Effect of English Speed Reading Training on Learners’ Listening Comprehension and Dictation Skill*

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This study analysed the effects of English text speed reading training in improving of English listening comprehension in relation to learners’ dictation skill. Analysis 1 investigated the effect of speed reading training on listening comprehension and revealed that speed reading is an effective method for improving English listening comprehension. In Analysis 2, the effect of speed reading training on listening comprehension was investigated in relation to learners’ dictation skill. The results showed that a high level of dictation skill is required in order for speed reading training to be effective in improving learners’ listening comprehension.

Key words: Speed reading, reading, listening, dictation

1. INTRODUCTION

What is the best way to improve English listening skill? According to previous studies (e.g., Mando, 1984) a popular method for training listening skill is dictation. Another method is identifying phonemes. In this method, the teacher asks students to differentiate phonemes such as “r” and “l”, and Lively et al. (1994) reported that identification of phonemes is an effective method for improving learners’ listening skill.

Those methods treated that audio factors as key to understand the content within auditory information, and assumes that if this obstacle were overcome, learners’ comprehension would improve.

Previous studies focused mainly on the audio factor. However, recent studies analyze learners’ cognitive processing when listening. For instance, Oyama (2009) compared regression frequency of eye movement when reading English sentences among high performers and low performers of listening, and reported that high performers had less regression frequency than low performers. He concluded that high performers have the requisite skill to process information in a serial manner and this information serial processing skill is the key for higher listening performance.

Most of the previous studies concerned themselves with the analysis of new training methods for English listening, however, only few researchers paid attention to information processing and how it leads to understanding of the content within audio information.

In this study, the skill of processing information in a serial manner is defined as “information serial processing skill”, and exam training that promote information serial processing skill have any effect upon improvement of listening comprehension. Moreover, what learner characteristics are related to the effect.

This study analyses that if visual information serial processing (speed reading training) is transferred to audio information serial processing (listening), and promote listening comprehension. The field of educational technology put emphasis on its practicability, but put equal weight on basic research (Nakajima, 1999). Therefore, this study can contribute to both basic research of audio and visual information processing and applied research of Educational Technology.

2. RELATION BETWEEN SPEED READING TRAINING AND LISTENING

2.1. Two-components model for listening comprehension

In listening, audio information is the medium to be processed. However, unlike written characters, audio information vanishes quickly and listeners required to process them in rapid manner. Therefore, listening comprehension has to be
considered not only from the perspective of the perception of audio information, but also from the perspective of processing the information rapidly. This study assumed that listening comprehension consists of two components: a perception of audio information recognition component and an information serial processing component. Those two components function together and contribute to achieving comprehension in a key way.

2.2. Commonality of audio and visual information processing

Audio and visual information are conveyed in different media. While one uses sound and the other uses written characters to be processed, previous studies showed that audio and visual information processing have a shared processing system. Hirai (1999) reported optimal reading speed and listening speed are similar for L2 learners, and made claims for the existence of a shared information processing route for listening and reading. Moreover, de Bot, Paribakh & Wesche (1997) stated that lexical processing of listening and reading are shared, and both of processes involve processing lexemes (derived from a word’s basic form e.g. runs, ran), then analyze lemma (the basic form of the word e.g. run), finally, leading to the understanding of the concept of the word.

2.3. Effect of speed reading training for listening comprehension.

Assuming that reading and listening share one information processing route, the effect of speed reading training possibly transfer to serial visual information processing and consequently promote listening comprehension which requires serial processing of audio information. Based on Calef et al. (1999) study that reported that after speed reading training, learners’ regression of eye movement decreased, Oyama (2009) examined whether visual information serial processing benefits occur through English speed reading in such a way as to promote L2 learners’ English listening skill, and reported that speed reading training did indeed promote listening skill.

However, in Oyama (2009), aside from listening skill, no learner variables were measured, and it is unclear what types of learners benefit from this training. Therefore, applying this training for junior and high school English class, it may lack applicability. Listening requires vocabulary, as well as guessing skill based grammatical background knowledge, however, this study focuses on how information intake through the eyes and ears are processed and to result in comprehension. Before beginning the speed reading training, both the dictation skill and information serial levels of the participants were measured and based on those two scales, learner characteristics, related to the effect of speed reading training on promoting listening comprehension, were examined.

