Connecting *Kanji* Radicals with their Malay Equivalents in Japanese *Kanji* Instruction to Native Malay-speaking Students

Kazuhito Uni
kazuhito.uni@gmail.com
Faculty of Major Language Studies,
Islamic Science University of Malaysia

ABSTRACT

The current methods to teach Kanji characters in Malaysian Japanese-language textbooks limit students' understanding of the semantic link between the Kanji characters and their radicals. Therefore, the objective of this study is to examine the effectiveness of teaching Chinese characters (*Kanji*) using the major components (radicals), along with their Malay equivalents. This study proposed a method to connect the meaning of Kanji radicals with their Malay equivalents when teaching Kanji characters to native Malay speakers. A multiple-choice test was administered to 116 native Malay-speaking university students. They had no previous knowledge of the Japanese or Chinese languages. Participants studied a list of Malay words and their Japanese equivalents comprising 28 Kanji. Each Kanji pair in the list shared a common radical, and each pair of their Malay equivalents shared a common root. The control group was given a list of the spellings and pronunciation of same Japanese and Malay words but without the instructions regarding the semantic similarities between Japanese and Malay. Both groups were given 30 minutes to learn the Kanji and another 30 minutes to take an identical 28-question test. On average, the experimental and control groups scored 17.03 and 10.58, respectively ($n = 116$); therefore, at a 5% level, a significant difference was found between the scores for the two groups ($p < 0.001$, $t = 8.10$). A multiple linear regression indicated that the experimental group had an effect size of 6.4 more correct answers than the control group ($df = 114$, $R^2 = 0.3651$, $p < 0.001$). The results imply that the explicit presentation of the Kanji radicals and their Malay equivalents assisted native Malay-speaking students in learning Kanji including characters which consist of more than 10 strokes.

Keywords: Japanese; Kanji radical; Malay; similarity; vocabulary

INTRODUCTION

CHARACTERISTICS OF THE JAPANESE LANGUAGE

Learning vocabulary is one of the most important elements in language learning. According to a 2015 survey conducted by the Japan Foundation (2017, p. 13), 33,224 Malaysians have studied the Japanese language; therefore, the number of learners and textbooks has been increasing. Despite the increase in Japanese students, many students experience Japanese as a difficult language to learn. One of the primary reasons for this difficulty is the use of Chinese characters in the Japanese language also known as Kanji. Hereafter, in this study, the term Kanji is employed for Chinese characters that are currently used in Japanese. Chikamatsu (2005) indicates that learners of Japanese as a foreign language (hereafter JFL), particularly, whose first language has a phonological writing system frequently face difficulties in learning Kanji characters. This is because Kanji do not have systematic one-to-one correspondence between their components and pronunciation.

Many Kanji have multiple pronunciations. For example, the Kanji 人 (person) can be pronounced *hito* as an original Japanese word that means person, and *jin* as part of Chinese-origin loanwords such as *Nihon-jin* 日本人, which means Japanese man or woman; this is dependent on the contexts. The majority of Kanji consists of two parts: a component that indicates the holistic meaning of the character and a second component that shows an approximate pronunciation of the whole character (Hadamitzky & Spahn, 2012, p. 43). More than 80% of high-frequency Kanji characters in Japanese consist of a combination of semantic and phonetic components (Koda, 2005, p. 79).

Over many decades, an abundance of JFL textbooks and learning materials written in English have been published in English-speaking countries and Malaysia. In addition to conventional textbooks and other resources, online materials enable learners to improve their language proficiency autonomously. However, very few JFL teaching and learning materials have been published in the Malay language. Chin, Najmudin, Ahmad, and Panel Penggubal Buku Bahasa (2010), Ismail and Ito (2011), and Lee, Ooi, and Kaivaliam (2012) are examples of Japanese-language textbooks written in Malay for Malaysian secondary school students. In these textbooks, although vocabulary items such as those related to clothes are shown as a unit in the same category, Kanji characters that include a common component are not explicitly presented. Moreover, the current methods to teach approximately 150 Kanji characters in Malaysian secondary school Japanese-language textbooks are aiming at reducing learners' confusion, but they limit students' understanding of the link between the Kanji characters and their components. The approach hinders Malaysian students from learning the several hundred Kanji characters necessary for basic communication in Japanese.

OBJECTIVE

The objective of this study is to examine the effectiveness of teaching Kanji characters using Kanji radicals, along with semantically similar Malay equivalent words, to facilitate the learning of Kanji characters by native Malay-speaking university students in Malaysia.

SEMANTIC SIMILARITY BETWEEN JAPANESE AND MALAY

The majority of Malay words include a root called *kata dasar* (basic word) that has a function similar to a stem in a European language. For example, the Malay root *baca* (読む *yomu* in Japanese) means "read," and its derivative *pembaca* (reader) includes the nominalizing prefix *pen-*/*pem-*. Its Japanese equivalent *dokusha* 読者 (reader) consists of the Kanji 読 *doku* (read) and 者 *sha* (person). A Malay root, which can usually be used independently as a noun or an adjective, and its derivatives have a semantic scope similar to that of Japanese words that include a common semantic component, which is usually called *bushu* or radical. Prefixes and suffixes in the Malay language enable a significant capacity of derivation, which is based on a stem referred to as the root. For example, the Malay root word *perempuan* (female, woman) (女 *onna* in Japanese) forms compounds such as *anak perempuan* (daughter) (娘 *musume* in Japanese) and *adik perempuan* (younger sister) (妹 *imōto* in Japanese). *Anak* means child and *adik* means younger sibling. These words (*anak* and *adik*) are usually specified by a word that indicates their gender.

The Malay word *cahaya* (light) corresponds to the Japanese word *hikari* 光 (light), and *bercahaya* (to shine) corresponds to *kagayaku* 輝く (to shine). In the same way that *bercahaya* contains *cahaya* (light), the Kanji 輝 in *kagayaku* 輝く includes 光 (light) as its radical. In a similar way, the words *ikan* (fish) and *perikanan* (fishery), which are derived

from the root *ikan* (fish), correspond to *sakana* 魚 (fish) and *gyogyō* 漁業 (fishery). Similarly, the Kanji 漁 comprises the character 魚 (fish).

Lihat (Malay root meaning "see") can be used as an imperative (Liaw, 2012, p. 259). This root and the verbal prefix *me-* form *melihat* (to see) that corresponds to the Japanese verb 見る *miru*. In addition, *lihat* can also be the stem of a noun such as *penglihatan* (eyesight, vision) (視力 *shiryoku* in Japanese). Here, the combination of the prefix *peng-* and suffix *-an* nominalizes a root. The radical of the Kanji 視 in 視力 *shiryoku* (eyesight, vision) is 見 (see). Forms of Malay roots are regularly maintained in derivatives. The form consistency of Malay roots and their derivatives has advantages when their Japanese equivalents also share a common semantic component.

According to Nation (2001), learners' first language has a considerable impact on the processes of second language (L2) acquisition, and many studies have suggested the usefulness of the first language for learning L2 vocabulary. Larsen-Freeman and Anderson (2011, p. 97) also highlight that language learners' understanding and confidence can be enhanced by using their first language as it can help in efficiently conveying the meanings of words from the target language. Demonstrating Japanese words that share meanings and common Kanji characters to Malay-speaking students will assist students in learning Kanji characters as groups of Japanese words that contain a common Kanji.

