English as a Foreign Language (TOEFL), and the International English Language Testing System (IELTS), it is not possible to listen to a text twice; therefore, students should get used to listening to oral texts once only to prepare for testing situations. As for question preview, it has not always been regarded as a pre-listening activity. For example, Chang and Read (2008) investigated the effectiveness of the above-mentioned four types of listening support and mentioned that "all four groups were allowed to preview the

questions, so this was in fact the control condition" (p. 8). Topic preparation seems to be an effective technique when listening to lectures whose content is difficult to understand for those without knowledge of the topic. Providing some background knowledge about the topic beforehand helps students understand the content of the lecture (Chiang & Dunkel, 1992). However, this approach is not very useful in the case of the TOEIC, since the test measures communicative abilities in daily life and in the workplace and thus requires little or no specifically academic background knowledge. Being able to handle spoken language remains important for success on the TOEIC.

The present study sheds light on the effects of vocabulary pre-teaching in order to discover whether there are any differences between two different types of vocabulary pre-teaching: a vocabulary activity *with* phonological input and one *without* phonological input. Specifically, this study investigates whether or not phonological input facilitates students' vocabulary learning and test outcomes. It then examines how the two different types of lexical support affect students' second language (L2) listening comprehension test performance. Post-interviews with several students are also conducted to obtain additional information, and the results are investigated in depth to reveal the implications of the observed effects of pre-listening activities.

Literature Review

Studies on Listening Support

There have been several studies on the effects of repeated input, question preview, and topic preparation. Repeated input is one popular form of listening support, and one which research has shown has positive effects on students' listening comprehension, since listening to a spoken text repeatedly makes the information clearer and more comprehensible for the listener (Cervantes & Gainer, 1992; Chaudron, 1983; Jensen & Vinther, 2003). With regard to previewing questions, opinion is somewhat divided on its effects. Some studies consider it distracting, because reading questions beforehand means an extra load of reading for students; in addition, questions are often formulated such that they do not use the same words as the spoken text (Ur, 1984; Weir, 1993). However, it is fairly widely accepted that previewing questions is helpful, since students can listen specifically for the answers to the questions (Buck, 1991; Chang, 2005; Sherman, 1997). The benefit of "topic preparation" or providing students with background knowledge on a topic is a question that has often been investigated in the context of reading comprehension—mostly from the viewpoint of schema theory—but several researchers have also shown its effectiveness for listening comprehension (Chiang & Dunkel, 1992; Lingzhu, 2003; Markham & Latham, 1987). However, less research has been done on the use of pre-listening activities to familiarize students with the vocabulary used in a spoken text. In the early stages of research in this area, Boyle (1984) mentioned that "the students gave much more importance to vocabulary than the teachers did" and that "'If you know the words, you know what it's all about' was one deceptively simple comment" (p. 37). However, since that time, work on the effects of vocabulary pre-teaching has led to different conclusions.

Berne (1995) compared the effects of different pre-listening activities on the listening comprehension test performance of learners of Spanish as a second language. She

mentioned that question preview activities encourage a more top-down approach to the processing of the content of a passage by leading listeners to focus on the passage as a whole, while vocabulary preview activities encourage a more bottom-up approach by leading listeners to focus on individual words or phrases. The subjects of her study were 62 university students, all native speakers of English. They were divided into three groups, and each group was given a different pre-listening activity. Two activities served as experimental treatments: one was a question preview activity, and the other was a vocabulary preview activity. The third group, serving as a control group, completed a filler activity unrelated to the listening passage. After completing their assigned pre-listening activity, the participants watched a videotaped lecture, after which their listening comprehension was measured with 10 multiple choice questions in English. The results showed that the question preview group received significantly higher scores than the control group, while the vocabulary preview group did not. Therefore, question preview was more effective than vocabulary preview in terms of improving listening comprehension, although the difference was not statistically significant. Berne (1995) concluded that "despite the apparent importance of lexical knowledge to listening comprehension, studying a vocabulary list prior to listening may not be a particularly effective means of improving listening comprehension performance" (p. 324).

