

# Long-Term Retention of English through TPR in a Japanese Junior High School

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**Abstract :** This study supports the conclusion demonstrated in Asher's studies that delayed oral practice with actions brings considerable effectiveness. We found that even in a Japanese junior high school, TPR would be an appropriate and effective teaching method that will promote acquisition of comprehensible input in a natural way, promising its long-term retention for active use later. More specifically, we found that when we compared results of the tests administered before and after the summer vacation, the control group tended to have lower scores on the reading test, while the TPR group maintained their previous scores. This shows that TPR helped students retain the ability to read their words and sentences. The TPR group kept high scores on the listening test as well. Second, it is statistically confirmed that the lower achieving students benefited most from TPR.

**Key Words :** Long-term Memory, TPR, Initial Stages of Foreign language Study

## 1 . Introduction

We believe that one of the most important aspects of foreign language acquisition lies in listening comprehension. Translation in the name of reading or pattern practice in the name of oral production, however, tends to be given undue emphasis. This is evident particularly in the initial stages before sufficient listening comprehension is provided. One of the effective ways to develop listening ability in the target language is through Total Physical Response (TPR), advocated by James J. Asher in the 1960's (Asher, 1977). This method claims to guarantee the long-term retention of English, since the use of physical actions while or after listening helps to fuse sound and meaning most effectively. This study reveals that TPR is an effective method to promote long-term retention of the target language in Japanese 7<sup>th</sup> graders.

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## 2 . Background

Harold E. Palmer (1925) stressed the importance of the language learning order. He suggested that in order to acquire primary speech skills, listening and

speaking, learners should study step by step through the four phases: perception, recognition, imitation and reproduction. He further claimed that perception and recognition should come before imitation and reproduction. Imperative drills he proposed aimed at establishing the foundation for internalizing a foreign language through the first two phases. In this sense, some similarities can be found between imperative drills and TPR.

TPR is also deeply related to other concepts conceived by Palmer (1917), such as subconscious comprehension, which is defined as 'the art of understanding connected speech (spoken or written) without conscious effort, analysis or translation' and 'the incubation period', during which time 'a vast number of units are cognized in all their aspects: sounds, combinations, and successions of sounds, metamorphism, and the semantic values represented by all of these.' More recently, Stephen D. Krashen (1982) could be seen to have echoed Palmer in proposing similar constructs: the input hypothesis and the silent period. Krashen postulated that learners can acquire the target language through large quantities of comprehensible input, which is slightly above the learner's present level of competence ( $i+1$ ). Krashen like Palmer insisted on the importance of "the silent period", during which

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learners will concentrate on listening comprehension before they can utter something in the target language.

James J. Asher's concept of delayed oral practice is supported by many scholars as well as teachers. Postovsky (1974) and Gary (1975) proved that listening ability acquired through actions brought learners various benefits to facilitate the learning of the target language. Kurokawa (2003) observed the influence of teaching through TPR on English achievement at the junior high school level. 47 students taught through TPR showed significantly higher scores on the listening test ( $p < 0.01$ ) compared to the 47 students taught through listen-and-repeat. Yoshioka (2003) reported on the effect of TPR on teaching vocabulary and grammar to high school students. Compared with the students taught through listen-and-repeat, the TPR students showed significantly higher scores ( $p < 0.01$ ) on the vocabulary tests, which required the translation of 12 English words into Japanese. TPR students showed highly significant scores ( $p < 0.05$ ) on the grammar tests consisting of the five sentence patterns. Shimizu (2005) proved that TPR students showed better achievement in reading comprehension and in the rate of reading than the students taught through listen-and-repeat at the high school level. Thus, a large amount of experimental research suggests that improvements in the listening ability of the TPR promoted students' overall English skills.

Long-term retention depends on the rehearsal of what has been learned: sound and image being paired in the working memory and activated in short-term memory. According to Kadota & Ikemura (2006), the working memory was advocated by Baddeley in 1986; executing preservation, transaction and operation of information through listening in the short-term memory. Information gained through listening is temporarily held in the short-term memory, and networked with the existent knowledge in the long-term memory, where it is then stored. Kadota & Ikemura also suggested that TPR will contribute to the long-term memory because this method helps learners gain information through various forms of comprehension, such as auditory, visual and behavioral. Asher (1969) concluded that what is crucial for long-term retention is not the ability to translate, but whether learners can execute actions while observing the demonstration. Asher's experimental studies revealed that students'

