The Effectiveness Of Mnemonic In Learning Kanji Characters For Beginner Japanese Learners

(True Experimental Research towards Students of JLPT N4 Online Preparation Course at *Northern Lights Education Center* Bandung, Indonesia)

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ABSTRACT

The purpose of this study is to determine the effectiveness level of mnemonic method application in learning Japanese Kanji characters by online. The level of effectiveness is measured from student's accuracy in writing and reading Kanji characters, furthermore the ability to translate the words written in Kanji into their first language. This study uses true experimental design, with mnemonic method was being adapted in the experimental group while writing drill method was applied in the control group. The results of data analysis are showing the t value 0.12 which lower than t table index (2.306), while the N-Gain score of experiment group reaches 69.34%, which can be categorized as quite effective. It leads to the conclusion that mnemonic shows an insignificant level of differences in between two groupes post-test, nevertheless proven to be effective when implemented in Kanji learning. The questionnaires collected from the experiment group are giving the insight of mnemonic advantages in assisting students with Kanji memorization and writings, while the method itself appears to be ineffective in helping students with Kanji reading.

Keywords*:* effectiveness, mnemonics, Japanese Kanji characters

INTRODUCTION

Kanji learning has been the most difficult subject for Japanese learners, especially those who are coming from countries where there are no special characters such as Kanji characters on their language system. The students often complained about the enormous quantity of Kanji, the similarity and complexity of Kanji characters, and how it affected their motivation in learning Kanji itself. In addition, some students stated that the process of memorizing Kanji itself already running their patience thus making them lazier to deal with test problems related to it and its reading. Oomori & Suzuki (2013) gives seven obstacles in learning Kanji characters which becomes a hinderance for students who learns Japanese as second language as follows: (1) there are too many of Kanji characters needs to memorize, (2) the shapes and strokes which are difficult to memorize, (3) multiple ways in reading the same Kanji character, (4) multiple variations of writing (i.e. 入口 and 入り口), (5) the difference in shapes and strokes between printed-letter Kanji characters and its hand-writing letter, (6) numerous of idioms that causes changes in reading Kanji, and (7) different ways of pronouncing Kanji characters which are being experienced by Japanese language learners from countries whose language system also recognize Kanji characters such as China and Korea.

As a pre-experimental survey, 30 students of Japanese Language Proficiency Test (JLPT) Preparation Group at a Japanese language course called Northern Lights Education Center (NLEC) Bandung, had been asked with several question regarding to their obstacle in learning Kanji, in correspondence of Oomori & Suzuki's 7 obstacles. The survey was conducted by telling the students to give a scale from 1 (strongly disagree) to 4 (strongly agree) in response to each of the obstacle (1) until (6) (point (7) was excluded since the students didn't have the knowledge of Kanji character in their first language system). From the survey, the most hinderance in learning Kanji characters is the enormous quantity of Kanji itself, follows by the shape and the

strokes which are difficult to memorize, and the multiple ways in reading. Thus, it gives us the clear preview about the difficulties the students are facing in learning Kanji character.

Kubota (2017) gives 3 examples of strategies that has been proven effective in learning Kanji as follow: (1) mnemonic method, defined as a useful method to strengthen human memory performance by providing materials to memorize in the form of meaningful interpretations; (2) memorization method or repetition method; (3) metacognitive strategies to make learners aware of their own learning process. Learning Kanji through the mnemonic method is considered a good method of teaching Kanji, regardless the mnemonic device that being used in the group activity. Stated by Lin (2007), the usage of mnemonic device in the form of interactive imagination was proven to be able to increase students' learning motivation in learning Kanji. Also stated by Lu et al. (1999), the usage of a mnemonic device in the form of a sequence/hierarchical arrangement of Kanji letters was proven easier for students to remember Kanji letters compared to learning Kanji by randomly memorizing Kanji letters. The importance of this mnemonic strategy has been confirmed by the research results of Toyoda (2000) in Mori (2007). It is said that learners of Japanese as a second language can use information about the components in a Kanji character to analyze and process Kanji. In addition, the use of mnemonic strategies in learning Kanji is considered able to make a positive contribution to the formation of learning attitudes (Manalo, Mizutani, et al., 2004).