Similarly, Chang and Read (2006) investigated the effects of listening support on the L2 listening comprehension test performance of university students in Taiwan. They examined four forms of listening support: previewing test questions, repeating the input, provision of background knowledge about the topic, and vocabulary instruction. The results showed that the vocabulary instruction group received the lowest score of the four, and that both high and low proficiency students performed equally poorly after vocabulary instruction. Chang and Read pointed out two shortcomings of vocabulary instruction. One was that the students "did not have enough time to fully memorize the words they had studied" and the other was that they paid "too much attention to the meaning of the target lexical items at the expense of a more general understanding of the input text" (pp. 392–393). In a later study, Chang and Read examined how the same four forms of listening support affected the anxiety levels of university students in Taiwan. Chang and Read (2008) noted that at both higher and lower proficiency levels, students who were given vocabulary instruction performed poorly and were highly anxious after the test. They concluded that "the test scores showed that providing topical knowledge and repeated input were more effective than giving vocabulary instruction or just allowing preview of the questions" (p. 18).

Berne (1995) and Chang and Read (2006, 2008) were in agreement that vocabulary pre-teaching was less effective than other forms of listening support. However, neither Berne nor Chang and Read investigated effectiveness of *phonological input* during a pre-listening activity. That is, there was only one type of vocabulary pre-teaching in their studies. The vocabulary activity in Chang and Read (2006, 2008) included phonological input. The students received a vocabulary list, were taught the pronunciation of each word by the teacher, and listened to pre-recorded dialogues to receive practice hearing the target vocabulary in connected speech. In Berne (1995), the vocabulary activity did *not*include phonological input; instead, the students studied the vocabulary silently after receiving a

list of vocabulary items. Thus, it is worth investigating whether phonological input causes any difference in the effect of vocabulary pre-teaching.

Vocabulary Acquisition and Word Recognition

Although vocabulary pre-teaching is often carried out as a pre-listening activity, the fact is that vocabulary learning takes a lot of time and cannot be achieved by a single activity or task. Vermeer (2001) has noted that "knowledge of words is multidimensional" (p. 218), involving not only a word's meaning but also aspects such as its pronunciation, spelling, and grammatical forms and usages. Further, Hulstijin (2001) has suggested that students need a lot of "deliberate rehearsal" (p. 276) in order to build up an adequate knowledge of vocabulary. All this is true as far as it goes; however, several studies have shown that there is more to word recognition than that.

Ikemura (2001) investigated how Japanese learners of English utilize two types of information — *audio input* and *context* — for word recognition in listening. He pointed out that it is much easier for Japanese university students to recognize English words visually than aurally when the words are presented in isolation. He demonstrated that on average, students recognized only 27% of vocabulary presented orally but 71% of words presented visually. He went on to note that 86% of the students understood the word *cotton* visually while only 6% of them recognized it aurally. This was probably because the normal spoken form of *cotton* differs from the pronunciation that might be expected by students to a greater extent than do the spoken forms of some other words. Further, *cotton* has been adopted into the Japanese language but has drastically changed its pronunciation in having done so. In fact, *cotton* as a Japanese word is pronounced so differently from the original English word that it is hard to identify them as the same word. The pronunciation of *cotton* as a Japanese word reflects the spelling of *cotton*as an English word much more closely than it corresponds to the English pronunciation. Therefore, it is, in a sense, natural for Japanese students to understand *cotton* visually, although they cannot recognize it aurally.