retention was significantly better through TPR than the translation method. From the results of 'passive voice' instruction given for over 10 hours to 82 second year junior high school students in 1981, Takahashi (2001) concluded that the 41 TPR students showed significantly higher scores ( $p < 0.05$ ) in listening tests than the 41 students taught through the listen-and-repeat approach. Also from the research of Japanese instruction at a college in New Zealand, Takahashi (1999) proved that on the listening tests TPR was better than the traditional approach, which focuses on the translation of the textbook and drilled exercises. The experimental groups were divided into three-level achievement groups of 5 students each. According to the results, the TPR approach showed higher significance ( $p < 0.05$ ) as far as the low and middle achieving students but the high achievers were not affected as much.

From these theories and practical research, it can safely be pointed out that placing emphasis on listening comprehension through TPR in the initial stages of English learning will bring about good results such as long-term memory retention. Very few empirical studies focusing on the long-term memory, however, have been made at the junior high school level.

### 3 . Purpose of the Study

The purpose of this study is to investigate the effectiveness of teaching English through TPR, with emphasis upon the effect of TPR on long-term memory retention. What is at issue is which language learning skill should be focused on at the initial stages in order to achieve long-term memory retention. The following questions are addressed:

Question 1: Do TPR students show higher rates of long-term retention than the control students who focus on speaking practices?

Question 2: Which academic levels of students benefit most from which method in terms of long-term retention?

### 4 . Method

#### 4 . 1 . Subjects

90 first-year students (18 students per class) at a Nara municipal junior high school participated in this study in 2004. They were divided into two groups: the TPR group (N=54, 3 classes); and the control

group (N=36, 2 classes). There was no statistical difference in terms of the academic level between these two groups checked by a t-test ( $t(86) = 1.30$ ,  $p = 0.194$ ) conducted before the experimental study.

#### 4 . 2 . Teaching Material

This study used 100 imperative sentences adapted from existing teaching materials, such as those written by Palmer & Palmer (1925), Kohno and Suenobu (1976), Asher (1977), Garcia (1985). Each imperative sentence varied from one to eight words. Some of the grammar and vocabulary questions used were a little beyond the difficulty level of the school's English textbook for first year students, 'NEW CROWN'.

#### 4 . 3 . Procedure

Both groups had over 23 sessions and 2 one-hour-long tests during the first term (April-July) in 2004. Each session lasting 15-20 minutes was reserved for this study in each English lesson. The control group focused on imitation and reproduction practices. The students were encouraged to speak immediately from the beginning of the session. They started first by listening to the teacher's modeling; then they imitated it and repeated it many times. The teacher taught the alphabet and how to read words so that the students could recognize each imperative sentence on flash cards. We believe that it is one of the most common procedures employed to teach beginners in junior high schools. However, building on the natural acquisition process, the TPR group focused on listening comprehension; the students were not asked to speak English until they were ready. The TPR lesson started first with the understanding of the teacher's modeling; then the students imitated the teacher's actions while listening; gradually they were expected to perform quick responses without saying anything. From the 18th lesson the teacher began to teach reading aloud with flash cards. The amount of English input from the same teacher, approximately 35 words a minute, was kept constant for the two groups so as to reduce the affect of listening input on the test results.

#### 4 . 4 . Tests for Measuring Retention

The July tests were administered after 23 sessions. They were two types of tests: the listening test (LT) and reading test (RT). In the LT, each student was asked individually to respond physically to eight imperative sentences by the teacher. The

scores that were given varied from one to four points depending on the length of each sentence. To take an example from the score assessment, if a student heard "draw a rectangle in a triangle", he got one point for the correct answer of the verb "draw", another point if he drew the right object "rectangle", another point if he understood the preposition "in", and another point if he drew the correct object "triangle"; A maximum of 4 points would have been given. The teacher asked 2 questions each from one to four point sentences. The maximum score for all correct responses was 20 points. In the RT students were asked to read ten imperative sentences and then find the corresponding pictures. The scores for each answer varied from 1 to 3 points depending on the length of a question; 3 questions of a 1 point short sentence, 4 questions of a 2 point sentence with three or four words and 3 questions of a 3 point sentence with prepositional phrases. The maximum scores for the 10 questions were 20 points in total. The September tests were administered after a 40-day summer vacation. All the questions were the same as the July tests, but this time they were arranged at random. The scoring system was the same.

