

THE USE OF ICT IN IMPROVING JAPANESE LEARNERS' WORKING MEMORY CAPACITY IN DOKKAI SKILLS

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ABSTRACT

In learning to read, a condition is often encountered where a person has succeeded in reaching the last line of a reading, but he does not remember what he has read. Therefore, in learning *dokkai* besides requiring knowledge of kanji, vocabulary, grammar and understanding, it also requires working memory or momentary memory for each sentence that is read. The purpose of this research is to determine the correlation of Working Memory Capacity of Japanese learners based on the *Dokkai* ability test (reading span test, then to determine the increase in Working Memory capacity of Japanese learners after the use of ICT in *Dokkai* learning. The method used in this research is descriptive, with a descriptive-quantitative analysis which describes the correlation of working memory in *Dokkai* learning and the effectiveness of using ICT to improve *Dokkai* abilities.

ABSTRAK

Pada pembelajaran membaca sering dijumpai kondisi dimana seseorang telah berhasil mencapai baris terakhir dari suatu bacaan namun ia tidak ingat apa yang telah ia baca. Karena itu, dalam pembelajaran *dokkai* selain membutuhkan pengetahuan kanji, kosakata, tata bahasa dan pemahaman, dibutuhkan pula adanya working memory atau ingatan sesaat pada setiap kalimat yang dibaca. Tujuan penelitian ini adalah untuk mengetahui korelasi Kapasitas Working Memory pembelajar Bahasa Jepang berdasarkan uji kemampuan *Dokkai* (reading span test, kemudian untuk mengetahui peningkatan kapasitas Working Memory pada pembelajar bahasa Jepang setelah penggunaa ICT pada pembelajaran *Dokkai*. Metode yang digunakan dalam penelitian ini adalah deskriptif, dengan analisis deskriptif-kuantitatif yang memaparkan mengenai korelasi working memory pada pembelajaran *dokkai* dan efektifitas penggunaan ICT untuk meningkatkan kemampuan *Dokkai*.

Kata Kunci: ICT; Kapasitas *Working Memory*; *Dokkai*

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Introduction

Language represents the most integral element of communication. Some experts employ the term "language acquisition," while others utilize the term "language learning" (Iskandar Wassid and Sunendar, 2008, p. 77). Language acquisition is the process by which a language is initially acquired in a natural and informal manner. In other words, language acquisition is the result of a process of imitation by an individual residing in a particular environment. In contrast, language learning is a deliberate and conscious process whereby a language is acquired through formal and informal education. The term "language learning" is often used to refer to the acquisition of a second, third, or subsequent language, including Japanese language learning.

The acquisition of the Japanese language encompasses four fundamental competencies: speaking, listening, writing, and reading. In the Japanese language, reading proficiency is of particular significance, as it enables the acquisition of written information from texts. *Dokkai*, or reading in Japanese, is the ability to comprehend written texts. It is a skill that can reinforce other Japanese language abilities, such as Kanji, vocabulary, and grammar.

In the field of language learning, the advent of ICT has prompted a significant shift in the way technological outcomes are employed in the learning process (Arsyad, 2014: 2). It is expected that teachers will possess the requisite skills to utilize a range of tools, including computers and LCDs, in a manner that aligns with the evolving demands of the contemporary educational landscape and enables them to achieve the desired teaching objectives. Moreover, educators are expected to possess the ability to create engaging learning media. The term "learning media" encompasses all forms of physical communication equipment, including hardware and software, that are created, utilized, and managed for learning purposes with the objective of achieving effectiveness and efficiency in the learning process (Arsyad, 2014: 7-8). Computers are a frequently utilized learning tool. However, it is essential to recognize that computers are merely instruments or media, and their efficacy hinges on the proficiency and engagement of their users (Hartoyo, 2012, p. 26). The integration of computers and other electronic devices in Japanese language learning is anticipated to foster interest and motivation among learners, as evidenced by (Rahman et al., 2019).

Method

This research employs the quantitative descriptive method, which is a research approach used to describe and quantify a phenomenon occurring in the present. It employs scientific procedures to address actual problems and generate data in numerical form. This type of descriptive research is a correlation study, which is defined as a study of the relationship between two or more variables (Sutedi, 2011, p. 63).