Tao (2008) examined the effects of phonological input on vocabulary acquisition by Japanese high school students. She measured her participants' knowledge of word meaning using a translation test. Each participant was given a set of cards with L2 words on the upper half of each card and their first language (L1) equivalents on the lower half. Participants were told not to read out target vocabulary items or their L1 equivalents and were not allowed to write anything down while learning the vocabulary. Then, Tao divided the participants into four groups, each of which learned in a different way and took a different test. Half of the groups (Groups 1 and 2) learned vocabulary while listening to each target word being pronounced twice, and the other half (Groups 3 and 4) studied the words without any phonological input. Next, Tao prepared two different types of vocabulary test. One was an *orthographical-cue test*, in which each target word was written on an answer sheet with a blank where the participant was meant to fill in its Japanese translation. The other was a *phonological-cue test*, in which target words were not printed on a sheet but instead pronounced twice each, and participants were required to write the Japanese translation for the words within 8 seconds each. Groups 2 and 4 took the former type of test and Groups 1 and 3 the latter. The results indicated that "phonological input while learning did not have any impact on the scores of the two different types of word

translation test" (p. 13). Test type, in contrast, did have an effect on scores: orthographical-cue vocabulary tests produced higher scores than phonological-cue tests did. In sum, the students were not affected by the use of phonological input while learning vocabulary items, and it was easier for them to do well on the vocabulary test while looking at the written form of each word than while hearing the word.

From these results, it can be assumed that phonological input during learning is not likely to play a significant role in vocabulary acquisition and word recognition. However, the above-mentioned studies did not employ pre-listening activities. The present study thus investigates two types of listening support: vocabulary pre-teaching *with* phonological input and vocabulary pre-teaching *without* phonological input. The purpose of this study is twofold. The first goal is to see whether or not phonological input affects students' vocabulary learning, and the second goal is to examine the effects of vocabulary pre-teaching on students' L2 listening comprehension test performance. Even if this research confirms that phonological input does not positively affect vocabulary learning or word recognition, students who learn vocabulary with phonological input might perform better on L2 listening comprehension tests than those who learn without it. In addition, students' perception of the phonological input they receive is also worth investigating. Students take a positive attitude toward phonological input when it is implemented as a pre-listening activity, regardless of its effectiveness. By pursuing these two goals, this study tries to draw novel implications regarding the effects of phonological input as a pre-listening activity on vocabulary learning and L2 listening comprehension test performance.

Methodology

Participants

The present study involved 60 first-year students at a Japanese university, enrolled in three general English classes: 18 males and 2 females across Classes 1, 2, and 3, aged 18 to 20. In fact, there were 22 to 27 students in each class, but not all of them wanted to take part in this study; therefore, the author chose 20 students from each class who were willing to join the research. In one class, only 2 female students volunteered for the study, and thus the author chose 2 female students from each of the other classes in order to equalize the groups. The other students also took part in the pre-listening activities and took the listening comprehension tests, but their answers and scores were excluded from the data. However, even if these scores had been included, it would not have caused any significant difference, although mean scores would have been slightly lower in each class.

Classes 1 and 2 were experimental groups, and Class 3 was a control group. The participants were all Japanese students from the university's Faculty of Science and Engineering. Each of them had been learning English as a foreign language for six years or more. The 90-minute classes were held twice a week and were compulsory for all first-year students. The classes used an intermediate level textbook *English connections: Work & holiday 2*, published by Macmillan LanguageHouse in 2007. The experiments were conducted in class, with the first 15 minutes set aside. The students were asked to take a multiple choice listening comprehension test twice a week, eight times altogether. In order to establish comparability across the classes, an analysis of variance (ANOVA) was performed using the raw scores of the proficiency test. The test administered was the

General Tests of English Language Proficiency (G-TELP) Level 3 (of five). Level 3 consists of grammar, listening, and reading and vocabulary sections, and covers a range of difficulty equivalent to 400 to 600 on the TOEIC. The G-TELP is provided by the International Testing Services Center (ITSC) in San Diego. Similar to the TOEIC, it is especially popular in South Korea and Japan. It was chosen for the present study because all of the participants had taken this test (as part of faculty data-gathering efforts, where the faculty paid the G-TELP fees of all first-year students and asked them to take the test), which was not the case with the TOEIC. Since the present study focused on listening, the descriptive statistics (number of participants, mean scores, and standard deviation) for the listening section, as well as the total scores, are shown below, in Tables 1 and 2. The results of the ANOVA presented in these tables confirm that there were no significant differences among the students in the three classes. Therefore, they were considered equivalent in English proficiency.

