Explicit Demonstration of Cross-linguistic Similarities in Teaching Japanese Kanji to Malaysian University Students

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Abstract

This study examines the usefulness of using Malay to teach Japanese words comprising Chinese characters ("Kanji") to 107 Malaysian, native Malay-speaking university students. Most participants had no previous knowledge of Japanese and the others were still at the novice level. The experimental group was provided a vocabulary list with written instructions in Malay and Japanese vocabulary that included 28 frequently used characters, whereas the control group was given a list with the same words but without such instructions. The 28 Japanese words were presented as 14 pairs in the list distributed to the experimental group, with each pair comprising a common Kanji component or common Malay radical that highlighted semantic similarities between Japanese and Malay. Both the experimental and control groups were given 30 minutes to learn the 28 Kanji and another 30 minutes to answer identical multiple-choice tests containing 28 questions. After the test, the average scores of the experimental and control groups were analyzed using the *t*-test. At a 5% confidence level, a significant difference was found between the scores of the two groups ($p < .001$, $t = 6.893$, $d = 1.34$). Thus, the authors concluded that providing a vocabulary list highlighting semantic similarities between Japanese and Malay with written instruction in Malay, the learners' first language, can benefit native Malay-speaking university students in their acquisition of basic Chinese characters used in Japanese.

Keywords: Kanji; Malay; vocabulary; semantic similarities; first language

Introduction

Basic Structure of Chinese Characters

Shuōwén Jiězì, a dictionary of Chinese characters compiled in China in A.D. 100, classifies Kanji into six categories (The Society for Teaching Japanese as a Foreign Language, 1990, p. 275). Those in the first class, *Xiàngxíng* (*Shōkei* in Japanese) originated as pictograms (p. 273). The second class, *Zhǐshì* (Japanese *Shiji*), was originally ideographic. The third class, *Huìyì* (Japanese *Kaii*), contains compound ideographs. The fourth class, *Xíngshēng* (Japanese *Keisei*), contains phono-semantic compounds. These four classes cover the primary strategies for generating Kanji. The fifth class, *Zhuǎnzhù* (Japanese *Tenchū*) literally meaning "changed interpretation," has no common definition because the *Shuōwén Jiězì* did not clearly explain this category. The sixth class, *Jiǎjiè* (Japanese *Kasha*), is not another type of character, but the "use of another Kanji with a similar pronunciation" to indicate a word that was originally spelled differently (p. 274).

Shirakawa (2007) provides etymological interpretations for approximately 7,000 Kanji, and states that the Kanji 目, meaning "eye," originates from a pictogram of an eye (p. 855). The Kanji 見 comprising 目 means "to see" but does not cover all words related to the acts of seeing or looking. Another character, 視, is included in words such as 視力 ("eyesight"). The main element of a character, called *bushu* or radical, shows its global meaning. This is the primary reason why more than ten thousand different Kanji exist and many of them share the same radicals. Thus, Chinese characters have their own special system of relating words that share the same radical or other elements in the characters.

Characteristics of Kanji Characters in Japanese

In Japanese, Kanji characters usually have two types of pronunciation called *On-yomi* and *Kun-yomi*. *On-yomi* is a type of pronunciation of Chinese characters borrowed from classical Chinese during different periods of time. *Kun-yomi* is Japanese native pronunciation given to Chinese characters used in the Japanese language. In Japanese, many native words are written with Chinese characters. However, if these words are made of more than three syllables, they are usually written with Chinese characters having related meanings, and these Kanji are followed by Japanese phonetic characters indicating one or more syllables near the end of the word; this is *Kun-yomi* pronunciation. Kanji used for words unique to Japanese rarely have a phonetic connection with the original pronunciation of characters in classical Chinese used in the periods when Chinese characters and their pronunciation were borrowed into classical Japanese. For example, the original Japanese word *utsukushii* ("beautiful") is spelled 美しい. Its first character is the Kanji 美 that means "beautiful," and the second and third characters are phonetic and indicate the syllables *shi* and *i*. When the Kanji 美 is used as a part of Chinese-origin words such as *bijo* 美女 ("beautiful woman"), it is pronounced *bi*; this is the *On-yomi* pronunciation. Therefore, most Chinese characters used in Japanese have multiple pronunciations. 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 that is considerably different from a Malay word.