2.4. Learner characteristics

Based on the two component model for listening comprehension, at the pre-training stage, learners can be classified into two types: learners with high dictation skill and learners with low dictation skill. This study hypothesizes that perceived audio information is processed in a serial manner and the concept within the information is understood. Therefore, in order for the visual serial information process training (speed reading training) to be effective for audio information serial processing (listening), learners must possess a high level of dictation skill. Otherwise, no audio information can be perceived and there will be nothing to be serially processed.

In summary, this study investigates the effect of speed reading training for listening comprehension in terms of the dictation skill of the learners. In analysis 1, the effect of speed reading training in promoting listening comprehension is examined. In analysis 2, the relationship between the dictation skill of the learners and the effect of speed reading training on listening comprehension is examined.

3. METHOD

3.1. Participants

The participants consisted of 124 male high school students from two junior classes (54 students) and two senior classes (70 students). Among these students, only those who completed pre and post tests and all of the speed reading sheets were included in the analysis (N=109).

The participants were divided into speed reading group (N=55: one junior and one senior class), and control group (N=54: one joiner and one senior class). In addition to ordinary English class contents, the Speed reading group received
English speed reading training for approximately ten minutes every week for nine weeks. The control group had ordinary English class only for same period. In ordinary English class contents, students had one grammar and vocabulary class, two reading class, and one listening class in a week. For the fairness for the students, the control group received speed reading training after this experiment was completed.

3.2. The content of the pre and post tests for the speed reading and the control group

Bellow are the list of the pre and post tests for the speed reading and the control group. After the pre test, the answers of the tests were not made available to the participants, and there was a nine week interval of time between pre and post tests, under the assumption that this would be time sufficient enough for the participants to have difficulty in remembering content of the pre tests, for both the pre test and post test same material was used.

Speed reading group
Pre test
1. English listening test
2. English dictation test
3. English serial processing skill test

Post test
1. English listening test
2. English dictation test

Control group
Pre test
1. English listening test
2. English dictation test
3. English serial processing skill test

Post test
1. English listening test

An English listening test was used to measure the effect of speed reading training on listening comprehension, an English dictation test and English serial processing skill test were used to separate the participants into two speed reading group.

The English dictation test measured perception of audio information, and English serial processing skill test measured information serial processing components of the two component model for listening comprehension.

Before beginning the training, Participants in the speed reading group took an English listening test, English dictation test, and English serial processing skill test. To measure the increase in listening scores and information serial processing skill, after nine weeks of the training, participants in the speed reading group took an English listening test and English serial processing skill test.

The control group took the English listening test, English dictation test, and English serial processing skill test as pre test. At the post test, they took the English listening test.

3.3. The English listening test

In English listening test, one paragraph was played first, and one question was played afterward (15 questions and 1 point for each correct answer, 15 points for full score). The participants were handed out an answer sheet on which multiple choices were printed. The Participants were asked to mark only one choice most appropriate for the question they just heard. Fig.2 shows an example of the listening question.

![Figure 2](https://example.com/figure2.png)

**Fig. 2. Example of English listening test**

**Passage 1**
1. Kenji has lots of books about animals.
2. He’s interested in all kinds.
3. But he likes Australian animals best.
4. Next Sunday, he’s going to visit a zoo in Tokyo to see the koalas there.

**Passage 2**
1. Patrick is crazy about motorcycles.
2. He’s owned many himself and knows a great deal about them.
3. Many of his friends come to him for advice
4. or to ask him to help fix their motorcycle when they break down.
5. Patrick rides his motorcycle everywhere in all kinds of weather rain or shine.
6. One day he hopes to ride all the way around the world.