Table 1. *Descriptive Statistics for Total Proficiency Test Scores*

Class	n	M	SD
1	20	193.650	20.367
2	20	185.650	21.560
3	20	189.250	21.464

Note: Full score = 300

Table 2. *Descriptive Statistics for the Listening Section of the Proficiency Test*

Class	n	M	SD
1	20	57.050	9.724
2	20	57.350	11.204
3	20	57.000	10.378

Note: Full score = 100

Materials

The present study focused on short oral texts produced by the same speaker. Eight monologic listening texts and multiple choice questions on them were taken from the *Official guide to the new TOEIC test*, Vol. 3 (2008), without making any changes. Each of the spoken texts was between 83 and 117 words long and came with three questions, each with four possible answers. The questions were carefully selected to be suitable to the level of the participants with respect to vocabulary level, sentence length, syntax, and content. Before the experiments, in order to check that intelligent guesses by the participants would not affect the results, three students in a different class but of the same English level were asked to answer the multiple choice questions without listening to the spoken texts. None of the questions were answered correctly by all three students, which was taken to confirm that none of the questions could be answered correctly just by intelligent guessing.

Procedure

All of the participants were given the same vocabulary lists. Key words or phrases were selected from the spoken texts and listed along with their L1 equivalents. Each target word or phrase (six items in each short talk) was presented within a sample sentence; the sample sentences differed from those in the spoken text. Although the two classes were assigned different pre-listening activities, they were asked to take the same listening comprehension tests. An example of one of the vocabulary lists, the two types of vocabulary test used in the pre-listening activity, and sample answers can be found in the Appendix. The participants were given 10 minutes to perform their assigned pre-listening activity. They were asked to spend 3 minutes memorizing the target words or phrases without writing them down; as six items were presented, the students were given about 30 seconds per word or phrase. Then, they were given 7 minutes to work on the vocabulary test: in this time, they took the test, marked their answer sheet themselves, and checked it to ensure that they had memorized all of the items in the vocabulary list. The provided time of 30 seconds per word to be learned (on average, though potentially more or less for any given word) was based on Pickering (1982), who also asked participants not to write down the words while looking at them.

The vocabulary activity assigned to Class 1 in the present study was similar to that implemented for Group 1 in Tao (2008) . The students studied the vocabulary items by listening to each target word being pronounced twice. They then took a phonological-cue vocabulary test. The target words or phrases were not printed on the answer sheet but instead were each pronounced twice, and the students were required to write Japanese translations on their answer sheet.

This approach is in contrast to that taken by Berne (1995), which was similar to that used with Class 2 in the present study. Berne employed a vocabulary activity using a list of 10 words or phrases taken from the spoken text and their L1 equivalents. She chose vocabulary items that were important to the overall comprehension of the passage and were unfamiliar to the subjects. She stated that her study followed the procedures used by Taglieber, Johnson, and Yarbrough (1988), who investigated the effects of different types of pre-reading activities on the EFL reading comprehension test performance of Brazilian university students. Taglieber et al. wrote words on the board in class in meaningful but unrelated sentences without L1 translations, and the students took turns reading the sentences aloud and predicting the meanings of the words. Berne (1995), however, presented the chosen vocabulary items alongside their L1 equivalents and the subjects studied them silently. The vocabulary activity assigned to Class 2 in the present study was similar in the sense that the students read the vocabulary items and their L1 equivalents silently and did not hear them being pronounced. As mentioned above, Class 3 was a control group. The students in Class 3 were asked to take the same listening comprehension tests as those in Classes 1 and 2, but they did not carry out any type of pre-listening activity.

After performing their respective assigned pre-listening activities and taking the listening comprehension tests, all the students in Classes 1 and 2 were asked to respond to a survey developed to obtain additional information.

Research Questions

The purpose of the present study is twofold, and thus the following two research questions were formulated.

1. Do L2 learners who take orthographical-cue tests during pre-listening activities achieve higher scores on vocabulary tests than those who take phonological-cue tests? (In other words, for the present study, do the students in Class 2 outperform those in Class 1?)