The subjects of this prototype trial were students enrolled in the Japanese Language Education Study Program, Faculty of Language and Arts, State University of Jakarta, who had contracted *Dokkai* 2 in semester 116. This research was conducted at the Japanese Language Education Study Program, Faculty of Language and Arts, State University of Jakarta. The instruments utilized in this study were three distinct types of tests: the *Dokkai* test, observation techniques, and questionnaire techniques.

1. The *Dokkai* test

Dokkai test is designed to ascertain the level of proficiency in *Dokkai* exhibited by students at the initial level of the Japanese Language Education Study Program, Faculty of Language and Arts, State University of Jakarta. The *dokkai* test employed in this study is in the form of an objective or multiple-choice test comprising 20 questions derived from Nihongo Nouryokushiken (JLPT) level 3 questions.

Table 1.
Dokkai Test's Question Grid

No.	Problem Indicator	Amount of Questions
	Fill in the blanks of the text	6 questions
	Understand the content of the text	7 questions
	Choose the right vocabulary	7 questions

2. Observation Technique

Observation is a data collection technique conducted through observation accompanied by notes on the state or behavior of the target object. According to Nana Sudjana, observation is the systematic observation and recording of the symptoms studied. In this study, observations were made regarding the utilisation of information and communication technology (ICT) through digital media in the context of Dokkai learning.

3. Questionnaire Technique

As defined by Sugiyono (2017: 142), a questionnaire is a data collection technique whereby a set of questions or written statements is provided to respondents for completion.

Result and Discussion

1. Results of Working Memory Capacity

The results of the Dokkai test, conducted on 6 September 2022, were as follows:



Graph 1. Recapitulation of the Dokkai 3 Test Results

The results of the Dokkai test indicate that 64% of participants achieved a very good score (range: 86-100), 22% obtained a good score (range: 76-85), and 14% attained a fair score (range: 56-65). The mean score obtained by students is 81.375 on a scale of 100. In accordance with the assessment criteria for the Dokkai course, this figure can be categorised as good. Therefore, it can be concluded that the level of Dokkai ability of third-year students of the Japanese Language Education Study Programme FBS UNJ in the 2022/2023 academic year is classified as good. However, it should be noted that the acquisition of student scores is quite varied, with some students achieving very low scores, which has an impact on the overall average.

2. The Use of ICT

2.1 Usage Observation

The observations were conducted on three occasions at the Dokkai course. The following data were obtained by the researchers through observation.

a. First Observation

The initial observation was conducted on 13 September 2022. On that day, there were 20 students present. The learning took place online with the G Meet media platform. The learning flow was as follows:

Tabel 2.
First Observation

The First Observation was Undertaken on 13 September 2022.		
Flow Activities	Introduction	The teacher verifies attendance and proceeds to introduce the new material.
	Main Event	<p>Subsequently, the teacher conveys the lecture material that will be carried out using the Anime-manga.jp website media. The teacher then divides the students into five groups. The teacher selects one comic story from the website, comprising a total of 15 scenes. Once the teacher has chosen the story, each group is assigned three scenes, which will subsequently be presented. The presentation system utilises randomisation with the objective of ensuring that all groups read the entire contents of the story.</p> <p>The following points are to be presented:</p> <ol style="list-style-type: none"> 1. Characterisation 2. Narrative content 3. Vocabulary, onomatopoeia and kanji pertinent to the comic 4. Cultural information in the story
	Closing	Reassignment orders evaluation

b. Second Observation

The second observation was conducted on 20 September 2022. On that day, 20 students were in attendance. The learning took place online with the use of G Meet media. The learning flow was carried out as follows:

Tabel 3. Second Observation

The Second Observation was Undertaken on 20 September 2022		
Flow Activities	Introduction	The teacher verifies attendance and proceeds to introduce the new material.
	Main Event	The group will be divided into several meeting rooms. In this activity, due to the presence of audio on this website, learners initially focus on listening.

	and subsequently, when the speech is too fast, they begin reading. Learners then create a PowerPoint presentation based on the discussion results.
Closing	It is once again necessary to confirm the collection of discussion results.