Pandemic Covid-19 which are still happening all around the world right now forces us to do our daily activities via online from home, including groupes and lectures. As we can already seen that people are growing tired from being locked down inside their houses for months even years, the same tension might occur in our students' mental of state as well. Therefor, it is considered important and urgent to find a learning method which might prove to be effective in maintaining students' learning motivation in such a desperate condition. Also, this research may be the first research of mnemonic method being used in the online learning.

THEORETICAL FRAMEWORK

Information acquisition, information storage, information retrieval, and information usage consist of a number of separate stages (Reed, 2011). Once a memory being stored, the sensory store provides a short storage to keep the information inside our brain. This sensory storage can help us to prolong the time ones needed to recognize a pattern, even if the information will disappear within a certain time limit. There, human brain will execute the pattern recognition to keep the information maintained inside the memory system. The memory system will create a new pattern from an input, storing the pattern, and later to use the recognized pattern to identify any information coming as new input. Human memory system divided in two storages: short-term memory (STM) and long-term memory (LTM). STM has a shorter duration and smaller capacity for information to be maintained inside the memory system, while LTM contains infinite capacity, and it can secure information for a very long duration of time.

Mnemonic strategy has been unconsciously known and used within our daily life as a technique that can be used especially to help human's brain in memorizing a list of words (Sternberg, 2008). Mnemonic strategy uses mnemonic devices to help the information recorded inside the memory system to be moved from STM into LTM. Sternberg groupifies the mnemonic devices into 7 categories as follows: categorical grouping, interactive imagination, pegword, placement method, acronym, acrostic, and keyword method.

The effect of mnemonic strategies has been investigated by Rose (2013). Data were collected longitudinally within one year qualitatively and quantitatively through interviews, stimulation of withdrawal, and questionnaires. The results of this study indicate that mnemonic strategies are effective when there is a clear association between the structure of the Kanji letters and the meanings of the characters. However, Rose found that the use of mnemonic strategies had a risk, namely focusing on the meaning of the characters alone regardless of how to read them.

Another study of mnemonic strategies has been carried by many researchers as well. Kuwabara (2001) used the imagery-mediated strategy to pair Japanese Kanji letters with their English words equivalent. In the study, Kuwabara stated that due to the students' lack of experience in learning Kanji beforehand, they were

not able to associate the Kanji with the imagery given and tended to associate them with random objects. Also, in Manalo, Trafford, et al. (2004), the same mnemonics strategy were applied in Kana and Kanji learning, as the result showed that the strategy was proven effective to increase Kanji's acquisition, on the side note of no significant differences between the pre-test and post-test scores. While in Rasiban et al. (2019), in the usage of mnemonic strategy in learning Kanji, it was proven that not all of the Kanji given in the experiment could be associated with any objects at all. Rasiban assumed that to increase Kanji's acquisition, teachers shall develop students' cognitive towards their orthography knowledge.

METHODS

This research used a true experimental design, using two groups to determine the effectiveness of mnemonic strategy in learning Kanji characters. The first group was the control group, which were using writing drill method in learning Kanji, while the mnemonic method was being used in the experimental group. Mnemonic device used in this experiment was interactive stories written in the textbook "*Nihongo Charenji Kanji N4-5*" that are being used in the institution. This research was located at one of Japanese language course institution in Bandung, Indonesia, called Northern Lights Education Center (NLEC), while taking sample 10 students from JLPT online group preparation level N4. The experiment occurred in 10 sessions; pre-test was being held on first session, followed by the treatment from second to nineth session, lastly the post-test was being conducted on the tenth session. Manual statistic comparative and SPSS were used during the process of data analysis. After the experiment sessions had been completed, a set list of questionnaires was given to the students in the experiment group to find out students' opinion and perception regarding mnemonic method.

RESULTS AND DISCUSSION

The first discussion is the effectiveness of each method (writing drill and mnemonic) in their respective groups. Given below are figure 1a (upper) and 1b (bottom) as a comparative profile of the results between the pre-test and post-test score conducted in the respective groups.