Characteristics of Malay Vocabulary Derivation

Malay belongs to the Austronesian language family (Crystal, 2010, p. 328). Japanese, whose origin is still uncertain (Crystal, 2010, p. 316), has an almost completely different vocabulary from Malay. Additionally, Malay contains many loanwords from Sanskrit and Arabic (Watson-Andaya & Andaya, 1982, pp. 14, 53), while the main source of Japanese loanwords in ancient times was classical Chinese, which has neither affixes

nor a derivation system similar to Malay, Sanskrit, or Arabic. Therefore, Malay-speaking learners who wish to make use of their first-language knowledge cannot rely on morphological similarities between Malay and Japanese words. However, such learners and Japanese-language teachers in Malaysia could focus on other types of similarities such as those of a semantic nature.

A significant characteristic that is common to the Malay language is the wide range of derivations made possible by affixes proper to the language that are then added to root words. A Malay root word can be a noun, an adjective, or the radical of a verb. For example, the Malay root word *perempuan* ("woman") forms compounds such as *anak perempuan* ("daughter") and *adik perempuan* ("younger sister"). *Anak* means child and *adik* means younger sister or younger brother. These words (*anak* and *adik*) are usually specified by a word indicating their gender. The Malay noun *cahaya* ("light") has a derivative *bercahaya* ("to shine"), preceded by the prefix *ber-* (Harper-Collins, 2005, p. 440). A verb-based Malay root word such as *lihat* ("to see") is usually followed by the verbal prefix *me-* in formal written Malay (Liaw, 2012, p. 111). In addition, *lihat* can also be the radical of a noun such as *penglihatan* ("eyesight, vision"). Here, the combination of the prefix *peng-* and suffix *-an* transforms a root word into a noun. Similarly, this combination can form the noun *pendengaran* ("hearing" as a physical sense) derived from the root word *dengar* ("to hear, to listen") (p. 24).

Objective

The objective of the present study is to suggest and examine an efficient method of explicitly presenting groups of Kanji characters, including a common semantic component, along with semantically similar Malay equivalent words, to facilitate the learning of Kanji characters by native Malay-speaking university students in Malaysia. In particular, the method capitalizes on a broader utilization of the learners' first language and of semantic similarities between Japanese Kanji characters and their Malay equivalents.

The research questions of the present study are as follows:

1. Does the use of Malay to demonstrate Japanese Kanji and their Malay equivalents that share similar meanings facilitate the recognition of semantic components and the learning of Kanji characters?
2. Does explicitly presenting semantic similarities between Kanji characters and their Malay equivalents assist Malay-speaking students in learning Kanji characters with approximately with 10–19 strokes that share a semantic component?

Nation (2001) insists that the use of learners' first languages in vocabulary teaching efficiently informs them of word meanings in a foreign language (p. 351). Other studies, such as Ringbom (2007), Swan (1997), and Schmitt (2010), also affirm that learners' vocabulary knowledge in their first language can foster vocabulary learning in a foreign language, especially words having semantic similarities across languages. It is based on these findings that this study aims to answer the current research questions.

Literature Review

Problems in Teaching Kanji Characters to Malay-Speaking Students

Learning vocabulary is one of the most important elements in language learning. When it comes to Japanese vocabulary, Chikamatsu (2005) indicates that learners of Japanese as a foreign language (JFL), particularly, whose first language has a phonological writing system, such as the Latin alphabet, frequently face difficulties in learning Kanji characters. This is because there is no systematic one-to-one correspondence between the characters' components and their pronunciation. Furthermore, many of the characters have multiple readings. For example, the character 男 ("man") can be pronounced *o* (as part of a name, such as *Kazuo* 和男), *otoko* (as an original Japanese word, meaning "man"), and *dan* (as part of Chinese-origin loanwords, such as *dansei* 男性 "man") according to the contexts and positions of the character in a word (pp. 71–72). Koda (2005, p. 79) lists the massive number

(2,834) of Chinese characters taught in the six years of primary education in China; however, she also indicates that more than 80% of the Chinese characters consist of a combination of semantic and phonetic components. In addition, she exemplifies characters such as 湖 (“lake”), 池 (“pond”), and 洋 (“ocean”) that share the semantic component or radical (氵) having a holistic meaning of “water” (p. 80).