Picture 1. Group Discussion Process

c. Third Observation

The third observation was conducted on 27 September 2022. On that day, 20 students were in attendance. The learning took place online with the use of G Meet media. The learning flow was carried out as follows:

Tabel 4.
Third Observation

The Third Observation was Undertaken on 27 September 2022		
Flow Activities	Introduction	The teacher verifies attendance and proceeds to introduce the new material.
	First Main Event	The teacher directs the commencement of the presentation for each group. One group will present three scenes at random. The initial presentation proceeded with remarkable efficacy, and due to the exemplary demonstration of the material by the presentation group, the other learners exhibited keen attention. In this presentation, the teacher engaged in direct discourse with each scene.
	Second Main Event	Subsequently, Group Two proceeded with their presentation on the designated day. This presentation incorporated a question-and-answer session, as well as responses from other groups.
	Third Main Event	Subsequently, the final group presented the concluding scene. It was evident that the learners listened attentively to the teacher's feedback on the preceding three scenes.
	Closing	At the end of the lesson, the teacher invited the learners to access Kahoot.com, a free learning

platform that employs a quiz-based approach. This website is utilised by the teacher to ascertain whether the learners have comprehended the material presented. Subsequently, the teacher reminds the learners of the assignment and concludes the meeting.

3. Observation Data Analysis

In accordance with the findings of the Dokkai test, conducted on 6 September 2022, the results of the test recapitulation are as follows:

a. Introduction

During the observation activities, it was noted that the teacher employed a consistent opening approach in the Dokkai course. In the initial activity, the teacher initiated rapport and set a positive tone by inquiring about the students' readiness to learn. Subsequently, the teacher selected the group responsible for presenting the material.

b. Main Event

First, the teacher elucidated the Anime-manga.jp website and conveyed the lecture material that would be presented using this medium. In the second observation, the students participated in group discussions about the assignments they had received. Subsequently, the activities observed during the third session were consistent with the aforementioned learning flow, namely the random selection of groups to present comic scenes from the Animemanga.jp website. Each group is assigned three scenes, and the teacher provides feedback to the presenter and to the other groups for each scene. Following the conclusion of the presentation, if time allows, the teacher challenges the speaker to retell the story in accordance with the original expression. In the closing section, the teacher provides a brief summary of the discussion presented by each group.

c. Media Utilisation

The deployment of media on the Anime-manga.jp website is centred on a single comic narrative with an educational theme. During the instructional session, the instructor employed the Anime-manga.jp website media on two occasions. In the learning process, the most frequently utilised elements are sound effects and furigana. Furthermore, the cultural information feature, which provides insights into Japanese culture, serves to augment the acquisition of Japanese cultural knowledge.

No	Question	TS	KS	S	SS
1.	The utilisation of comics in the context of learning <i>dokkai</i> is new to me.	-	4,5 %	36,4%	59,1%
2.	The utilisation of comic media is very helpful in learning <i>dokkai</i> .	-	4,5%	31,8%	63,6%
3.	Sound effects in <i>anime-manga.jp</i> website makes the	-	-	9,1%	90,9%

	content not boring,				
4.	The availability of sound effects on the <i>anime-manga.jp</i> website has facilitated my comprehension of onomatopoeia, or sound effects.	-	-	13,6%	86,4%
5.	The option of selecting either reading <i>kana</i> or <i>romaji</i> facilitates the reading and retention of new vocabulary.	-	4,5%	31,8%	63,6%
6.	The English translation also helped me understand the meaning of the words used in the story.	-	4,5%	22,7%	72,7%
7.	The culture information content helped me gain more knowledge about Japan.	-	-	13,6%	86,4%
8.	The content provided by the website Anime-Manga.jp facilitates comprehension of the narrative.	-	-	18,2%	81,8%
9.	The utilisation of the <i>Anime-Manga.jp</i> website in <i>Dokkai</i> courses has the potential to enhance both reading proficiency and interest.	-	-	40,9%	59,1%
10.	The <i>Anime-Manga.jp</i> website is an appropriate resource for learning <i>Dokkai</i> 3, offering a comprehensive range of content, <i>kanji</i> vocabulary, grammar, and story content.	-	-	31,8%	68,2%

4. Questionnaire Analysis

The data obtained through this questionnaire represents the response of Dokkai learners to the use of the Animemanga.jp website media in the Dokkai 3 course. The following represents the results of the questionnaire distributed to 22 students of the Japanese Language Education Study Program at FBS UNJ between 20-22 October 2022.