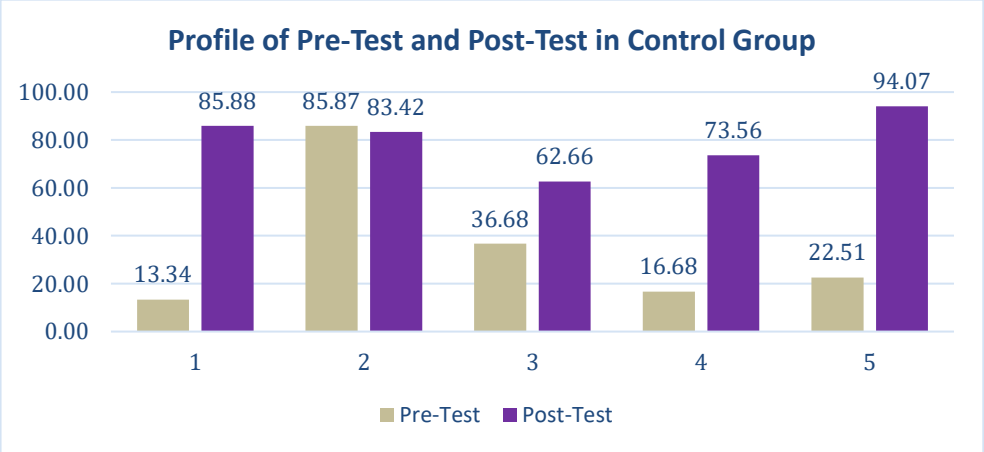

Figure 1(a). Profile of pre-test and post test score in control group.

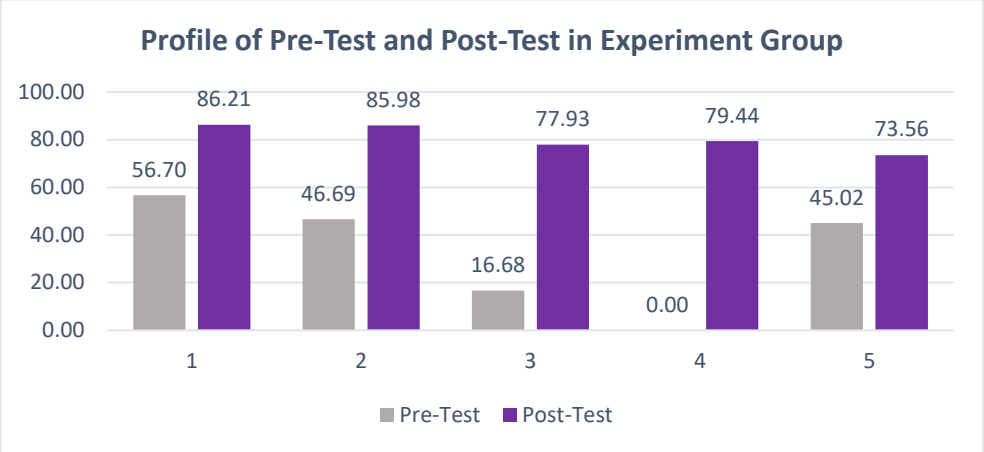

Figure 1(b). Profile of pre-test and post test score in experiment group.

In figure 1a and 1b, numbers 1 to 5 indicate individual samples in the respective groups. It can be seen from both figures that most of the samples experienced an increasement in Kanji acquisition after the implementation of both respective methods. To discover the differences between the two groups, researcher reviewed the Kanji acquisition based on three aspects: writing aspect, reading aspect, and translating comprehension aspect. The result of the calculation can be seen in table 1 below.

Table 1. Percentage of the three measured aspects responded to respective methods.

Measured Aspects	Writing drill Method	Mnemonic Method
Writing aspect	46%	82%
Reading aspect	66%	74%
Translation comprehension	69%	63%

As seen as the table 1 above, it shows that students in the control group could write as far as 46% from the total Kanji characters given in the test, and the students in the experiment group could write 82% Kanji characters with appropriate strokes and balance. Errors that occurred in writing aspect in both groups are the lack of stroke amount and misshape of the stroke from the characters written. In addition, in the control group there are 6% of the characters which students could not answered at all. From this percentage, it can be considered that learning Kanji using writing drill methods in compared to mnemonic method still does not give satisfactory result if the expected final target is aiming for students' writing ability.