![Figure 3](https://example.com/figure3.png)

**Fig. 3. English dictation test**
3.4. The English dictation test

The English dictation test was composed of two passages. The first passage consisted of four sentences and second passage consisted of six sentences. The dictation test was administered according to following procedure: First, the entire passage were played in order to allow the participants to grasp the general idea. After that, each sentence was played once, with time was given for the participants to write the sentences down. Each sentence was played one more time and the participants were again given writing time.

Finally, the passage was played one last time. Vocabulary levels among the participants were so varied so to ascertain whether participants knew the word the heard, or they knew the word but were unable to hear it, after the dictation test, the answer sheet was given to the participants, and they were asked to circle words they did not know. The words they circled were excluded from grading. Grading was done on percentage basis using the following formula: number of correct words / the number of words they know.

3.5. English serial processing skill test

The objective of English serial processing skill test is to measure skill in processing information according to English word order. The test has 15 passages and one question for each passage. One correct answer counted as one point and 15 points was the maximum score. The test was administered by using a classroom projector and setting Microsoft PowerPoint to show one slide for one second. According to previous studies (Kadota & Tada 1992), learners process English sentences not by word but by chunks of meaning. Therefore, each slide contained a set of English words for one chunk of meaning. In each paragraph, after all words were shown, the last slide presented a question related to the paragraph just shown (e.g. What is Sarah going to do on Saturday?). The participants read the question and choose the most appropriate answer. An instructor made sure that all the participants finished answering each question. One each slide there was an average of 2.83 words, and by setting one slide for a second (2.83 words x 60 seconds ≈ 170 words), the speed was almost identical to the natural speed of English speech of 165 to 180 words per minute (Rubin, 1994). Therefore, the test is supposed to measure a participant’s comprehension level if all the audio information is visually presented. An instructor handed out multiple choices answer sheets and asked the participants to choose the most appropriate answer for each question.

3.6. Speed reading training

Below is the procedure for speed reading training based on Igarashi (2002).

1. The teacher hands out a speed-reading task sheet which contains one English passage on the top half, and five multiple choice comprehension questions on the bottom half. The answers to the questions and the Japanese translation of the passage and the questions are printed on the reverse side of the sheet. Before starting, the teacher asks the students to fold the task sheet in half and hide the comprehension questions.
2. The teacher instructs the students to silently read silently the English passage as fast as they can, and at the same time to try to understand the passage.
3. On the teacher’s signal, the students start reading the text. The teacher starts timing with a stopwatch and writes down the time on the blackboard.
4. After completing the reading, the students write down the time spent on reading on their task sheets.
5. Students work on the comprehension questions without reading the passage, and then grade their responses by looking at the answers on the reverse side of the sheet.
6. Students calculate their own WPM (words per minute). The formula for calculating WPM (Yamauchi, 1985) is given below:

$$\text{WPM} = \frac{\text{Number of words in the text}}{\text{Time spent (sec)}} \times 60 \times \frac{\text{Correct answers}}{\text{Number of questions}}$$

7. Students enter their WPM on the WPM record sheet and draw a chart to keep track of their progress in WPM growth.

The difficulty of the speed reading material is STEP 3rd grade English level (the equivalent to Japanese junior high school 3rd grade English level), so order to minimize the influence of words the students may not know on reading speed and regression frequency.

<table>
<thead>
<tr>
<th>Table 1. Words for Speed Reading Task Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheet 1</td>
</tr>
<tr>
<td>250</td>
</tr>
<tr>
<td>Sheet 6</td>
</tr>
<tr>
<td>261</td>
</tr>
</tbody>
</table>

Fig. 7. Example of English Speed Reading Task Sheet.

Fig. 8. Example of a WPM chart for speed reading group

Fig. 9. Average WPM (Words Per Minute) for Speed Reading Group (N=51)

4. RESULT

In the English dictation test, the average number of words the students did not know in the passages was 1.6 words. Therefore the vocabulary level of the test was considered to be appropriate. Correct ratio was calculated according to this formula: number of correct words /the number of words they know (all words in the passages words not known to the student). 5 participants (4 speed reading group and 1 control group) were excluded from further analysis due to insufficiency of their score (more than 2 standard deviations below average score). As a result, a total of 104 participants (51 in the speed reading group and 53 in the control group) were evaluated.