LITERATURE REVIEW

Malays are the principal ethnic group in the majority of Malaysians (*Bumiputera*), who constitute approximately 68% of the total population of Malaysia (Department of Statistics Malaysia, 2019); they mostly speak Malay as their first language and are neither accustomed to Kanji characters nor to Kana phonetic characters. Therefore, Japanese-language textbooks published or used in Malaysia and the teaching of Kanji characters in classrooms have restrictions, such as the number of Kanji characters taught at each level and their number of strokes.

Hajimete-no Nihongo 1 by Shaharuddin, Aziz, Sharif, and Abdul-Rashid (2016) is a textbook used by students learning Japanese as an elective course at a major Malaysian university. This textbook and the two other volumes of the same series are written in Romanized Japanese and do not teach pronunciations of Kanji characters because the content has to be taught within the limited duration of the elective courses. Only the pronunciation and stroke orders of Hiragana phonetic characters are taught in this textbook as an additional knowledge.

Japanese-language teaching in Malaysia and the teaching of Japanese Kanji in Malaysian secondary schools have considerable restrictions. In particular, only one specific pronunciation is shown for each Kanji to minimize confusion. Another reason is that to learn the appropriate orders of strokes demands much effort from Malay students who are not familiar with Chinese characters. For instance, a second-year Japanese textbook by Ismail and Ito (2011, p. 98) only demonstrates the Kanji 言 (say, word) as part of the word 言う *iu* meaning "to say." The Japanese word 言語 *gengo* (language), usually spelled with two Kanji, is shown as げん語, spelled with two Hiragana phonetic characters followed by a Kanji. This restriction in the demonstration of Kanji can be an oversimplification that decreases a student's opportunity to learn basic Kanji. In another instance, the word 小説 *shōsetsu* (novel) is presented in only in phonetic characters such as しょうせつ, and the character 小 *shō* was also not used even though it comprises only three strokes (p. 21). However, on page 23 of the same textbook, the character 小 is demonstrated as a part of the word 小さい *chiisai* (small) because the pronunciation had already been taught in the second year of

secondary school. The radical of the character 説 *setsu* in 小説 *shōsetsu* (novel) is 言 (say, word). A fifth-year textbook by Mohd, Lee, Ooi, and Kitade (2014) avoids the Kanji 予 in the word 予習 *yoshū* (preview); instead, the textbook shows it as よ習. The Kanji 予 includes only four strokes but has still not been included in the characters taught at Malaysian secondary schools.

A third-year Japanese textbook by Lee et al. (2012) avoids linking the Kanji 毎 *mai* (every) to the word 毎日 *mainichi* (every day) at the beginning of the textbook. Instead, the textbook shows the word as まい日 by replacing the Kanji with two Kana phonetic characters of the same pronunciation (p. 13). Although the Kanji 毎 is avoided in that part of the textbook, a following unit of the very same textbook introduces the character and the word 毎日 *mainichi* (every day) but this time in Kanji characters (p. 203). To maintain coherence, the word could have been spelled in Kanji characters throughout the whole textbook, and small phonetic spellings could have been added above the Kanji in parts where the characters were yet to be taught.

The Kanji 去 *kyo* (to leave, have gone) with only five strokes is never taught in secondary-school Japanese classes in Malaysia. A fifth-year textbook by Mohd et al. (2014) presents the spelling きょ年 *kyonen* (last year) instead of 去年. Another textbook by Lee et al. (2013) written for fourth-year secondary school students also demonstrates きょ年. In contrast, the Kanji 来 *rai* (to come) that is included in 来年 *rainen* (next year) is taught during the second year of secondary education if a school uses Ismail and Ito (2011) from the same series of textbooks.

An additional example is the use of the character 活 *katsu*, which is never shown in any of the five textbooks used in Malaysian secondary schools. The fifth-year Malaysian textbook demonstrates the spelling 生かつ *seikatsu* (life) instead of 生活 (Mohd et al., 2014, p. 40). The character 活 consists of nine strokes, which are fewer than the stroke number of characters taught in the same volume such as 習 (11 strokes), 教 (11 strokes), and 朝 (12 strokes). Therefore, this character could be presented in the textbooks along with Hiragana phonetic characters.

A majority of Kanji vocabulary consists of two Kanji characters such as 毎日 *mainichi* (every day) and 来年 *rainen* (next year). It would certainly be beneficial for students to be able to recognize the combinations of two Kanji characters as a basic vocabulary unit of Chinese origin. As a result, the current policy for demonstrating Kanji characters in Japanese-language textbooks for Malaysian secondary school students, which frequently avoid and replace Kanji characters with phonetic characters, hinder Malaysian students from learning Kanji characters.

Furthermore, the majority of Malaysian secondary school textbooks do not explicitly introduce radicals and other components of Kanji characters. The fourth-year textbook by Lee et al. (2013, pp. 65, 66) shows the Kanji 妹 (younger sister) and 姉 (elder sister), which share the radical 女 (woman). However, these words are demonstrated to assist students in learning a pair or group of words in the same word category, but the meaning of the radical (woman) common to the two Japanese words is not explicitly explained. Such disadvantages in the present series of Malaysian textbooks could be improved by presenting an explicit presentation of pairs of Kanji that share a common radical.

Malay is the official language of Malaysia, but very few Japanese-language textbooks use the language as an effective medium language for Malaysian students. Certainly, simple demonstrations of similar Kanji characters in pairs or groups, without additional explanation, benefit students to a certain extent; however, such methods only show examples of similar Kanji characters to students without helping them understand the semantic connection

between the listed Japanese words and their Malay equivalents.

Toyoda (2007) proposed several approaches that emphasized the improvement of word-level processing skills to enhance autonomous Japanese vocabulary learning. In particular, Toyoda highlighted the importance of the explicit demonstration of the Kanji radical of each character and its holistic meaning. In addition, to enable learners to realize how the semantic connections between Kanji characters and the radicals indicate the basic meaning, Toyoda recommended explicitly presenting pairs or groups of Kanji characters with a common semantic indicator that maintained a close semantic relation to the actual meaning of the characters.

Matsumoto (2013, p. 163) investigated word recognition models for Chinese characters and suggested that when readers access semantic information of Chinese characters, their orthographic processing is more closely connected with comprehension of meaning than their phonological processing. Zhou and Marslen-Wilson (1999, p. 587), who compared the extent of phonological and semantic processes in reading Mandarin, affirm that there was no significant mediated priming effect for tested homophones without orthographic similarity. Using a vocabulary task and a related questionnaire, Matsumoto (2013) explored Kanji word recognition proficiency of beginning and intermediate Japanese learners who were native English speakers and another group of beginners whose first language was Mandarin. She affirms that word recognition strategy based on learners' first language helps their Kanji recognition according to the extent of similarities between their first language and Japanese. Intermediate learners who participated in Matsumoto's research relied on their first language knowledge compared to their second language knowledge.

Horiba (2012) compared first-language knowledge types primarily utilized by native Chinese- and Korean-speaking learners of Japanese when developing reading comprehension of Japanese texts. In her study, 50 Chinese and 20 Korean students were asked to complete a word-definition matching test and another test that required them to select three word associates from among seven options for assessing their text comprehension. The results indicated that Chinese-speaking participants mostly depended on Chinese characters and morphemic information to extract meaning from the Japanese texts provided, in which most nouns and the main part of the verbs had been written using Kanji characters. In contrast, Korean-speaking participants frequently relied on the syntagmatic information obtained from the Japanese texts provided, such as word order and sentence structure, as these elements in Japanese share a high level of similarity with those in Korean. The abovementioned studies contribute to the elaboration of the vocabulary instructions and test used in this study.