Moving on to the reading aspect, students in the control group could read 66% from the total Kanji characters given in the test, and the students in the experiment group could read 74% of Kanji characters given. Errors that occurred in reading aspect in both groups are the partial knowledge of the given words (students only answered one character out of two or three characters used in one Japanese word) and the carelessness when students reading the word to write down the answer. From this percentage, it can be considered that learning Kanji using mnemonic method in compared to the writing drill methods proven to help students in terms of Kanji's reading.

To the last aspect of translation comprehension, students in the control group could translate 69% from the total Japanese words given into their first language (bahasa Indonesia), and the students in the experiment group could translate 63%. Errors occurred in translation comprehension aspect is varied. First, 20% errors in control group and 21% errors in experiment group was considered as the wrong answer as 0 point was given to the answers. The scoring of 0 point was carried out when students: (1) answered the meaning of the Japanese word given with answer that was completely different from the correct answer, (2) answered the meaning of the word in English, and (3) left the question blank without answering. The causes of getting 0 point varied depending on individual students, so there is no majority cause that may describe it. Second, 11% errors in control group and 16% errors in experiment group happened by typos and the incomplete answer. For example, in the word '*sentaku*' which categorized as noun and has the meaning of 'laundry' in English and '*cucian baju*' or a simple '*cucian*' in bahasa Indonesia, students answered with 'to wash' in English

or '*mencuci*' in bahasa Indonesia, which are serving its position in word groupification as a verb. Another example is the word '*joushaken*' which means 'passenger tickets' and 'ticket to ride a vehicle' in English or '*tiket naik kendaraan*' in bahasa Indonesia, translated only as 'ticket' in English or 'tiket' in Indonesia. In the other hand, there are many other words in Japanese which can be a representation to 'ticket' such as '*kippu*' and '*chiketto*'. From this percentage, it can be considered that both writing drill method and mnemonic method have a rather effective to help students comprehend Japanese word by interpreting its meaning into bahasa Indonesia.

The second discussion is about the significant difference between the implementation of writing drill method and mnemonic method. At first glance it appears that the mnemonic method outperforms the writing drill method in 2 out of 3 aspects (writing aspect and reading aspect). However, through the statistical data analysis, it is found that the null hypothesis is proven as follows: "There is no significant difference in Kanji acquisition between students who use the mnemonic method with students who use writing drill methods". This statement means that the use of mnemonic method implemented in the experimental group does not provide a significant difference to the use of writing drill method used in the control group. The results of data analysis are showing the t value 0.12 which very much lower than t table index (2.306). In addition to the result of t value calculation, the difference of mean values of post-test score between control group and experiment group is shown in table 2 below.

Table 2. Mean Values of post-test result between control group and experiment group.

Group Statistics

	Kelas	N	Mean	Std. Deviation	Std. Error Mean
Post Test	Eksperimen	5	80.6240	5.44173	2.43362
	Kontrol	5	79.9180	12.10735	5.41457

It can be seen in table 2, the mean values of post-test results for the experimental group are 80.6240 rounded up to 80.62, while the mean values of post-test results for the control group are 79.9180 rounded up to 79.92. The difference between these two mean values is very small, approximately 0.7. A very small difference like this provides an interpretation and an illustration that there is no significant difference related to the use of writing drill methods and mnemonic methods in learning Kanji characters.

Initially, this mnemonic method was expected as a method that could provide a significant difference in learning Kanji when compared to writing drill methods that seemed tedious and boring. However, the researchers tried to analyze the factors that could affect the significance of the differences between the two methods as follows: (1) the small number of samples might be affecting the results of statistical calculations carried out in the experiment, (2) obstacles in the surveillance when conducting pre-test and post-test in both groups due to some students who were reluctant to turn on the camera during the test, thus affecting the level of honesty of students in working on test questions, and (3) the submission of assignments which were often late from the predetermined deadline, affecting students' consistency in learning outside of group session.