Each instructional group of students was subdivided into three sets according to their scores on the July tests: a high ability group, a middle ability group and a low ability group.

There was no homework given in the summer vacation, and no warning about the September test was announced beforehand to students. According to the questionnaire, however, some students (52%) had some review of the material in a juku school, or with the help of a private tutor, and so on. After excluding those students who had any level of review, the students' scores (Control :13 students, TPR: 24 students) were analyzed with the use of nonparametric statistics; Mann-Whitney's U test for differences between the two instructional groups, and Wilcoxon signed-ranks test for differences between the July test and the September test. An Exact Test was used to determine the p-value for each test.

## 5 . Results and Discussion

The tests administered before and after the vacation were intended to measure the difference in the effects of the two different methods on the long-term retention of English the students learned. A

decrease in score would mean some loss of long-term retention. On the other hand, if no difference in score was recorded by comparing the September and July tests, it would indicate that the students achieved some long-term retention.

Two dimensions were investigated; the first one was a comparison of the two instructional methods; the second was to analyze score reductions or a decrease in scores of students at the three academic ability levels.

5 . 1 . Comparison of Two Instructional Groups

Figure 1 shows the statistical distribution of scores of the July test and the September test. From the data of the July test, a highly significant difference is evident between the TPR group and the control group on the listening test using the Mann-Whitney's U test and the two-tailed Exact Test ( $p < 0.01$ ). However, there was no significant difference on the reading test. TPR had a marked effect on listening comprehension but no significant difference was observed on reading comprehension at this stage.

On the September test, as well as having a highly significant difference on the listening test scores, a significant difference was observed on the reading test scores (LT:  $p < 0.01$ , RT:  $p < 0.05$ ). This data shows that the TPR group came to maintain significantly higher scores than the control group in reading comprehension in September. This is rather curious and it requires a lot of thinking before reaching any satisfactory explanation. Our tentative explanation is that TPR will help form the fusion of sound and meaning or image in the minds of the students effectively, and once the fusion is established it will stay longer than in students not instructed with TPR. This sound-meaning pair, which is closely associated with the written symbols, will likely be recalled when written words or sentences are read in their mind.

By noticing variation of the p-value between the July test and the September test, the difference between the TPR group and the control group increased on both the listening test and the reading test (LT:  $p=0.0008$   $0.0001$ , RT:  $p=0.506$   $0.031$ ). These results indicate that the scores of the TPR students remained almost the same as the previous scores while the scores of the control students significantly declined as time advanced. This will answer the research question 1 in the affirmative.

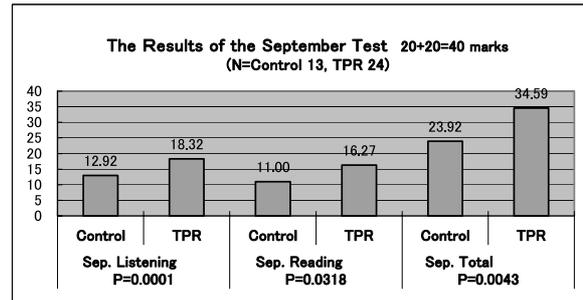
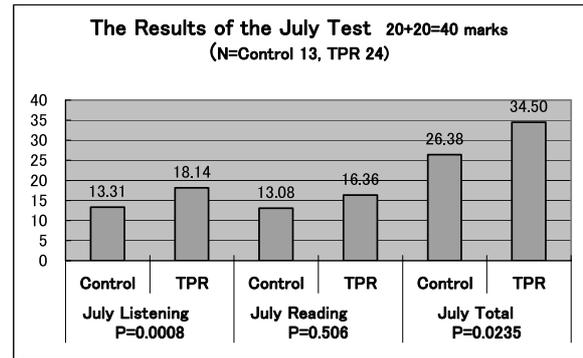


Figure 1. The Scores of the July Test and the September Test

Table 1 shows the results of the difference in scores of each group between the two tests using the Wilcoxon signed rank test and the two-tailed Exact Test. It revealed which test scores influenced the difference significantly in the same instructional group. From the results, it is reasonable to assert that the control group tended to lose long-term memory of what they learned by reading (RT: July-Sept.  $p=0.066$ ) whereas the TPR group maintained it. In the control group there was a significant difference in the total of LT-RT (Total: July-Sept.  $p=0.027$ ). On the contrary, no significant difference in either test was seen in the TPR group. Suggesting that the answer to the research question 1 was: yes, TPR students do show a higher rate of long term retention.