The majority of Malaysians are Malays; they mostly speak Malay as their first language and are neither accustomed to Chinese 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. A Malaysian Japanese-language textbook by Mohd-Hassan (2011) is used in elementary-level Japanese classes at a major Malaysian university. It explains basic grammar in Malay and English, demonstrating basic vocabulary items and phrases. However, all Japanese words and sentences are shown only in Hiragana phonetic characters, and the textbook presents neither Katakana phonetic characters nor Kanji characters. Chin et al. (2010), Ismail and Ito (2011), and Lee, Ooi, and Kaivaliam (2012), three Malaysian Japanese-language beginners’ textbooks for native Malay speakers, present 35, 21, and 31 basic Kanji, respectively. Among them, only one Kanji (語 “language; word”) in Ismail and Ito (2011) and five (黒 “black,” 買 “to buy,” 間 “between,” 聞 “to hear,” and 話 “talk”) in Lee et al. (2012) contain 11 strokes or more. The teaching of Japanese Kanji in Malaysian secondary schools has additional restrictions. In particular, only one specific pronunciation is shown for each Kanji to reduce confusion. For instance, a second-year Japanese textbook by Ismail and Ito (2011, p. 98) only demonstrates the Kanji 言 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 Kana

phonetic characters followed by a Kanji. In addition, a fourth-year textbook by Lee, Ooi, and Soeda (2013, p. 149), presents the Kanji 文 with Malay translations and sample words that include that character. The word 文化 (*bunka*) ("culture"), generally written with two Kanji is shown as 文か because the Kanji 化 is not taught in the current series of Malaysian secondary-school textbooks. This restriction in terms of Kanji demonstration can be an oversimplification that decreases students' opportunities to learn basic Kanji.

Importance of Visual and Semantic Features of Kanji

To teach such complex characters, Japanese-language teachers need to introduce Kanji characters to beginners through determining the Kanji character elements that should be prioritized. Using a six-scale questionnaire, Shimizu and Green (2002) investigated the strategies and attitudes of Japanese-language teachers toward teaching Kanji. The respondents to their survey were 251 Japanese-language teachers in the US. Although many approaches to facilitate Kanji learning have long been developed, more than 70% of the respondents agreed with and supported assignments of repeated writing practice of each Kanji and around 65% of the total respondents preferred etymological explanations on the taught characters. The respondents' reports are, however, affected by personal resistance to particular types of strategy. Using a questionnaire, Rose (2012, 2013) analyzed 12 Japanese-language learners' use of different types of Kanji learning strategies such as cognitive learning strategies, mnemonic strategies, motivation-control strategies, and learning-control strategies. The research results indicated that while completing the questionnaire, learners frequently reported their use of pictorial-association strategy, a cognitive strategy; however, during personal interviews aimed at stimulating the participants' recall, learners revealed that they use mnemonic strategies more frequently than had been indicated on the questionnaire. Some participants appeared to be reluctant to report their use of simple memory strategies in which they try to connect meaning and pronunciation of Kanji

characters primarily by inventing stories. One of the respondents of Rose's (2012, 2013) study, who was able to utilize mnemonic strategies, limited their use only when he could associate the meaning of Kanji components with the actual meaning of the character. Another respondent, who only focused on learning characters' form using memory strategies, frequently failed to connect their forms with their meaning. Many learners do not successfully associate either of the two elements with Kanji forms. Therefore, Rose's (2013) research emphasized the importance of building meaningful associations between the meaning and pronunciation of targeted Kanji characters using a mnemonic approach.

Perfetti and Liu (2005) suggested that different writing systems such as alphabetic (e.g., English and Spanish), syllabic (e.g., Kana phonetic characters in Japanese), and logographic (e.g., Chinese characters) systems require different reading and word recognition processes for readers, particularly, for native speakers of a language. Matsumoto (2013, p. 163), who discusses word recognition models for Chinese characters in Mandarin and Japanese, points out that when readers access semantic information of Chinese characters, their orthographic process is more closely connected with comprehension of meaning than their phonological process. Zhou et al. (1999) emphasize that more than 80% of the components of Chinese characters represent partial semantic relationships to the whole character, but less than 40% of the components include hints on the pronunciation of the character. Using a computerized vocabulary task and a related questionnaire, Matsumoto (2013) examined 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, which has a logographic writing system. 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 than second-language knowledge when learning Kanji characters.