The third discussion is about determining effectiveness level of respective methods. N-Gain test is afterwards conducted to determine the effectiveness level of respective methods. The result of N-Gain test is given in the table 3 below.

Table 3. Result of N-Gain test in control group and experiment group.

Sample Name	Control Group	Sample Name	Experiment Group
	N-Gain (%)		N-Gain (%)
Post_k_1	83.71	Post_e_1	68.14
Post_k_2	-17.30	Post_e_2	73.69
Post_k_3	41.03	Post_e_3	73.52
Post_k_4	68.27	Post_e_4	79.44

Post_k_5	92.35	Post_e_5	51.91
Mean	53.61	Mean	69.34
Max	92.35	Max	79.44
Min	-17.30	Min	51.91

Through the results of the N-Gain test in table 3, the average effectiveness of writing drill method used in the control group is at 53.61%, or in other words has a “less effective” interpretation. There are two samples that show a "high" level of effectiveness when learning Kanji using writing drill methods (83.71% for the Post_k_1 sample and 92.35% for the Post_k_5 sample), and one sample that shows the "adequate" level of effectiveness (Post_k_4 at 68.27%). However, the negative numbers that appear in the Post_k_2 sample cannot be ignored. The negative number appears because the post-test score is smaller than the pre-test, or in other words the writing drill method has absolutely no effect on the Post_k_2 sample.

As for the experiment group, through the results of the N-Gain test in table 3, the average effectiveness of the use of mnemonic methods in learning Kanji letters in the experiment group is 69.34%, or in other words has a “fairly effective” interpretation. 4 out of 5 sample in the experiment group showed a range of effectiveness level from "fairly effective" to "effective", while only one sample data showed a "less effective" level of effectiveness against the implementation of mnemonic methods in Kanji learning.

The calculation of the n-Gain value was obtained from calculating the difference between pre-test and post-test scores for each group. In both the control group and the experiment group, a value greater than 50% was obtained. This shows that there is a significant difference in the test scores before and after being given treatment. Thus, the results of this n-Gain calculation can refute the conclusions of Manalo et all. study which found no difference between the pre-test and post-test scores.

The fourth and last discussion is about questionnaire result. A set lists of open and close questionnaire was given to the students in experiment group to give the illustration of their opinions regarding the implementation of mnemonic method in group activity. The following are the results of a closed questionnaire in the form of percentages presented in table 4.

Table 4. Questionnaire result.

No	Question	Strongly Agree	Agree	Disagree	Strongly Disagree
1	The usage of mnemonic method is interesting.	40%	60%	-	-
2	The usage of mnemonic method is enjoyable.	60%	40%	-	-
3	The usage of mnemonic method creates an active learning atmosphere.	40%	60%	-	-
4	The usage of mnemonic method is able to increase motivation in learning.	40%	60%		
5	Mnemonic method is effective to memorize Kanji’s shapes	20%	80%	-	-
6	Mnemonic method is effective to memorize Kanji’s *kun-yomi* and *on-yomi*.	20%	60%	20%	-
7	Mnemonic method is effective to maintain balancing in writing Kanji.	20%	80%	-	-

8	Mnemonic method is effective to strengthen Kanji reading.	40%	40%	20%	-
9	Mnemonic method is effective to retain memories regarding Kanji letters.	40%	60%	-	-

It can be seen from table 4, all students from the experiment group agreed and strongly agreed that the mnemonic method was interesting and fun to use in learning Kanji. In addition, students also agree and strongly agree that this method can increase motivation and help create an active learning atmosphere. The experiment group students agreed and strongly agreed that this method was effective in improving the ability in writing and memorizing Kanji. However, there were students who do not agree that this method is effective in terms of improving Kanji reading ability. To clarify students' opinions, the researcher also provided an open questionnaire containing short entries regarding the advantages and disadvantages of the mnemonic method according to students.

The advantages of mnemonic method based on students' opinion is as follows. Mnemonic method was able to help students in memorizing Kanji characters easily because the association between interactive stories and the shape or structure of the characters itself. Mnemonic method also was very helpful for students in memorizing the meaning of Kanji characters because interactive stories are closely related to the meaning of its respective characters. Mnemonic method could also help students to do the recall process of Kanji characters that have been studied before Mnemonic method considered to make it easier for students in writing Kanji characters in appropriate strokes and balance. Last, the group activity using mnemonic method considered as fun and could help students to maintain their motivation when learning Kanji in group session.