CONNECTION BETWEEN PREVIOUS STUDIES AND THE PRESENT STUDY

Studies on Kanji radicals and other components, exemplified by Toyoda (2007), suggest that positions of a Kanji radical can enhance learners' recognition and comprehension processes. These studies also indicate that categorization of Kanji characters into several types is beneficial to the identification of degrees of difficulty among the types. From this perspective, the author established a presentation method that would accelerate learners' recognition of the common radicals shared by each pair of listed Kanji characters, which were demonstrated to the experimental group during the Kanji vocabulary tests. In addition, Koda (2005), who examined the significant influence of metalinguistic awareness acquired in the learner's first language when learning another writing system, suggested the requirement for a vocabulary demonstration method that accelerates both Malaysian JFL learners' recognition of Japanese characters and their use of L1 vocabulary knowledge.

METHODOLOGY

RESEARCH QUESTIONS

1. Does teaching Kanji characters with the identical radicals and providing their Malay equivalents of the radicals help present Malay-speaking students learn Kanji characters?
2. Do the semantically similar pairs of Kanji characters proposed in this study help Malay-speaking students learn basic Kanji characters?

PARTICIPANTS AND MATERIALS

The method suggested in this study explicitly demonstrated the semantic similarities between Malay words and Kanji characters in their Japanese equivalents. Each pair of the listed Malay words shared a common root, and each pair of the listed Japanese words shared a common component, which was usually located on the left or right side of a Kanji. The semantically similar Malay and Japanese words were clearly demonstrated as pairs in the instruction sheet distributed to the experimental group (cf. Appendix 1). In addition, brief instructions in Malay were given to the same group to raise learners' consciousness of similarities between the listed Japanese and Malay words. Thus, the intention of this study was to propose an efficient method of Kanji instruction based on semantic similarities between Japanese and Malay. A vocabulary list without additional instructions was distributed to the control group (cf. Appendix 2). The total number of the listed Kanji and test questions (cf. Appendix 3) was 28. The participants were given 30 minutes to answer the questions.

The participants were 116 Malaysian university students who are native speakers of Malay. Their major was engineering. The author of the study obtained official written permission from a Malaysian university and collected data from the participants. Prior to administrating the test, the researcher randomized the participants by asking each of them to draw a folded piece of paper from a box which assigned them to either the experimental group (56 participants) or the control group (60 participants). The researcher inquired ~~about~~ whether the participants had learned Japanese at any institution formally or informally. Those having any prior learning experiences of Chinese characters or the Japanese, Korean, or Chinese languages were excluded. Moreover, those with Japanese- or Chinese-speaking family members or relatives were not included either. Since phonetically similar pairs are limited in number between Japanese and Malay, this study does not aim to associate the pronunciation of selected Kanji characters with either their forms or the phonetic features of their Malay equivalents.

After the test, the number of correct answers was counted for each participant, and the average scores of the experimental and control groups were analyzed using Student's *t*-test. For each vocabulary test, the researcher analyzed the 10 characters (approximately) with the greatest difference in the number of correct answers. Welch's *t*-test was used to determine if there was a significant difference in the number of correct answers. Multiple linear regression was employed to measure the treatment effect size. In addition, bootstrapping (1000 Bootstrap replicates) was used to analyze the difference in the proportion of correct answers between the experimental and control groups for each type of Kanji.

As the vocabulary experiment in this study required a Malaysian university in which nearly 95% of students were native Malay speakers, the number of participants was quite limited, and the author was unable to locate the same participants for subsequent tests. In addition, none of the participants included in the study had previous knowledge of Kanji characters, and it was not possible to carry out writing tests for the listed characters in the allotted 30 minutes.

SUGGESTIONS ON THREE KANJI TYPES

The similarities between Japanese and Malay, exemplified in the previous paragraph, are related to a single Malay root (e.g., *mata*) commonly included in Malay words and several Kanji characters (e.g., 目 and 眼) in their Japanese equivalents. Such similarities can be observed in many cases. However, the definition of "semantic similarities" utilized in this study is a more limited one. It focuses on semantic similarities between two Kanji characters sharing one component (mostly a semantic component) and their Malay equivalents that commonly include a root. This study suggests three types of Japanese Kanji that are similar to Malay. The similarity of the first type ("Type 1 Similarity") is based on the existence of partial semantic similarities between Japanese and Malay words. Type 2 Similarity is also based on the semantic similarity between words in Japanese and Malay; however, the shared Kanji radicals and Malay roots have an almost identical meaning. Type 3 is linked to general conceptual connections related to the Kanji characters and their Malay equivalent words.

Type 1 Kanji characters and their Malay equivalents also share a high level of similarity. The similarity level between common Kanji components and shared Malay words in some Type 1 word pairs was lower than in Type 2 pairs. While Type 3 Kanji characters and the corresponding Malay words have almost identical meanings, their Kanji components and the shared Malay word share fewer similarities in meaning such as "ear" in Japanese and "hear" in Malay. Word structures of the Malay equivalents are simple or compound for Types 1 and 3, and the structure of Type 2 Malay words is compound only. The listed Japanese and Malay words have the same meanings (e.g., "light" for both the Japanese *hikari* 光 and the Malay *cahaya*). Similarly, Japanese and Malay words based on Type 2 and Type 3 similarities are very close in meaning.

Tables 1, 2, and 3 respectively exemplify Type 1, 2, and 3 Kanji characters and their Malay equivalents proposed in this study, as demonstrated to the experimental group participants in the test administered during this study. Common radicals in each pair of Type 1 and 2 characters mostly comprise fewer than 10 strokes. However, the number of strokes for second Kanji characters of these types mostly exceeds 10. Among Type 1 word pairs, a common Kanji component and common Malay root in some of the word pairs (e.g., the Kanji component 火 "fire" and the Malay root *bakar* "burn") have less semantic connections than other Type 1 words and all Type 2 words.

TABLE 1. *Examples of Type 1 Kanji and Malay Words Shown to the Experimental Group*

First Kanji in the pair	Second Kanji in the pair	Common components
光 (light) and **cahaya** (light)	輝 (part of "to shine") and ber**cahaya** (to shine) (Root: *cahaya* "light")	光 (light)
魚 (fish) and **ikan** (fish)	漁 (part of "fishery") and per**ikan**an (fishery) (Root: *ikan* "fish")	魚 (fish)
火 (fire) and keba**kar**an (destructive fire)	焼 (part of "to burn") and mem**bakar** (to burn) (Root: *bakar* "burn")	火 (fire)

The Malay equivalents for Type 2 characters are compound words that include a common Malay word. The meanings of the shared Kanji components (女 "woman" and 目 "eye") and those of the Malay equivalents (*perempuan* "woman" and *mata* "eye") are almost identical. This is a major advantage of Type 2 similarity. Additionally, the position of the shared Kanji components is fixed to the left side of each listed Type 2 character.