Mori (2014) summarizes studies about Kanji processing and learning from approximately the past 20 years. This research describes that knowledge of each Kanji consists of various facets such as the visual complexity and multiple pronunciations of each character. Studies indicate that learners whose first language is not Mandarin or another Chinese language variety need to develop and efficiently utilize visual or non-phonological processing strategies to systematically learn Kanji characters. As such learners improve their Kanji processing skills, the comprehension of visual and semantic features of Kanji characters gradually deepens (Mori, 2014, p. 414). In addition, Everson (2011) conducted a comprehensive review of recent studies on the teaching of Arabic, Chinese, Hebrew, and Japanese, all of which have non-Latin character writing systems. His study emphasizes the importance of developing the ability to exploit the semantic elements of the characters from an early learning stage as this skill enables learners to efficiently recognize and infer the meanings of unknown words (p. 263). It was also stressed that that by improving their recognition of each character's semantic components, learners can more easily remember the characters than through rote memorization (p. 264).

Chikamatsu (1996) is a comparative study on the word recognition strategies of American and Chinese learners of Japanese. The study involved two groups of students who were native speakers of English and Mandarin, respectively. They were provided with Japanese words written in Kana phonetic letters, including pseudo-words. While identifying whether the given words were authentic Japanese words or not, American learners more frequently used strategies related to phonological processing and Chinese learners more often relied on visual processing that is frequently used in reading their first language. Chikamatsu's study suggests differences between word processing techniques used by learners familiar with an alphabetic writing system and those primarily accustomed to a logographic system. Chikamatsu (2006), who examined English-speaking learners' development of Japanese word recognition skills, affirms that the group of participants obtaining high scores most frequently recognized visual features of the tested words, rather than the phonetic features.

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 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.

Mori, Sato, and Shimizu (2007) administered a 75-item Kanji test to 80 students learning Japanese in two US universities. The test included a section on radical awareness that examined the students' productive use of the knowledge of radicals in a given context. For example, one of their test questions in which the Kanji 銅 (bronze) was the correct answer, there were three similar characters 同, 胴, and 洞 as incorrect options. Participants were required to identify the meaning of the radical of the Kanji 銅, which is related to "metal." The main objective of their test was evaluating the participants' learning skills of Kanji characters and their related radicals. The test's mean (0.63) and standard deviation (0.22) for the section on radical awareness, as well as the results of the other four sections, affirmed that a majority of the participants were able to use their previous knowledge of Kanji characters and radicals on the test.

Mori, Sato, and Shimizu's (2007) study, which used Kanji characters with several different components in its Kanji test, was an informative reference for the choice of Kanji characters used in the multiple-choice questions that made up the present vocabulary test. Chikamatsu's (2005, 2006) studies, which examined development of Japanese word recognition skills among English-speaking learners, demonstrated the primary importance of the visual features of Kanji characters and assisted the author of

this study in selecting Kanji characters and their major components that could encourage Malay-speaking students' learning of Kanji characters and their relevant vocabulary. The majority of the aforementioned studies are based on the hypothesis that enhancing learners' focus on the components of Kanji characters taught in vocabulary experiments would enable JFL learners to rapidly understand the basic structures of Kanji characters. From this perspective, the author established a presentation method that would accelerate learners' recognition of the common components shared by each pair of listed Kanji characters, which were demonstrated to the experimental group during the Kanji vocabulary tests.

The abovementioned studies contribute to the elaboration of the vocabulary instructions and tests used in this study. Since such semantically similar pairs are limited in number, 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. Moreover, the written instructions distributed to the experimental group of the tests in this study only explain Kanji components' meanings based on conventional interpretations, such as in Shirakawa (2007).

Methodology

This study focuses on the semantic similarities between Japanese and Malay words. The instructions written in Malay for the experimental group are intended to raise the learners' consciousness of semantic similarities between the listed Japanese and Malay words.