2. Do L2 learners who receive phonological input while learning target words or phrases perform better on listening comprehension tests than those who perform a vocabulary activity without phonological input? (In other words, do the students in Class 1 outperform those in Class 2?)

Results

Vocabulary Tests

Analysis of variance (ANOVA) was administered to determine if there were any interaction effects involving the use of phonological input. The descriptive statistics for the vocabulary test scores are shown in Tables 3–4 below. The results indicate that the interaction between Classes 1 and 2 was not statistically significant. The students in Class 2, who carried out a vocabulary activity without phonological input and took orthographical-cue vocabulary tests, obtained roughly the same mean scores as did those in Class 1, who performed an activity with phonological input and took phonological-cue vocabulary tests (the mean scores were 5.812 for Class 1 and 5.794 in Class 2, respectively). The results suggest that phonological input may not have a great influence on vocabulary learning or vocabulary test scores.

As shown in Table 4, the students in Class 2, who took orthographical-cue vocabulary tests, scored lower than those in Class 1 on Tests 5, 7, and 8. Therefore, the present study does not support Tao's (2008) conclusion that orthographical-cue vocabulary tests produce higher scores than phonological-cue tests do. With regard to the present study, this argument holds true only for Tests 1, 2, and 3. This discrepancy may imply that in Tao's (2008) study, orthographical-cue tests produced higher scores because her subjects were not accustomed to taking phonological-cue tests. In fact, the students in Class 1 in the present study did not immediately understand what they were being asked to do as a pre-listening activity; in contrast, those in Class 2 instantly understood what they were required to do. Thus, students' performance is not influenced by the type of vocabulary test they take per se. Rather, what is important is whether they are used to that type of test or not.

Table 3. *ANOVA Results for the Vocabulary Tests: Means on Factor A*

Class	n	M	SD
1	160	5.812	0.390
2	160	5.794	0.434

Note: Full score = 6
Factor A: A1 = Class 1, A2 = Class 2

Factor B: B1 = Test 1, B2 = Test 2, B3 = Test 3, B4 = Test 4, B5 = Test 5, B6 = Test 6, B7 = Test 7, B8 = Test 8

A 95% confidence interval (CI) was used to estimate precision. For Class 1, CONFIDENCE.NORM (0.05, 0.390, 160) was 0.060, meaning that the mean scores of 95% of the students in Class 1 were between 5.752 and 5.872. As for Class 2, CONFIDENCE.NORM (0.05, 0.434, 160) was 0.067, and thus the means of 95% of the students were between 5.727 and 5.861.

Table 4. *Descriptive Statistics for the Vocabulary Tests*

Test	Class	*n*	*M*	*SD*
1	1	20	5.500	0.806
	2	20	5.650	0.654
2	1	20	5.550	0.740
	2	20	5.700	0.557
3	1	20	5.850	0.357
	2	20	5.900	0.300
4	1	20	6.000	0.000
	2	20	6.000	0.000
5	1	20	5.900	0.300
	2	20	5.700	0.557
6	1	20	5.750	0.698
	2	20	5.750	0.536
7	1	20	5.950	0.218
	2	20	5.750	0.433
8	1	20	6.000	0.000
	2	20	5.900	0.436

Note: Full score = 6

Listening Comprehension Tests

Analysis of variance (ANOVA) was performed in order to determine whether the pre-listening activities had any effects on the students' listening comprehension test performance. The descriptive statistics presented in Tables 5–7 below reveal significant differences between Class 3 (the control group) and the other two classes. Although Table 6 indicates no significant differences between Classes 1 and 2 ($p = 0.692$), it reveals significant differences between Classes 1 and 3 ($p = 0.000$) and between Classes 2 and 3

(p = 0.000). Table 7 also shows that the students in Classes 1 and 2 consistently outperformed those in Class 3 on the listening comprehension tests. Therefore, we can draw the conclusion that receiving phonological input while carrying out a vocabulary activity does not significantly affect students' listening comprehension test performance, and that students perform better on L2 listening tests after carrying out a vocabulary activity than after doing nothing in particular.