TABLE 2. *Examples of Type 2 Kanji and Malay Words Shown to the Experimental Group*

First Kanji in the pair	Second Kanji in the pair	Common components
妹 (younger sister) and *adik perempuan* (younger sister)	娘 ("daughter") and *anak perempuan* (daughter) (Root: *perempuan* "woman")	女 (woman)
眼 (part of "eyeglasses") and *cermin mata* (eyeglasses)	瞳 (pupil of the eye) and *anak mata* (pupil of the eye) (Root: *mata* "eye")	目 (eye)

TABLE 3. *Examples of Type 3 Kanji and Malay Words Shown to the Experimental Group*

First Kanji in the pair	Second Kanji in the pair	Common components
聞 (part of "to hear") and *mendengar* (to hear)	聴 (part of "hearing") and *pendengaran* (hearing) (Root: *dengar* "hear")	耳 (ear)
鉄 (iron) and *besi* (iron)	鋼 (steel) and *besi waja* (steel) (Root: *besi* "iron")	金 (gold, metal)

Common Kanji components in Type 3 characters and their Malay equivalents maintain a certain semantic connection. Thus, characters in this category will encourage learners to imagine and understand a shared basic meaning between the common components of the listed Kanji characters and the shared element shared by their corresponding Malay words. Moreover, the majority of Type 3 characters include more than 10 strokes and three (聞, 聴, and 鋼) of them contain approximately 15 strokes, which would be the most difficult for participants to learn. Therefore, the presentation method would allow them to quickly discover the most important components of these complex characters.

For instance, the Malay *dengar* (root meaning "hear" and "listen") has a derivative *pendengaran* ("hearing" as a physical sense). The combination of affixes *pen-* and *-an* nominalizes a root. The two Kanji 聞 (to hear, listen) and 聴 (part of 聴力 "hearing" as a physical sense) include a common radical which is an independent Kanji 耳 ("ear"). The Malay words *mendengar* (to hear) and *pendengaran* (hearing) are semantically related to the concept of *ear* although *dengar* (root meaning "hear") does not include the meaning of *ear*. This is the primary difference between Type 2 and 3 similarities.

Type 3 characters 鉄 (iron) and 鋼 (steel) also share semantic similarities with their Malay equivalents *besi* (iron) and *besi waja* (steel), which share *besi* (iron). Shared in 鉄 (iron) and 鋼 (steel), the common component 金 (gold, metal) means "metal" in this context. These semantic links would accelerate participants' learning of Type 3 characters.

Tables 4, 5, 6, and 7 exemplify word pairs and instructions shown in the instruction sheet for the experimental group. The instructions shown below are English translations of those used in the test.

TABLE 4. *Malay Words with their Japanese Equivalents (1)*

Root: *perempuan* "woman"	
adik perempuan "younger sister"	妹 imōto
anak perempuan "daughter"	娘 musume
The radical of 妹 (younger sister) and 娘 (daughter) originates from 女 (woman). Similarly, the root *perempuan* shared in their Malay equivalents means "woman."	

TABLE 5. *Malay Words with their Japanese Equivalents (2)*

Root: **bakar** "burn"	
ke**bakar**an "destructive fire"	火事 kaji
mem**bakar** "to burn"	焼く yaku

The Malay word *bakar* is a root meaning "burn." The Kanji 火 (fire) originates from a picture of fire. The Kanji 事 means "matter." The combination of the characters 火事 means "destructive fire." The left-side component of 焼 (to burn) is 火 (fire).

TABLE 6. *Malay Words with their Japanese Equivalents (3)*

Root: **lihat** "see"	
me**lihat** "to see"	見る miru
peng**lihat**an "eyesight, vision"	視力 shiryoku

The Malay word *lihat* is a root meaning "see," and *melihat* means "to see." Similarly, the Japanese word 見る (to see) is included in another Kanji 視, which has an almost identical meaning. The latter is used as part of words such as *shiryoku* 視力 (eyesight, vision). This combination of Kanji literally means "power to see."

TABLE 7. *Malay Words with their Japanese Equivalents (4)*

Root: **ikan** "fish"	
ikan "fish"	魚 sakana
per**ikan**an "fishery"	漁業 gyogyō

The character 魚 (fish) originates from a picture of a fish. Both the characters 魚 (fish) and 漁 (part of "fishery") include 魚 (fish) and are related to meaning of the Malay words *ikan* (fish) and *perikanan* (fishery). The left-side component of the character 漁 means "water."

Table 8 exemplifies words shown in the sheet for the control group. Examples of the questions used in the test of this study are presented in Table 9. The total number of questions was 28.

TABLE 8. *Excerpt from the Vocabulary List for the Control Group*

眼鏡 megane	cermin mata (glasses)
魚 sakana	ikan (fish)
輝く kagayaku	bercahaya (to shine)
聴力 chōryoku	pendengaran (hearing)
生まれる umareru	dilahirkan (to be born)

TABLE 9. *Excerpt from the Vocabulary Test*

Directions (English translation)
"( )" indicates characters which are asked. Please choose and circle a correct answer (a, b, c, or d.)

1. dilahirkan   (   )まれる umareru
a. 姓   b. 産   c. 性   d. 生
2. perikanan   (   )業 gyogyō
a. 泣   b. 魚   c. 漁   d. 点
3. kebakaran   (   )事 kaji
a. 炎   b. 焼   c. 火   d. 灯
4. cahaya   (   )   hikari
a. 輝   b. 光   c. 米   d. 運

The following section compares the major characteristics of the three similarity types proposed in this study. Japanese Kanji characters and their Malay equivalents are categorized based on the types of cross-linguistic similarities between the listed Japanese and Malay words. The main differences between the three similarity types exist in degrees of semantic similarities. Characters categorized as Type 1 constitute a pair in which the whole part of a character with fewer strokes is included in another character in the pair. The simpler Kanji characters in the following pairs are 見 (see), 言 (say, word), and 光 (light). Similarly, Malay words equivalent to the listed Japanese words share the same root, such as *lihat* (root meaning "see"), *kata* (root meaning "say" and "word"), and *cahaya* ("light, shine").

In addition, the structures of Malay words equivalent to the listed Japanese words also relate to the three types, as all Type 2 Malay words are compound (e.g., *adik perempuan* "younger sister" and *anak perempuan* "daughter"). The degree of semantic similarities between the listed Type 2 Japanese and Malay words was highest among the three similarity types, as both Type 2 Japanese and Malay words and their shared elements have the same meanings. The Type 2 characters 妹 and 娘 only include 10 or fewer strokes, and the other Type 2 characters 眼 and 瞳 include more than 10 strokes. Therefore, 妹 and 娘 were categorized as Type 2a, and 眼 and 瞳 were categorized as Type 2b.

RESULTS

AVERAGE SCORES BETWEEN THE EXPERIMENTAL AND CONTROL GROUPS

Table 10 demonstrates the detailed results. In total, the average scores of the experimental and control groups were 17.03 and 10.58, respectively ($n = 116$). At a 5% significance level, a significant difference was found between the scores of the two groups ($p < 0.001$).