Meanwhile, the following is the accumulation of open questionnaire answers from students related to the weaknesses of the mnemonic method. The interactive story as the mnemonic device found in books are difficult to understand or associate with. Not only that, but mnemonic method was also considered difficult to help students memorizing how to read Kanji, especially its *on-yomi*. Last, mnemonic method was considered not very effective for Kanji characters which has more complex component and strokes.

In addition, mnemonic method is very dependent on the device it uses, which in this study the researcher used interactive stories as a medium to convey the method, thus the interactive story written in textbooks greatly influenced students in absorbing the story into their memory system. In the assignment given to experiment group students, they were asked to demonstrate writing Kanji using interactive stories. Three variations of interactive stories are given for students to work on assignments, which by following the story based on a textbook (called variation 1), or by following an additional story given by the researcher (called variation 2), or by creating their own story (called variation 3). Analysis of student answers is given in the form of a percentage of the use of story variations as shown in table 5 below.

Table 5. Percentage of interactive imagination variation used from the video assignment.

Chapter	Variation 1 (%)	Variation 2 (%)	Variation 3 (%)
13	42	24	32
14	60	26	10
15	36	44	20
16	34	46	20
17	34	34	32
18	22	38	18
19	52	26	22
20	38	6	12
Mean	**39.75**	**30.5**	**20.75**

It can be seen from table 5, that there are 51.25% of students' work that did not follow the interactive imagination contained in textbooks, with 30.5% following other references given by researchers and 20.75% creating their own stories. This shows that the interactive imagination contained in textbooks cannot be immediately understood by students regarding their associations with the components of the corresponding Kanji letters. Students tend to choose an interactive imagination version that is easier to correlate with their own cognitive background and mindset, or deliberately create independently to help them memorize the shapes of the Kanji letters being taught.

This finding confirms the contradictory results of the study of Kuwabara (2001) which stated that the association of Kanji components with random objects was caused by samples that did not have basic skills regarding Kanji letters In this study, all samples used by researcher from both the experiment group and the control group had basic Kanji skills, and had completed learning Kanji for level N5. However, in this study, information was also obtained that the association of the kanji component with random objects also occurred in the sample who already had a background knowledge of Kanji, as seen from the use of variation 3 which reached 20.75%. This shows that there is no relationship between background knowledge of Kanji letters and the ability to associate Kanji letters with certain objects.

In addition, the findings in this study also confirm the results that contradict the research of Rasiban et al (2019). Through the provision of 3 variations in associating components of Kanji letters, students become provoked to be creative independently with random imaginations which they think have more associations with related Kanji components. Students were not only stuck following instructions from books or directions from researcher. Based on interviews conducted in the initial activity of checking video assignments, there were no students who did not do their assignments on the grounds of not being able to imagine Kanji letters into any object. Errors in the completeness of the task was purely due to the negligence of students in carrying out their duties. This shows that the ability to associate Kanji letters is closely related to students' imagery ability based on their cognitive awareness.

CONCLUSION

The mnemonic method applied in learning Kanji proved to be quite effective in improving student learning outcomes in terms of accuracy in writing Kanji characters and translating vocabulary into the learners' first language. The mnemonic method can also help restore students' memories of the Kanji characters that have been previously studied and encourage students' creativity in making interactive stories as mnemonic device that are in accordance with individual imagination and understanding. In online learning, mnemonic method can be used as an option to overcome the boredom of learning that cannot be done face-to-face, as well as to build a pleasant learning atmosphere between teachers and students. However, mnemonic method has not been fully considered as an effective method to improve students' ability in reading kanji characters. It is recommended if the use of this method is accompanied by other methods that can support the acquisition of Kanji reading.

For further research, these interactive stories as mnemonic device created by students can be investigated further in relation to the behavior, psychology, and cultural background that influence the creation of these stories. Thus, it is hoped that in the future there will be more alternative stories that can be presented to students and are able to correlate with Indonesian customs and culture.

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