Table 5. *ANOVA Results for the Listening Comprehension Tests: Means on Factor A*

Class	n	M	SD
1	160	2.394	0.633
2	160	2.350	0.765
3	160	1.869	0.779

Note: Full score = 3
Factor A: A1 = Class 1, A2 = Class 2, A3 = Class 3
Factor B: B1 = Test 1, B2 = Test 2, B3 = Test 3, B4 = Test 4, B5 = Test 5, B6 = Test 6, B7 = Test 7, B8 = Test 8

A 95% CI was used to estimate precision. For Class 1, CONFIDENCE.NORM (0.05, 0.633, 160) was 0.098, and therefore the mean scores of 95% of the students in Class 1 were between 2.296 and 2.492. As for Class 2, CONFIDENCE.NORM (0.05, 0.765, 160) was 0.119, and thus the means of 95% of these students were between 2.231 and 2.469. With regard to Class 3, CONFIDENCE.NORM (0.05, 0.779, 160) was 0.121, and the mean scores of 95% of the students in this group were thus between 1.748 and 1.990.

Table 6. *Results of Ryan's Method for the Listening Comprehension Tests*

Pair	r	nominal level	t	p	sig.
1 – 3	3	0.016	4.777	0.000	s.
1 – 2	2	0.033	0.398	0.692	n.s.
2 – 3	2	0.033	4.379	0.000	s.

MSe = 0.966447, df = 57, significance level = 0.0500

Table 7. *Descriptive Statistics for the Listening Comprehension Tests*

Test	Class	n	M	SD
1	1	20	1.950	0.865
	2	20	2.400	0.800
	3	20	1.550	0.865
2	1	20	2.400	0.583
	2	20	2.600	0.583
	3	20	2.100	0.624
3	1	20	2.250	0.622
	2	20	2.050	0.865
	3	20	1.650	0.726
4	1	20	2.400	0.663
	2	20	2.000	1.049
	3	20	1.800	0.748
5	1	20	2.500	0.500
	2	20	2.500	0.806
	3	20	1.700	0.843
6	1	20	2.550	0.669
	2	20	2.500	0.866
	3	20	2.400	0.663
7	1	20	2.550	0.669
	2	20	2.400	0.583
	3	20	1.700	0.900
8	1	20	2.550	0.497
	2	20	2.350	0.572
	3	20	2.050	0.865

Note: Full score = 3

Follow-Up Survey

Next, the students in the experimental groups (Classes 1 and 2) were asked to respond to a one-item survey intended to obtain additional information. The following statement appeared in the survey: *Your assigned pre-listening activity was helpful for understanding*

the spoken texts and performing better in the listening comprehension tests. The students were asked to respond on a five-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

The results shown in Table 9 reveal that in both classes, more than half of the students agreed that their assigned pre-listening activity was to some degree helpful. The descriptive statistics shown in Table 8 reveal that the students in Class 2, who did the pre-listening activity without phonological input, were more likely to be satisfied with their assigned pre-listening activity.

Table 8. *Descriptive Statistics for the Question Responses*

Class	*n*	*M*	*SD*
1	20	3.800	1.208
2	20	4.250	0.766

Table 9. *Responses to the Question*

	Class 1		Class 2	
Likert-type scale score	*n*	*%*	*n*	*%*
5 (*strongly agree*)	6	30.0	8	40.0
4 (*agree*)	9	45.0	10	50.0
3 (*undecided*)	2	10.0	1	5.0
2 (*disagree*)	1	5.0	1	5.0
1 (*strongly disagree*)	2	10.0	0	0.0
Total	20	100.0	20	100.0

Discussion

The present study examined the effects of phonological input on students' vocabulary learning and investigated how two types of lexical support affected students' L2 listening comprehension test performance. Regarding the first research question, statistical analyses of the vocabulary test results revealed no statistically significant differences between the students in Class 1, who were not allowed to see the target words or phrases during the tests, and those in Class 2, who read the target vocabulary items while taking the vocabulary tests. Thus, the findings provided a negative answer to the first research question. As for the second research question, the ANOVA produced nearly identical results for Classes 1 and 2 in the listening comprehension tests. The results thus also provided a negative answer to the second research question. On the other hand, both experimental groups (Classes 1 and 2) achieved higher scores than the control group (Class 3) on the listening comprehension tests.