TABLE 10. *Details of Results (*n *= 116)*

	Experimental group	Control group
Group total	954	635
Mean scores	17.03 (maximum: 28)	10.58
SD	4.93	3.47
Number of participants	56	60
p-value	< 0.001	
t-value	8.10 (> 1.98)	
DF	114	

Multiple linear regression indicates that the experimental group had an effect size of 6.4 more correct answers than the control group ($df = 114$, $R^2 = 0.3651$, $p < 0.001$). This shows that the use of the presentation method enabled an improvement of 6.4 points, i.e., 22.9% in the scores of the experimental group. Figure 1 demonstrates the mean and standard deviation of the experimental and control groups.
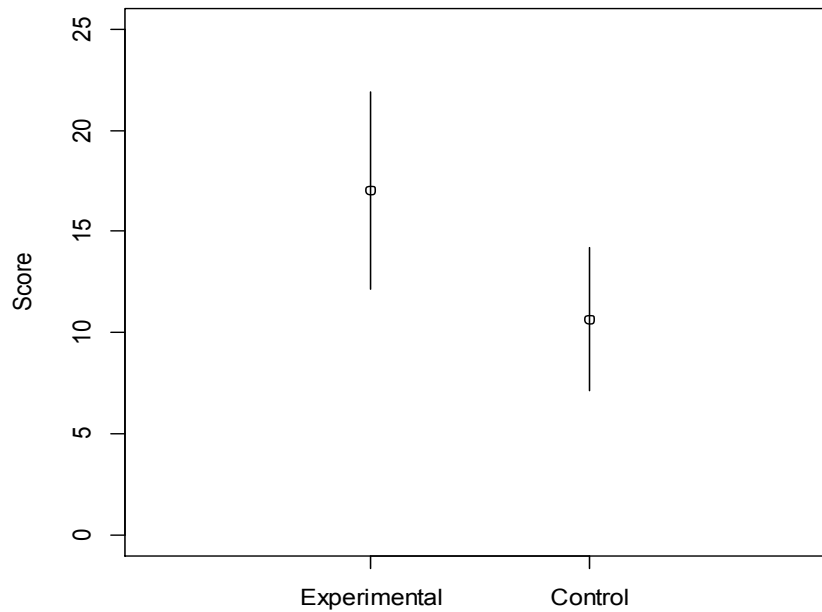
FIGURE 1. Mean and Standard Deviation of the Experimental and Control Groups

      Figure 2 demonstrates the Bootstrapped means and 95% confidence intervals for the proportion of correct answers regarding Types 1, 2a, 2b, and 3 Kanji characters (1000 Bootstrap replicates). Statistically significant differences were found between Types 1 and 3 and between Types 2a and 2b; however, no significant difference was observed either between Types 1 and 2a or between Types 2b and 3. The analysis of variance (ANOVA) was not employed to analyze the data because the factors (Kanji types) in the test were not independent, that is, each participant's score for each factor was not statistically independent.
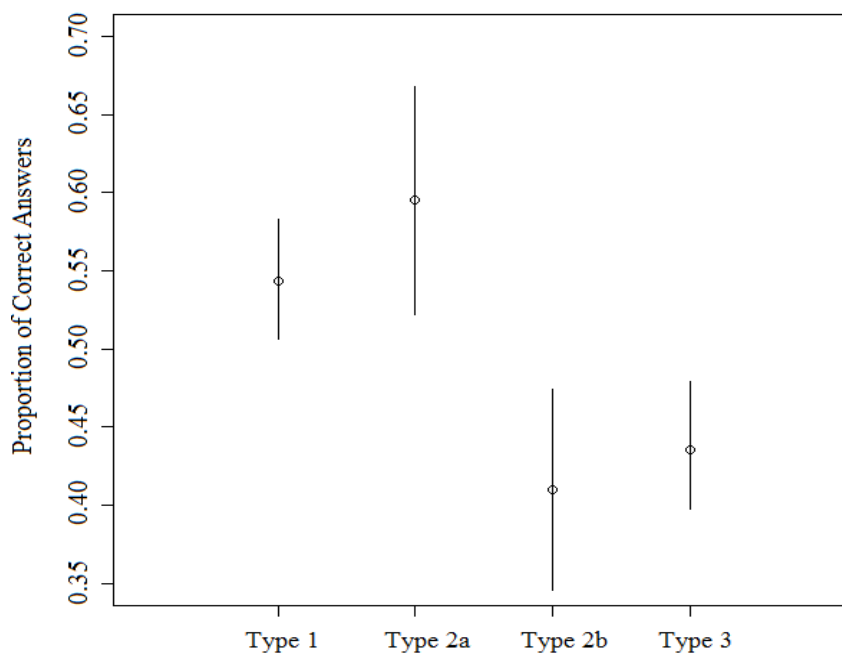

FIGURE 2. Bootstrapped Means and the 95% Confidence Intervals for Proportion of Correct Answers regarding Types 1, 2a, 2b, and 3

PARTICIPANTS WHO CHOSE CORRECT ANSWERS

Table 11 demonstrates the numbers of correct answers for each question. The characters 魚, 火, 漁, 光, 妹, 言, 海, 娘, 痛, 鋼, and 生 were the 11 most correctly identified characters for the total participants in the vocabulary test. Among these, Type 1 characters were 魚, 火, 漁, 光, 言, and 生. Type 2 characters were 妹 and 娘 (Type 2a). Type 3 characters were 痛, 海, and 鋼. Characters with 10 or more strokes were 魚, 漁, 娘, 痛, and 鋼. On the other hand, the 10 least correctly identified characters were 場, 病, 地, 産, 瞳, 眼, 過, 聴, 聞, and 輝.

TABLE 11. *Numbers of the Correct Answers and Kanji (*n = 116)

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
60	76	78	75	57	56	67	60	60	47
生	漁	火	光	語	見	海	痛	鋼	瞳
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
43	68	55	49	40	78	64	53	51	48
産	言	視	過	地	魚	娘	洋	聞	眼
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
55	37	29	52	53	51	74	57		
鉄	病	場	輝	通	聴	妹	焼		

The Kanji 場 was correctly identified by only 29 out of the total of 116 participants. Among these, Type 1 characters were 産 and 輝. The two Type 2b characters 瞳 and 眼 were correctly identified by 47 and 48 out of 116 participants, respectively. These appeared to be more difficult than the Type 2a characters 妹 and 娘 that were correctly recognized by 74 and 64 participants, respectively. Among Type 3 characters 場, 病, 地, 過, 聴, and 聞, the character 場 was correctly identified by 29 participants and was the least correctly recognized character.

As shown in Table 12, the 10 characters in the test, which demonstrated the maximum differences in scores between the experimental and control groups, were 鋼, 見, 光, 娘, 輝, 漁, 聞, 魚, 語, and 痛.

TABLE 12. *The 10 Characters Which Demonstrated the Maximum Differences*

Kanji (T: Type)	Experimental Group (*n* = 56)	Control Group (*n* = 60)	*t*-test Results (* Significant to 0.05, ** Significant to 0.01, *** Significant to 0.001)
鋼 (T3)	43 (76.8%)	17 (28.3%)	*t* = 5.9271, *df* = 113.997, *p* < 0.001***
見 (T1)	40 (71.4%)	16 (26.7%)	*t* = 5.3405, *df* = 113.053, *p* < 0.001***
光 (T1)	49 (87.5%)	26 (43.3%)	*t* = 4.3691, *df* = 85.411, *p* < 0.001***
娘 (T2)	43 (76.8%)	21 (35.0%)	*t* = 4.9601, *df* = 113.697, *p* < 0.001***
輝 (T1)	37 (66.1%)	15 (25.0%)	*t* = 4.8223, *df* = 111.19, *p* < 0.001***
漁 (T1)	48 (85.7%)	28 (46.7%)	*t* = 4.864, *df* = 106.029, *p* < 0.001***
聞 (T3)	35 (62.5%)	16 (26.7%)	*t* = 4.1169, *df* = 111.149, *p* < 0.001***
魚 (T1)	46 (82.1%)	32 (53.3%)	*t* = 3.4719, *df* = 110.014, *p* < 0.001***
語 (T1)	34 (60.7%)	23 (38.3%)	*t* = 2.4502, *df* = 113.367, *p* < 0.05*
痛 (T3)	35 (62.5%)	25 (41.7%)	*t* = 2.2757, *df* = 113.692, *p* < 0.05*

More than 60% of the experimental group correctly recognized these 10 characters, and the smallest difference between the percentages of correct responses from the two groups was 20.8% for 痛. Among the 10 characters demonstrated in Table 12, 見, 光, 輝, 漁, 魚, and 語

were Type 1 characters. 娘, a Type 2a character, was ranked fourth. Type 3 characters 鋼, 痛, and 聞 were ranked first, sixth, and eighth, respectively.