Table 1: The Difference between the July and Sept. Tests

Control group	Z-score	P-value	TPR group	Z-score	P-value
LT July-Sept.	<b>0.276</b>	<b>0.818</b>	LT July-Sept.	<b>0.373</b>	<b>0.721</b>
RT July-Sept.	<b>1.850</b>	<b>0.066</b>	RT July-Sept.	<b>0.199</b>	<b>0.856</b>
Total July-Sept.	<b>2.141</b>	<b>*0.027</b>	Total July-Sept.	<b>0.195</b>	<b>0.853</b>

LT: listening test, RT: reading test

July-Sept.: The July test: the September test

Z-score: The Z-score after tie correction, P-value: Probability value

5 . 2 . Score Reduction in Every Achievement Level

Significant differences were observed in score

reductions at every achievement level. Table 2 and Figure 2 illustrate the Sept.-July difference in the mean scores of students in the three achievement groups according to the July test. The high achievement TPR students exhibited less reduction in scores in comparison with their counterparts in the control group. The low achievement students in the TPR group indicated no decrease. Alternatively, they showed a slight increase in their scores (The Sept.-July score=1.909). On the contrary, the control group at all achievement levels showed decreases in their scores.

A significant difference between the TPR group and the control group was detected at the low achievement level using the Mann-Whitney 's U test and the two-tailed Exact Test (U-score=12.5 p < 0.05).

The TPR group at the low achievement level did not lose their English ability as easily as the control group. There are some possible reasons for this. Firstly, the TPR students, even at the low achievement level, must have learned something, for they could not have performed at all unless they understood what was said. Secondly, they learned in a way resembling the natural acquisition process. Krashen recognized the existence of the silent period, the spirit of which may be ensured by engaging students in activities through TPR. Thirdly, the TPR students must have been given substantially more opportunities to use the rehearsal more effectively, for they responded to the

Table 2: Sept.-July Mean scores of students in three achievement groups

Control	N	July	Sep.	Decrease	TPR	N	July	Sep.	Decrease
High	3	36.67	34.00	-2.67	High	8	39.63	38.75	-0.88
Middle	3	33.00	31.00	-2.00	Middle	5	36.60	34.40	-2.20
Low	7	19.14	16.57	-2.57	Low	11	26.91	28.82	1.91

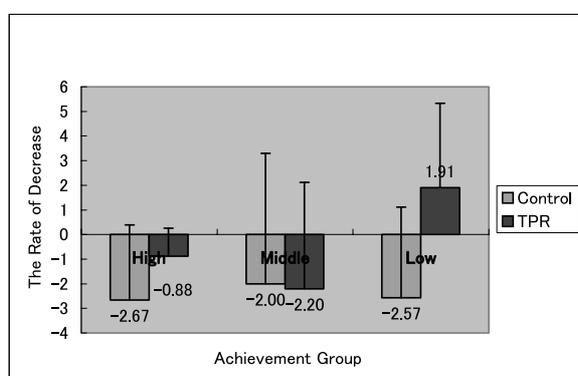


Figure 2. The Sept.-July Difference in the Mean Scores and the Standard Deviation

instructions by using all of their senses.

Although both the high and low achievement students benefited from the TPR, the latter gained the most. That is our answer to research question 2.

## 6 . Conclusion

This study supports the conclusion as demonstrated in Asher's studies that delayed oral practice with actions is considerably effective for English language learning. We found that even in a Japanese junior high school, TPR would be an appropriate and effective teaching method that will promote acquisition of comprehensible input in a natural way, promising its long-term retention for active use later.

More specifically, we found that as Figure 1 (5.1) shows, the control group tended to have lower scores on the reading test, while the TPR group maintained their previous scores. This shows that TPR helped students retain their word and sentence reading abilities. The TPR group kept high scores on the listening test as well. Research question 1 (3.1) can be answered in the affirmative. In answer to question 2 (3.1), it has been statistically confirmed that the low achieving students benefited the most from TPR, as suggested in both Table 2 and Figure 2.

This empirical study has considerable implication for English teaching at the junior high school level, having only limited hours available to teach. The results indicate that students should focus on listening acquisition at the initial stages of English learning and are advised to go on to the next stage of oral production after they have internalized English to some extent.

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i The students were asked about their review of the Teaching Material in summer vacation. 12% of students reviewed very well and 40% of students reviewed reading a little. 48% of them