In light of the aforementioned questionnaire results, two categories of discussion emerge. The first category of responses pertains to the utilisation of the Animemanga.jp website media in Dokkai learning at the Japanese Language Education Study Programme, State University of Jakarta. This category is evidenced by the questionnaire statements numbered 1 to 2 and 9 to 10. The second category of responses pertains to the content or narratives presented in the media website Anime-manga.jp. This category is evidenced by the questionnaire statements numbered 3 to 7.

Conclusion and Suggestion

Based on the results of the research that has been carried out regarding the authors draw several conclusions as follows:

1. The results of the dokkai test indicate that 64% of participants demonstrated a high level of proficiency, with scores ranging from 86 to 100. 22% exhibited a satisfactory level of performance, with scores between 76 and 85, while 14% displayed a moderate level of proficiency, with scores between 56 and 65. The mean score obtained by students is 81.375 on a scale of 100. In accordance with the assessment criteria for the Dokkai course, this figure can be categorised as satisfactory. Therefore, it can be concluded that the level of Dokkai ability of Level III students of the Japanese Language Education Study Programme FBS UNJ in the 2022/2023 academic year is classified as satisfactory. This is because the acquisition of student scores is quite varied, with some students achieving very low scores, which has an impact on the average score.

2. The results of the questionnaire indicated that the learners perceived the ICT media utilized in the learning process, namely the Anime-manga.jp website, to be suitable for Dokkai learning in terms of content, kanji vocabulary, grammar, and story content. Additionally, the learners expressed a strong agreement that the content on the website can enhance their interest in reading.
3. The present study focuses on the role of working memory in reading activities. However, it should be noted that working memory can also be engaged in other activities, such as listening. Consequently, further research is required to elucidate the role of working memory in listening activities (choukai) and the utilisation of other ICT media in learning.

References

- Arsyad, Azhar. 2014. *Media Pembelajaran*. Jakarta: Rajawali Pers.
- Alloway, T. P., & Alloway, R. G. (2010). *Investigating the predictive roles of working memory and IQ in academic attainment*. Journal of Experimental Child Psychology, 106(1), 20-29.
- Baddeley, A. D., & Hitch, G. J. 1974. *Working memory*. Psychology of learning and motivation, 8, 47-89.
- Hakim, Ruri Fadhillah. 2015. *"Interferensi Dalam Bahasa Jepang Ditinjau Dari Kapasitas Working Memory Otak: Suatu Kajian Neurolinguistik"*. Tesis. Universitas Andalas.
- Hartoyo. 2012. *Teknologi Informasi dan Komunikasi (TIK) dalam Pembelajaran Bahasa*. Semarang: Pelita Insani.
- Iskandarwassid dan Sunendar, 2008. *Strategi Pembelajaran Bahasa*. Bandung : Rosdakarya.
- Kane, M. J., Conway, A. R., Hambrick, D. Z., & Engle, R. W. (2007). *Variation in working memory capacity as variation in executive attention and control*. Variation in working memory, 21-48.
- Klingberg, T., Fernell, E., Olesen, P. J., Johnson, M., Gustafsson, P., Dahlström, K., ... & Westerberg, H. 2005. *Computerized training of working memory in children with ADHD—a randomized, controlled trial*. Journal of the American Academy of Child & Adolescent Psychiatry, 44(2), 177-186.
- Saito, H. 2004. *Enhancing reading comprehension through multimedia*. Reading in a Foreign Language, 16(2), 1-19.
- Siregar, R. 2015. *Pengaruh Metode Pembelajaran E-learning terhadap Hasil Belajar Bahasa Jepang dengan Menggunakan Multimedia*. Jurnal Pendidikan Bahasa Jepang, 3(1), 62-76.
- Sutedi, Dedi. 2011. *Penelitian Pendidikan Bahasa Jepang*. Bandung: Humaniora Utama Press.
- Yusri, Lady Diana. 2017. *Penggunaan ICT dalam Mengatasi Interferensi Penggunaan Partikel Bahasa Jepang pada Pembelajaran Sakubun*.