The difference between percentages of correct answers for 漁 was 39%, and 85.7% of the experimental group selected the correct answer. 光 was correctly identified by 87.5% of the experimental group, and the difference between percentages of correct responses given by the two groups was 44.2%. In addition, 76.8% and 66.1% of the experimental group correctly recognized 娘 and 輝, respectively, and the difference between the percentages of correct answers given by both groups for both characters was approximately 41%. The proportion of the correct responses from the control group for 輝 was 25.0%, the lowest among the 10 characters in Table 12. The differences between the experimental and control groups may justify the importance of the explicit demonstration of Kanji components.

The results also indicate that the presentation method used for the test facilitated the learning of characters with 10 or more strokes. More than 70% of the experimental group correctly identified 鋼, 見, 光, 娘, 漁, and 魚, among which 魚 was the most correctly identified (53.3%) by the control group. In contrast, 鋼, 聞, and 見 were correctly recognized by only 28.3%, 26.7%, and 26.7% of the control group, respectively. The visual complexity of 鋼 and 聞 may have been the primary reason for the low percentage of correct answers observed in the control group. The presentation method suggested in this study enabled an increase of at least 35% in scores for the three characters, which appeared to be difficult for the majority of the control group participants. The difficulty primarily faced by the control group was similar to that described in Matsumoto (2013), who reported that beginners of Japanese whose first language is based on an alphabet were required to improve their semantic processing skill to learn Kanji characters more effectively.

Among the characters, those with 10 strokes or more in Table 13 are 銭, 焼, 場, and 産 and 漁, 魚, 鋼, 聞, 語, and 鉄, respectively. The results indicate that the explicit presentation of semantic similarities suggested in this study facilitated the learning of Kanji characters including visually complex characters, most of which consist of more than 10 strokes.

TABLE 13. *Examples of the Characters Most Correctly Identified by the Experimental Group*

T1: Type 1 T2: Type 2 T3: Type 3			
漁 (T1) 85.7%	魚 (T1) 82.1%	鋼 (T3) 76.8%	海 (T3) 66.1%
聞 (T3) 62.5%	語 (T1) 60.7%	鉄 (T3) 57.1%	洋 (T3) 55.3%

The presentation of pairs of Kanji characters such as 光 (light) and 輝 (to shine) assisted the Kanji learning of the majority of the experimental groups of the three vocabulary tests in this study. The large number of strokes of visually complex characters did not hinder their learning to a large extent. In particular, the written instructions provided to the experimental group may have been more efficient for the learning of Kanji characters having more than 10 strokes as compared with those of the two previous tests. Furthermore, the Kanji pairs 漁 (part of "fishery") and 魚 (fish), 鋼 (steel) and 鉄 (iron), and 海 (sea) and 洋 (ocean) presented in Table 13 assisted the experimental group in learning both characters in each pair.

DISCUSSION

The results of the Kanji test conducted in this study revealed that written instructions in Malay assisted Malay-speaking university students in learning the listed Kanji characters with statistically significant differences. Chikamatsu's (2005) study, which examined

development of Japanese word recognition skills among English-speaking learners, proved the primary importance of the visual features of Kanji characters and assisted the results of this study.

Vocabulary learning can be actively and spontaneously supported by the first-language knowledge of learners, and their independence from rote memorization is gradually enhanced. The test results confirmed that the participants mostly relied on their first-language vocabulary knowledge when learning foreign-language vocabulary as suggested in Matsumoto (2013) and Horiba (2012).

However, when the Malay root shares less semantic similarity with a Kanji radical shared in the listed equivalent Kanji characters, e.g., *tempat* (place) and the radical 土 (soil, ground), the percentage of the correct answers is highly limited, suggesting that the shared radical should be selected carefully.

The experimental group often correctly recognized characters, such as 魚 (fish) (Type 1), 漁 (part of 漁業 "fishery") (Type 1), 妹 (younger sister) (Type 2a), 娘 (daughter) (Type 2a), and 海 (sea) (Type 3). The Type 1 characters 輝 (to shine), 焼 (to burn), 視 (part of 視力 "eyesight"), and 漁 (part of 漁業 "fishery") included more than 10 strokes and appeared to be visually complex for the Malay-speaking students who participated in the test. The Malay words *bercahaya* (to shine) from *cahaya* (light) and *membakar* (to burn) from *bakar* (root meaning "burn") were the equivalent of the listed Japanese words 輝く (to shine) and 焼く (to burn). Both the Malay words were derived by prefixes. This type of derivation could assist the participants of the experimental group in learning these characters. The Malay words *penglihatan* (eyesight, vision) from *lihat* (root meaning "see") and *perikanan* (fishery) from *ikan* (fish) that correspond to the Japanese words 視力 (eyesight, vision), and 漁業 (fishery) comprised a combination of a prefix and a suffix. Therefore, during the test the participants of the experimental group may have been able to concentrate on the details of the form of the characters while learning them.

Moreover, the explicit presentation of the character 聞 (to hear, listen) (Type 3) and its radical 耳 (ear) enabled 62.5% of the experimental group participants to correctly identify the meaning of the character. The low percentage (26.7%) of correct answers from the control group participants suggests that the absence of information on Kanji components hindered their analysis of the radical 耳 (ear) as the primary semantic component. The presence of the radical on the lower-middle side is less common than the other positions of radicals (right, left, or upper side), and some guidance on components is certainly desirable for Malay-speaking students who do not have prior knowledge of Chinese characters.

However, more than half of the participants did not understand the connections among 眼 (eye) (Type 2b) as part of 眼鏡 (eyeglasses), 瞳 (pupil) (Type 2b), and their radical 目 (eye) and the links among *cermin mata* (eyeglasses), *anak mata* (pupil), and the root *mata* (eye). The Malay word structure of *cermin* (mirror) and *mata* (eye) in *cermin mata* (eyeglasses) and the opposite Japanese structure of 眼 (eye) and 鏡 (mirror) in 眼鏡 (eyeglasses) may have negatively affected the learning of the participants.

The results also suggest that Japanese-language textbooks for Malaysian students could show the pair of Malay words *cahaya* (light) and *bercahaya* (to shine) in conjunction with the Kanji 光 (light) and 輝 (to shine). Malay-speaking learners who are given the pairs as semantically similar words can easily become aware of the presence of the Malay root *cahaya* (light) and the Kanji component 光 (light). In addition, the Japanese words *kaji* 火事 (destructive fire) and *yaku* 焼く (to burn) include the Kanji 火 and 焼, respectively. Their Malay equivalents *kebakaran* (destructive fire) and *membakar* (to burn) are derived from the root *bakar* (burn) that functions similarly to an English verb stem. Thus, an explicit

demonstration of the pair of the Kanji 火 and 焼 together with their Malay equivalents may also facilitate Malay-speaking students' Kanji learning. As these learners realize many semantically similar pairs between Malay and Japanese, they may come to a quicker and more in-depth understanding of the meaning and structure of the listed characters and words.