It is interesting that according to the follow-up survey, a pre-listening activity *without* phonological input is more likely to satisfy students that it is useful than is an activity *with* phonological input. In their responses to the survey, 18 students in Class 2 (90% of them) and 15 students in Class 1 (75%) agreed to some degree that their assigned pre-listening activity was helpful to understand the spoken texts. Conversely, no (0) students in Class 2 and only two (2) students in Class 1 (10%) strongly disagreed that their assigned activity helped them. In other words, more students in Class 2 than in Class 1 agreed that their assigned pre-listening activity helped them understand the spoken texts, and thus, more students in Class 1 than in Class 2 disagreed that their assigned pre-listening activity was helpful. This is surprising considering that the students carried out the activity before taking the *listening* tests as opposed to the reading tests, where the benefits were seen. One possible reason for these responses is that the participants seemed to prefer to memorize written forms by viewing them many times instead of practicing the words orally or listening to oral productions. After the experiments, the author interviewed five students from Class 1, who explained that they did not agree that their pre-listening activity was helpful simply because they did not like that kind of exercise. Thus, it was not a matter of how effective the activity actually was, but instead one of personal preference.

To expand on this point, while the participants in the present study were not accustomed to taking a phonological-cue vocabulary test, orthographical-cue tests are in contrast a common type of vocabulary test. It has often been pointed out that listening activities involve not only language proficiency but also emotional factors such as anxiety (Chang & Read, 2008). Therefore, if a pre-listening activity increases students' anxiety levels, it is likely that their listening comprehension test performance will be negatively affected. The students in Class 1 might have been more anxious during the activity than those in Class 2, since they had never had a chance until then to take that type of vocabulary test. That anxiety might have led them to dislike their assigned pre-listening activity. Conversely, it is less likely that the pre-listening activity assigned to the students in Class 2 provoked anxiety since they were used to that type of vocabulary test. Thus, familiarity with the activity might have increased their satisfaction regardless of how effective the activity actually was. However, anxiety is not a key issue in the present study, and this point will require future research to clarify.

Conclusions

Several limitations of this research need to be pointed out. One is that the effects of proficiency upon students' test performance were not examined, since all the participants in the present study were at the same level of English proficiency. Another limitation is that the author picked out words or phrases from spoken texts that seemed unfamiliar to the participants. Although this method is common (Taglieber et al., 1988; Berne, 1995), one drawback to it is that the resulting vocabulary lists might not have included the words or phrases that the participants needed to learn. Therefore, it is uncertain to what extent the participants in the present study had learned the vocabulary items in the spoken texts. In some cases, six items in a vocabulary list might have been enough; for instance, nearly all the words in the spoken text might have been familiar to the participants. In other cases, more than six items might have been necessary—that is, if a large number of unfamiliar words were used in the text and not included in the vocabulary list. It is uncertain whether

the vocabulary lists included enough items for the participants in the present case. One more limitation is that the participants in this study were homogeneous in linguistic and cultural background (they were all Japanese). If a study like this one were conducted with subjects with a different cultural or language background, a different result might emerge. For example, Gu and Johnson (1996) examined vocabulary learning among Chinese university students. They mentioned that "oral repetition positively correlated with general proficiency" and that "visual repetition of new words was the strongest negative predictor of both vocabulary size and general proficiency" (p. 668). Thus, Chinese students are likely to prefer to memorize vocabulary items by practicing them orally or listening to oral productions. In contrast, Japanese students are more likely to prefer to memorize written forms by viewing the words many times. As pointed out earlier, five students from Class 1 in the present study, who completed a vocabulary activity *with* phonological input, mentioned that they did not like that kind of exercise. If they are required to articulate every target word, they might be anxious that they cannot pronounce some words like a native speaker; and if they are anxious, it will negatively affect their listening comprehension test performance. Thus, it is doubtful if Gu and Johnson's (1996) contention is applicable to Japanese students; but if the participants in the present study had been Chinese, a different result might have emerged.

