The Role of Vocabulary in the STEP Listening Test

- Vocabulary Knowledge Through Visual Input and Phonological Input -

英検リスニングテストにおける語彙の役割

-視覚的インプットと音韻的インプットを通した語彙能力-

Keywords: vocabulary, visual input, phonological input

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1. Introduction

No language comprehension can be possible without vocabulary knowledge. Vocabulary knowledge is quite important for listeners (e.g., Kelly, 1991; Vandergrift & Goh, 2012) and readers (e.g., Hudson, 2007; Laufer & Nation, 1995).

Generally, most of us imagine that vocabulary knowledge is comprehension gained by seeing words visually (hereafter, visual input), but we should note that comprehension gained by listening is also required (hereafter, phonological input).

In listening comprehension, especially, vocabulary knowledge through visual input alone is inadequate. It seems that learners cannot perform well at listening comprehension if they cannot understand vocabulary through phonological input. Vocabulary comprehension gained by listening is also important in the listening comprehension test.

This paper will focus on the STEP listening test, multiple-choice listening test, and investigate the contribution of vocabulary knowledge to the listening test, from the viewpoints of visual input and phonological input.

2. Listening and Vocabulary

According to Lynch (2009), “compared with the amount of research into the relationship between vocabulary knowledge and reading ability in a second language, there has been relatively little into the links between vocabulary and listening” (p. 35). Few researchers have focused on the relationships between vocabulary and listening.

Of them, Mecartty (2000) explored the relative contributions of vocabulary and grammar knowledge to L2 reading and listening ability. The results showed that vocabulary knowledge significantly contributed to L2 listening ability, but the contribution by vocabulary and grammar knowledge in L2 reading was much higher than in L2 listening. In addition, Vandergrift’s (2006) study examined the contributions of L1 (English) listening ability and L2 (French) vocabulary and grammar knowledge to L2 listening comprehension. From the study, it was found that L2 vocabulary knowledge was the most influential factor in L2 listening comprehension.

Judging from the above, it is obvious that vocabulary knowledge contributes to listening comprehension in some way. However, vocabulary tests implemented in these studies were measured through visual input. Therefore, because vocabulary knowledge through phonological input has not been treated, we cannot confirm the role of vocabulary in listening comprehension.
Studies have been carried out on vocabulary learning through phonological input. Brown, Donkawbua, and Waring (2008) compared the three ways of (incidental) vocabulary learning, that is, reading, reading-while-listening, and only listening. The results revealed that learners learned more vocabulary through reading than through listening. The participants in their experiments said that they preferred learning vocabulary through reading, or visual input. It is presumably more difficult for learners to learn vocabulary through listening, or phonological input. Tao (2008) looked into the relationship between phonological input and (intentional) vocabulary learning. In her study, she tested the participants' vocabulary knowledge through both visual input and phonological input, in order to examine the effect of vocabulary learning. The score of a visual vocabulary test was higher than that of a phonological vocabulary test. Vocabulary knowledge changes by the manner by which it is learned; evaluating vocabulary knowledge through visual input only is insufficient for the evaluation of listening comprehension.

Moreover, in listening tests, a list of multiple-choice options are provided, from which the listener can choose an answer. As Field (2009) points out, “It quite often happens that written multiple-choice options are more difficult to interpret than the recording that is supposed to be the focus of the exercise” (p. 28). This means that reading ability is also needed in order to understand the options. Therefore, a visual vocabulary test may evaluate reading ability only, and so it is recommended to examine learners' vocabulary knowledge through phonological input. We should study the relationship between their phonological vocabulary knowledge and visual vocabulary knowledge, and the contribution of the two kinds of vocabulary knowledge to the STEP listening test. We expect that vocabulary knowledge through phonological input contributes to the STEP listening test than vocabulary knowledge through visual input.

3. Method
3.1 Participants
The participants were 40 Japanese EFL high school students (20 boys and 20 girls), aged 15 to 16. All had studied English for three years in junior high school and 3 months in high school. Their English level was low to intermediate.

3.2 Materials and Procedure
Three kinds of tests were administered: the STEP listening test (third grade), a visual vocabulary test, and a phonological vocabulary test. Participants were required to complete all three tests. Each test was composed of 13 questions. They were made based on Tao (2008). In the STEP listening test, participants listened to 7 dialogues and 6 monologues, each followed by one question. Listeners had 10 seconds to choose an answer from four possible options. In the two vocabulary tests, we utilized Corpus 1800, a word resource maintained by Tono (2010), and drew up 13 visual vocabulary questions and 13 phonological vocabulary questions. Excerpts chosen were at a level from junior high school English through English I of high school English. In the visual vocabulary test, the participants looked at each word and provided the Japanese translation. It tested the ability to understand vocabulary through visual input. In the phonological vocabulary test, they listened to (but did not visually examine) each word and provided the Japanese translation. It tested the ability to understand vocabulary through phonological input. The participants listened to each word only once. On scoring the answers, due to the constraints of the research time and the actual teaching environment, one point was awarded if the participant wrote at least one Japanese meaning correctly, based on Corpus 1800 or Genius English-Japanese Dictionary (2006).
3.3 Analyses

We first described descriptive statistics and examined the difference among the scores of the three tests. Next, we utilized correlation analysis and conducted regression analysis in order to reveal the relationship between the participants’ phonological vocabulary knowledge and visual vocabulary knowledge, in the case of phonological vocabulary knowledge as a dependent variable and visual vocabulary knowledge as an independent variable, and in that of phonological vocabulary knowledge as an independent variable and visual vocabulary knowledge as a dependent variable. In addition, we employed multiple regression analyses in order to analyse the contribution of the two kinds of vocabulary knowledge to the STEP listening test. In that case, the dependent variable was the comprehension of the STEP listening test, and the independent variables were the visual and phonological vocabulary knowledge.