CONCLUSION

The aforementioned results suggest that an explicit presentation of common radicals of the Type 1, Type 2a, and Type 3 characters and their Malay equivalents could assist Malay-speaking university students in learning basic Kanji characters. The results could prove the advantage of the explicit demonstration of Kanji radicals, which was highlighted by Toyoda (2007). The primary significance of the study is analyzed as follows:

The three Kanji types proposed in this study were beneficial for a comparative presentation of Japanese and Malay words sharing several levels of similarities. Most of the Type 1 characters included pictograms such as 火 (fire) and were the easiest of all the types for the experimental group. The pair of 魚 (fish) (Type 1) and 漁 (fishery) (Type 1), the shared component 魚 (fish) of which is not categorized as its radical but another important element, also significantly benefited the experimental group participants. Japanese-language teachers should make the best of any Kanji component to assist learners in connecting the meaning of the radical and the Malay root with the Kanji characters and their Malay equivalents.

The Type 2a characters 妹 (younger sister) and 娘 (daughter) were included among the easiest to learn in the test. The similarities between the Japanese 妹 (younger sister), including the radical 女 (woman), and its Malay equivalent *adik perempuan* (younger sister) and those between the Japanese 娘 (daughter), which also included the radical 女 (woman), and its Malay equivalent *anak perempuan* (daughter) appeared to be the easiest to comprehend for the participants of the experimental group.

The radical 金 (gold, metal) shared in 鋼 (steel) (Type 3) and 鉄 (iron) (Type 3) statistically improved the Kanji learning of the experimental group. Teachers should carefully emphasize which meaning of the radical is most related to the whole of certain Kanji characters. The semantic connection among 海 (sea) (Type 3), 洋 (ocean) (Type 3), and the radical based on the character 水 (water) must also be clearly explained to students although they may easily succeed in connecting the concepts of water, sea, and ocean.

There are a number of contributions that this study can offer to other Japanese-language educators. The findings of this study suggest that Malay-speaking learners may benefit from the teaching of Japanese that incorporates Malay in the learning process, especially the development of teaching and learning materials exploiting the semantic similarities between the two languages. The findings will not only facilitate the learning of Japanese vocabulary by Malay-speaking beginners but also the teaching of basic Kanji in Malaysian universities that offer Japanese courses as a foreign language. For future studies, it would be desirable to examine the possibility of developing teaching materials comprising bilingual vocabulary lists such as those suggested.

REFERENCES

Chikamatsu, N. (2005). L2 Japanese kanji memory and retrieval: An experiment on the tip-of-the-pen (TOP) phenomenon. In V. Cook & B. Bassetti (Eds.), *Second language writing systems* (pp. 71-96). Clevedon: Multilingual Matters.

Chin, S. S., Najmudin, M., Ahmad, H. A. & Panel Penggubal Buku Bahasa Jepun (2010). *Bahasa Jepun tingkatan 1: Nihongo daisuki* [Textbook of the Japanese language level 1]. Putrajaya: Ministry of Education of Malaysia.

Department of Statistics Malaysia. (2019). Current population estimates, Malaysia, 2016–2017. Retrieved from https://www.dosm.gov.my/v1/

Hadamitzky, W. & Spahn, M. (2012). *Japanese kanji and kana*. North Clarendon, VT: Tuttle Publishing.

Horiba, Y. (2012). Word knowledge and its relation to text comprehension: A comparative study of Chinese- and Korean-speaking L2 learners and L1 speakers of Japanese. *Modern Language Journal*, *96*(1), 108–121. Doi: 10.1111/j.1540-4781.2012.01280.x

Ismail, J. & Ito, S. (2011). *Bahasa Jepun Tingkatan 2* [Textbook of the Japanese language level 2]. Shah Alam: Percetakan Tabah.

Koda, K. (2005). *Insights into second language reading: A cross-linguistic approach*. Cambridge: Cambridge University Press.

Larsen-Freeman, D. & Anderson, M. (2011). *Techniques and principles in language teaching* (3rd ed.). Oxford: Oxford University Press.

Lee, S. L., Ooi, G. L. & Kaivaliam, S. (2012). *Bahasa Jepun tingkatan 3* [Textbook of the Japanese language level 3]. Semenyih: Awan Metro.

Lee, S. L., Ooi, G. L. & Soeda, M. (2013). *Bahasa Jepun Tingkatan 4* [Textbook of the Japanese language level 4]. Semenyih: Awan Metro.

Liaw, Y. F. (2012). *Malay Grammar Made Easy: A Comprehensive Guide*. Batu Caves: Crescent News.

Matsumoto, K. (2013). Kanji recognition by second language learners: Exploring effects of first language writing system and second language exposure. *The Modern Language Journal*. *97*(1), 161-177. Doi: 10.1111/j.1540-4781.2013.01426.x

Mohd, J., Lee, S. L., Ooi, G. L. & Kitade, R. (2014). *Bahasa Jepun Tingkatan 5* [Textbook of the Japanese language level 5]. Semenyih: Awan Metro.

Nation, P. (2001). *Learning Vocabulary in Another Language*. Cambridge: Cambridge University Press.

Shaharuddin, G. S., Aziz, A., Sharif, S. & Abdul-Rashid, N. R. (2016). *Hajimete-no nihongo 1* [Elementary Japanese 1]. Cheras: Pustaka Nadwa.

The Japan Foundation (2017). *Survey Report on Japanese-Language Education Abroad 2015*. Tokyo: Kurosio Publishers.

Toyoda, E. (2007). Enhancing autonomous L2 vocabulary learning focusing on the development of word-level processing skills. *The Reading Matrix*. *7*(3), 13–34. Retrieved from http://www.readingmatrix.com/articles/etsuko_toyoda/article.pdf

Zhou, X., & Marslen-Wilson, W. (1999). Phonology, orthography, and semantic activation in reading Chinese. *Journal of Memory and Language*. *41*, 579-606.

APPENDIX 1

VOCABULARY LISTS AND FIRST-LANGUAGE INSTRUCTIONS FOR THE EXPERIMENTAL GROUP

Directions (English translation)
Please memorize Kanji (Chinese characters) which are **bold** in the following list. The total number of characters is 28. You will be given 30 minutes to learn. After this time, please answer the questions.

1. kata dasar (root): **cahaya**

cahaya	光　hikari
bercahaya	輝く kagayaku

Bahagian kiri tulisan 輝 (**bercahaya**) adalah 光 (**cahaya**).
輝 (**bercahaya**) digunakan di dalam kata kerja 輝く *kagayaku*.

2. kata dasar (root): **bakar**

kebakaran	火事　kaji
membakar	焼く　yaku

Perkataan 火事 *kaji* bermaksud "**kebakaran**". Tulisan 火 bermaksud **api**.
焼 (**membakar**) digunakan di dalam kata kerja 焼く *yaku*.

3. kata dasar (root): **perempuan**

adik perempuan	妹　imōto　(ō = o panjang)
anak perempuan	娘　musume

Bahagian kiri kedua-dua Kanji 妹 (**adik perempuan**) dan 娘 (**anak perempuan**) berasal daripada Kanji 女 (wanita).

4. kata dasar (root): **ikan**

ikan	魚　　sakana
perikanan	漁業 gyogyō

Tulisan 魚 (**ikan**) berasal daripada gambar ikan. Kedua-dua tulisan
魚 dan 漁 mengandungi 魚 (**ikan**). Radikal 氵 di dalam 漁 bermaksud "air".