With the above-mentioned limitations in mind, we can nevertheless conclude that the present study obtained enough evidence to issue the following claim: *Phonological input has no effect if target vocabulary items are being pronounced in isolation in the input*. This result suggests that pre-teaching of vocabulary should be conducted in such a way as to give students a chance to hear the target word in the context of a string of sounds linked together. Focusing on individual words does not necessarily reflect aspects of language such as the radical phonological changes that words undergo in connected speech. As Field (2000) pointed out, "just because a word or structure is known, it does not mean that it will be recognized when it is heard" (p. 34). In a later study, he further noted that "pauses in natural speech only occur every 12 syllables or so, which means that, unlike readers, listeners do not have regular indications of where words begin and end" (Field, 2003, p. 327). In addition, students' learning style should be considered. While they are carrying out a pre-listening activity, students might not concentrate on *listening* to the target vocabulary items, but might instead try to *read* them. In other words, even if students listen to each word being pronounced, they might not try to memorize its pronunciation, but might instead pay attention to its meaning. A good example of a case like this might be the word *cotton* (see the Literature Review section above). Japanese students might not pay adequate attention to the pronunciation of *cotton* simply because they know that the word has been adopted into their L1 and retains its original meaning. They might not realize that what they are familiar with is only the spelling and meaning of the word, not its pronunciation. The fact is that Japanese students have to practice recognizing *cotton* aurally because the word has undergone radical phonological changes as part of the process of its adoption into their L1.

Still, some kind of vocabulary pre-teaching seems to be helpful for students to understand spoken texts. In the present study, the two experimental groups — Classes 1 and 2 — onsistently outperformed the control group. Thus, carrying out a pre-listening activity in the classroom is better than doing nothing.

About the Author

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Appendix

The vocabulary list (Test 1)
1. florist （花屋）
You can buy flowers online directly from a local florist anywhere in the world.
(世界中のどこからでも、地元の花屋からオンラインで直接花を買えます)

2. currently (現在)
The accident is currently being investigated.
(その事故は現在調査中です)

3. order (〜を注文する)
I will order several books from England.
(イギリスへ数冊の本を注文する予定です)

4. delivery （配達)
Delivery is free within the city.
(市内は配達が無料です)

5. appreciate （〜に感謝する）
I greatly appreciate your kindness.
(あなたの親切にすごく感謝しています)

6. patronage （ご愛顧）
Thank you for your patronage.
(ご愛顧に感謝します)

* The students in Class 1 listened to each word being pronounced twice, while those in Class 2 read the list silently.

The vocabulary tests (Test 1)
Class 1: Pre-listening activity *with* phonological input
1. (   ) * The word "florist" was pronounced twice.
2. (   ) * The word "currently" was pronounced twice.
3. (   ) * The word "order" was pronounced twice.
4. (   ) * The word "delivery" was pronounced twice.
5. (   ) * The word "appreciate" was pronounced twice.
6. (   ) * The word "patronage" was pronounced twice.

Class 2: Pre-listening activity *without* phonological input
1.   florist   (   )
2.   currently   (   )
3.   order   (   )
4.   delivery   (   )
5.   appreciate   (   )
6.   patronage   (   )
* The words were not pronounced during the test.

Sample answers to the vocabulary tests (Test 1)
Class 1: Pre-listening activity *with* phonological input
1.   （   花屋   ）
2.   （   現在   ）

3. （　～を注文する　）
4. （　配達　）
5. （　～に感謝する　）
6. （　ご愛顧　）

Class 2: Pre-listening activity *without* phonological input
1. florist　（　花屋　）
2. currently　（　現在　）
3. order　（　～を注文する　）
4. delivery　（　配達　）
5. appreciate　（　～に感謝する　）
6. patronage　（　ご愛顧　）