4. Results and Discussion

Table 1
Descriptive Statistics for All the Tests

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>the STEP Listening Test</td>
<td>8.70</td>
<td>1.87</td>
</tr>
<tr>
<td>Vocabulary Knowledge Through Phonological Input</td>
<td>7.30</td>
<td>1.36</td>
</tr>
<tr>
<td>Vocabulary Knowledge Through Visual Input</td>
<td>7.55</td>
<td>1.64</td>
</tr>
</tbody>
</table>

Table 1 shows the descriptive statistics of the three tests. The score of the STEP listening test was the highest, and that of the phonological vocabulary test was the lowest. As the previous studies showed, it is difficult to understand vocabulary through listening.

Table 2
Correlation Matrix in All the Tests

<table>
<thead>
<tr>
<th></th>
<th>the STEP Listening Test</th>
<th>Vocabulary Knowledge Through Phonological Input</th>
<th>Vocabulary Knowledge Through Visual Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>the STEP Listening Test</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocabulary Knowledge Through Phonological Input</td>
<td>.094</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Vocabulary Knowledge Through Visual Input</td>
<td>.289†</td>
<td>.451**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Notes. † .05 < p < .10; ** p < .01.

Table 2 indicates the correlation matrix in all the three tests. Vocabulary knowledge through phonological input and visual input had a weak correlation, $r = .451$, $p < .01$, and there was a possibility that vocabulary knowledge through visual input and the comprehension of the STEP listening test had some correlation.
Furthermore, the results of regression analyses clarified the significant contribution of phonological vocabulary knowledge to visual vocabulary knowledge, $\beta = .374$, $R^2 = .203$, $p < .01$ (see Table 3). The contribution of visual vocabulary knowledge to phonological vocabulary knowledge was also significant, $\beta = .543$, $R^2 = .190$, $p < .01$ (see Table 4). These findings demonstrate that phonological vocabulary knowledge and visual vocabulary knowledge are closely related. However, it should be noted that the latter contribution was higher, $\beta = .543$; therefore, the contribution of visual vocabulary knowledge to phonological vocabulary knowledge was significantly higher than that of phonological vocabulary knowledge to visual vocabulary knowledge.

Table 5 presents the contribution of the two kinds of vocabulary knowledge to the comprehension of the STEP listening test. Visual vocabulary knowledge tended to contribute, but not significantly, to the comprehension of the STEP listening test, $\beta = .353$, $R^2 = .085$, $p = .087$,
but phonological vocabulary knowledge did not show a significant contribution, \( \beta = -.062, R^2 = .085, p = .796 \). This explains the possibility, on contrary to our expectation, that only visual vocabulary knowledge contributes more to the comprehension of the STEP listening test than phonological vocabulary knowledge.

In summary, visual vocabulary knowledge contributed to phonological vocabulary knowledge more than phonological vocabulary knowledge did to visual vocabulary knowledge, and visual vocabulary knowledge contributed more to the STEP listening test than phonological vocabulary knowledge. We hypothesised that reading ability plays an important role in listening comprehension evaluation, as it is needed to understand written multiple-choice options. This may account for why, in the STEP listening test, the role of visual vocabulary knowledge may be more central than that of phonological vocabulary knowledge.

4. Conclusion, Pedagogical Implications, and Suggestions for Further Study

In this study, we focused on the STEP listening test, and made clear the relationship between learners’ phonological vocabulary knowledge and visual vocabulary knowledge, and examined the contribution of the two kinds of vocabulary knowledge to the STEP listening test. The results showed a significant relationship between visual vocabulary knowledge and phonological vocabulary knowledge. However, while visual vocabulary knowledge was shown to have contributed more to the STEP listening test than phonological vocabulary knowledge, its contribution was not statistically significant. In L2 vocabulary learning, the ability to visually understand vocabulary is indispensable, and more important than phonological vocabulary learning in order to obtain a high score in the STEP listening test. It is apparent that visual vocabulary knowledge plays an important role in L2 learning in some way.

In regard to pedagogical implications, it is entirely fair to say that visual learning techniques lead to the acceleration of learners’ vocabulary knowledge. Furthermore, visual instruction is a better approach when teaching vocabulary for the STEP listening test.

A significant contribution of vocabulary knowledge to the STEP listening test was not observed, but the study itself was promising in that we showed its tendency. Further large-scale studies may reveal more significant trends, and future work should consider changing the grade of the STEP test and examining other kinds of listening tests. Furthermore, it may be beneficial to investigate the knowledge requirements of learners in L2 listening by means of, for example, a survey or interview.

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References

**Appendix**

Two kinds of vocabulary test [Percentage of each item answered correctly]

次の英語を日本語にしなさい。[Write the following words in Japanese]

1. plant [53%]  
2. drive [90%]  
3. teach [98%]  
4. though [0%]  
5. even [0%]  
6. if [33%]  
7. remember [48%]  
8. who [100%]  
9. begin [85%]  
10. leave [58%]  
11. little [100%]  
12. shoe [20%]  
13. popular [65%]

次の英語を聴き、日本語の意味を書きなさい。英語は一度だけ読まれます。[Listen to the following English words and write the Japanese translation. The words will be read only once.]

1. classroom [30%]  
2. area [90%]  
3. other [78%]  
4. rain [38%]  
5. latest [1%]  
6. clothes [0%]  
7. enter [1%]  
8. season [90%]  
9. large [95%]  
10. hear [40%]  
11. doctor [85%]  
12. watch [90%]  
13. bad [85%]