5. kata dasar (root): **laut**

laut	海　　　umi
lautan Hindi	インド洋　Indo yō

Kedua-dua tulisan 海 (**laut**) dan 洋 (**lautan**) mengandungi radikal 氵 (air).
Perkataan bahasa Jepun *Indo* bermakna India.

6. kata dasar (root): **besi**

besi	鉄 tetsu
besi waja	鋼 hagane

Bahagian kiri kedua-dua tulisan 鉄 dan 鋼 ialah radikal 金 (emas, logam).
Ia bermaksud "logam" dalam konteks ini.

7. kata dasar (root): **mata**

anak mata	瞳 hitomi
cermin mata	眼鏡 megane

Bahagian kiri kedua-dua tulisan 瞳 dan 眼 ialah tulisan 目 (mata).

Kombinasi tulisan 眼 (mata) dan 鏡 (cermin) membentuk 眼鏡 (**cermin mata**).

8. kata dasar (root): **lihat**

melihat	見る miru
penglihatan	視力 shiryoku

Kedua-dua Kanji 見 dan 視 mengandungi tulisan 見 (**melihat**).

9. kata dasar (root): **dengar**

mendengar	聞く kiku
pendengaran	聴力 chōryoku

Kedua-dua tulisan 聞 dan 聴 mengandungi tulisan 耳 (telinga).

聞 (**mendengar**) digunakan di dalam kata kerja 聞く *kiku*.

10. kata dasar (root): **kata**

berkata	言う iu
perkataan	単語 tango

Tulisan 言 digunakan di dalam kata kerja 言う *iu* (**berkata**).

Tulisan 語 bermaksud "**perkataan**".

11. kata dasar (root): **lahir**

dilahirkan	生まれる umareru
melahirkan	産む umu

Bahagian bawah tulisan 産 (**melahirkan**) adalah 生 (**dilahirkan**).

12. kata dasar (root): **sakit**

kesakitan	痛み itami
penyakit	病気 byōki

Kedua-dua tulisan 痛 (**kesakitan**) dan 病 (**penyakit**) mengandungi radikal 疒 (sakit).

13. kata dasar (root): **lalu**

melalui	通る tōru
berlalu	過ぎる sugiru

Kedua-dua tulisan 通 dan 過 mengandungi komponen yang bermaksud "berjalan".

通 (**melalui**) digunakan di dalam kata kerja 通る *tōru*.

14. kata dasar (root): **tempat**

tempat	場所 basho
tempatan	地元の jimoto-no

場所 *basho* bermaksud "tempat", dan 地元の *jimoto-no* bermaksud "tempatan".

Bahagian kiri kedua-dua Kanji 場 dan 地 ialah Kanji 土 (tanah).

APPENDIX 2

VOCABULARY LISTS FOR THE CONTROL GROUP

Directions (English translation)
Please memorize Kanji (Chinese characters) which are **bold** in the following list. The total number of characters is 28. You will be given 30 minutes to learn. After this time, please answer the questions.

Abbreviations
(adj.): adjective (n.): noun (v.): verb "ō": long o

眼鏡 megane	cermin mata (n.)
魚 sakana	ikan (n.)
輝く kagayaku	bercahaya (v.)
聴力 chōryoku	pendengaran (n.)
生まれる umareru	dilahirkan (v.)
イン**ド**洋 Indo yō	lautan Hindi (n.)
地元の jimoto-no	tempatan (adj.)
鋼 hagane	besi waja (n.)
焼く yaku	membakar (v.)
娘 musume	anak perempuan (n.)
過ぎる sugiru	berlalu (v.)
視力 shiryoku	penglihatan (n.)
単語 tango	perkataan (n.)
病気 byōki	penyakit (n.)
産む umu	melahirkan (v.)
場所 basho	tempat (n.)
海 umi	laut (n.)
火事 kaji	kebakaran (n.)
瞳 hitomi	anak mata (n.)
光 hikari	cahaya (n.)
通る tōru	melalui (v.)
言う iu	berkata (v.)
鉄 tetsu	besi (n.)
漁業 gyogyō	perikanan (n.)
見る miru	melihat (v.)
妹 imōto	adik perempuan (n.)
痛み itami	kesakitan (n.)
聞く kiku	mendengar (v.)

APPENDIX 3

VOCABULARY TEST QUESTIONS

Directions (English translation)
"( )" indicates characters which are asked.
Please choose and circle a correct answer (a, b, c, or d)

1. dilahirkan ( )まれる umareru
a. 姓 b. 産 c. 性 d. 生

2. perikanan ( )業 gyogyō
a. 泣 b. 魚 c. 漁 d. 点

3. kebakaran ( )事 kaji
a. 炎 b. 焼 c. 火 d. 灯

4. cahaya ( ) hikari
a. 輝 b. 光 c. 米 d. 運

5. perkataan 単( ) tango
a. 語 b. 言 c. 計 d. 舌

6. melihat ( )る miru
a. 覚 b. 現 c. 見 d. 視

7. laut ( ) umi
a. 海 b. 洋 c. 河 d. 沖

8. kesakitan ( )み itami
a. 返 b. 痛 c. 本 d. 病

9. besi waja ( ) hagane
a. 釣 b. 鉄 c. 針 d. 鋼

10. anak mata ( ) hitomi
a. 明 b. 眼 c. 瞳 d. 暗

11. melahirkan ( )む umu
a. 姓 b. 産 c. 生 d. 性

12. berkata ( )う iu
a. 計 b. 語 c. 舌 d. 言

13. penglihatan ( )力 shiryoku
a. 現 b. 視 c. 見 d. 覚

14. berlalu ( )ぎる sugiru
a. 延 b. 通 c. 過 d. 廷

15. tempatan ( )元の jimoto-no
a. 池 b. 湯 c. 場 d. 地

16. ikan ( ) sakana
a. 漁 b. 魚 c. 点 d. 泣

17. anak perempuan ( ) musume
a. 奴 b. 妹 c. 嫁 d. 娘

18. lautan Hindi インド( ) Indo yō
a. 海 b. 河 c. 洋 d. 沖

19. mendengar ( )く kiku
a. 聞 b. 間 c. 問 d. 開

20. cermin mata ( )鏡 megane
a. 明 b. 瞳 c. 暗 d. 眼

21. besi ( ) tetsu
a. 鋼 b. 鉄 c. 針 d. 釣

22. penyakit ( )気 byōki
a. 痛 b. 返 c. 本 d. 病

23. tempat ( )所 basho
a. 場 b. 池 c. 地 d. 湯

24. bercahaya ( )く kagayaku
a. 米 b. 運 c. 輝 d. 光

25. melalui ( )る tōru
a. 廷 b. 過 c. 延 d. 通

26. pendengaran ( )力 chōryoku
a. 恥 b. 聴 c. 職 d. 聞

27. adik perempuan ( ) imōto
a. 娘 b. 奴 c. 妹 d. 嫁

28. membakar ( )く yaku
a. 焼 b. 火 c. 灯 d. 炎

ABOUT THE AUTHOR

Kazuhito Uni is a senior lecturer at the Islamic Science University of Malaysia. He obtained his master's degree from Kyoto University, Japan, and Ph.D. in Linguistics from the University of Malaya, Malaysia. He was invited for an academic speech at the National Institute of Education, Singapore.