4.1. Analysis 1: Comparison of speed reading group and control group’s listening scores.

One participant in speed reading group was excluded due to his score having increased more
that 2 standard deviations and 4 participants in control group were also excluded, because their score decreased by more than 2 standard deviations. Two way ANOVA (Listening scores on the pre and post tests were within subject factor, and the speed reading group and the control group were between subject factor) was carried out. The result showed that the test’s main effect of the test ($F(1,97)=4.56, p < .05$), the group’s main effect ($F(1,97) = 7.46, p < .01$), and the interaction ($F(1,97) = 14.96, p < .01$) were statistically significant. The Simple main effect test revealed that the difference between pre and post was statistically significant in the speed reading group ($p < .01$).

4.2. Discussion

In analysis 1, the control group showed no change, but the speed reading group showed improvement in listening scores and this was statistically significant. Therefore, for high school students, speed reading training not only promotes the reading speed, but also listening score. However, it is unclear for which characteristic that learners with benefitted most from speed reading training. For this reason, analysis 2 examined the relationship between the learners’ dictation skill and effect of speed reading training on listening.

4.3. Analysis 2: the relation between high and low dictation score and listening score

This study assumes that English listening consists of two components: a perception of audio information recognition component and an information serial processing component. The dictation test measures the audio information recognition component and, participants were divided in two groups based on the dictation score. Analysis 2 examined effect of speed reading training in relation to learners’ dictation skill.

This study assumes that without adequate dictation skill, information serial processing promoted by speed reading training has no effect upon the increase of listening score. Therefore, it is hypothesized that speed reading training promote more listening score in high dictation group than low dictation group.

4.4. Examination of the growth of information serial processing skill

Participants in speed reading group were divided into two groups by the median score at the pre dictation test and high and low dictation groups were formed. The increase of information serial processing skill was compared in high and low dictation score groups. Two way ANOVA (High and low dictation score groups was between subject factor, and the information serial processing test score at the pre and post test was within subject factor) was carried out. The result showed that main effect of the group ($F(1,48)=3.42, n.s.$) and interaction ($F(1,48)=.51, n.s.$) was not statistically significant, but the main effect of the test was statistically significant($F(1,48)=21.91, p < .01$). According to these results, the information serial processing skill of both high and low dictation groups improved.

4.5. Comparison of listening score in high and low dictation groups

On the pre–test, the high dictation score group had higher listening score than the low dictation score group and it was statistically significant ($t(48)=-2.97, p < .01$). Therefore, ANCOVA (Pre
test’s listening score as covariance, high and low dictation score group as independent variable, and post test’s listening score as dependent variable) was carried out and the result was statistically significant \( F(1,47) = 4.58, p < .05 \).

4.6. Discussion

The information serial processing test scores for both high and low dictation score groups improved after the speed reading training. However, ANCOVA analysis revealed that high dictation score group had higher listening score than low dictation score group. Therefore, before the speed reading training, participants with high dictation skill benefitted more from speed reading training than participants with low dictation skill to improve listening score.

5. GENERAL DISCUSSION

The objective of this study was to find out learners with what characteristic benefitted most from speed reading training to promote listening score. Analysis 1 revealed that speed reading training has positive effect upon improving listening score for Japanese high school students.

In analysis 2, participants were divided to high and low dictation score groups, and examined that which group had more improvement in their listening score after speed reading training. The result showed that, though both groups’ information serial processing skill was improved after the training, the high dictation score group improved more than the low score group in terms of their listening score.

Assuming that visual and audio information processing have some part shared, speed reading training promote visual information serial processing and it possibly transferred to audio information processing then promote its serial processing. However other factors such as “lexical access speed” might be promoted by speed reading and cause the effect. Therefore, in order to conclude that this study’s result was merely by the transfer of visual information serial processing to audio information serial processing, further studies include other possible factors are required.

This study revealed two things. First, speed reading training not only promote learners’ reading speed, but also their listening skill. Second, speed reading training for promoting listening score is effective for learners with high dictation skill.

REFERENCES