Four Types of Similarities between the Listed Japanese and Malay Words

Koda (2005, p. 59) demonstrates the principal reasons that support the efficacy of explicit learning of vocabulary without contexts. Firstly, Koda notes that L2 learners, already possessing the cognitive ability to use L1 vocabulary equivalents to L2, can develop their L2 comprehension skills rapidly. Secondly, she indicates that learners' comprehension abilities through incidental vocabulary learning affect success levels of

the learning heavily. In other words, decontextualized vocabulary learning appears to assist L2 vocabulary acquisition more independently than implicit learning. In addition, Schmitt (1997) highlights the benefits of the grouping of vocabulary items because it often enhances recall of the target language vocabulary (p. 213). This study aims to explicitly demonstrate Japanese words and their Malay equivalents that share semantic similarities. Associated Japanese and Malay words demonstrated in this study primarily consist of two vocabulary items and their equivalents.

This study proposes four types of Japanese Kanji that are similar to Malay. The similarity of the first type ("Type 1 Similarity") is based on the existence of semantic similarities between Japanese and Malay words. Type 2 Similarity is also based on the semantic similarity between words in the two languages; however, the shared items in each language have an almost identical meaning (see Table 2). Type 3a and Type 3b are linked to general semantic connections related to the Japanese and Malay words. Vocabulary items in these two types share a Malay word and Kanji component in Japanese, which have less semantic overlaps compared with those in the first two types. The present study proposes the demonstration of semantically similar words and L1 written instructions regarding semantic similarities between the listed Japanese and Malay vocabulary items as the major originality of this study.

Type One Similarity. Table 1 is an example from the experimental group's vocabulary list for this present study, and includes tables and written instructions used in the test. The instructions, which were given in Malay in the test, are translated into English in this article. Words and Kanji characters shown in Table 1 are examples in the Type 1 category of this study. The instruction sheets distributed to the experimental group also included more complex Type 1 characters (e.g., pair of 火 "fire" and 焼 as part of the word 焼く "to burn"), which share a common component with simpler characters within the pair. The combination of simple and complex characters was intended to alleviate

any difficulty felt by experimental group participants and to help them focus on the listed Kanji characters.

For example, the Malay root word *cahaya* has a basic meaning of “light.” Similarly, the Kanji 光 means “light” and is included in another character 輝 (“to shine”). Their Malay equivalent shown in the test was *bercahaya* (“to shine”).

Table 1. *Example of Type 1 Similarity*

	Malay	**Japanese**
Shared word or component	cahaya (a root of “light”)	光 (“light”) (right-side component of the Kanji 輝)
Listed word 1	cahaya (“light”)	光 (“light”)
Listed word 2	bercahaya (“to shine”)	輝く (“to shine”)

Type Two Similarity. Table 2 demonstrates *anak perempuan* (“daughter”), *adik perempuan* (“younger sister”), and their Japanese counterparts. These two Malay words share the root, *perempuan* (“woman”). In Japanese, the two characters, 娘 (“daughter”) and 妹 (“younger sister”), which are categorized as Type 2 in this study, share the radical 女, which means “woman.”

Table 2. *Example of Type 2 Similarity*

	Malay	**Japanese**
Shared word or component	perempuan (“woman; female”)	女 (“woman”) (left-side component of the two Kanji)
Listed word 1	anak perempuan (“daughter”)	娘 (“daughter”)
Listed word 2	adik perempuan (“younger sister”)	妹 (“younger sister”)

Type 3a Similarity. The principal criterion of the Type 3 similarity is the existence of the same component of Kanji shared by two Kanji. Type 3a characters include a common component that can be used as an independent Kanji, and other cases are categorized as Type 3b. Table 3 demonstrates an example of Type 3a similarity; *mendengar* (“to hear”) and *pendengaran* (“hearing”) are semantically related to the concept of ear, although their root *dengar* (“hear”) does not mean “ear.” The two listed Kanji 聞 (“to hear, listen”) and 聴 (“to listen”) include a common radical, which is also an independent Kanji 耳 (“ear”). 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. Japanese and Malay words based on Type 3 Similarity are very close in meaning. Thus, characters in the categories of Types 3a and 3b foster the ability for learners to imagine and understand a shared basic meaning between each pair of the two listed Kanji.

Table 3. *Example of Type 3a Similarity*

	Malay	**Japanese**
Shared word or component	dengar (a root, which means "hear; listen")	耳 ("ear," which can be used independently)
Listed word 1	mendengar ("to hear; to listen")	聞く ("to hear; to listen")
Listed word 2	pendengaran ("hearing")	聴力 ("hearing")

In the category Type 3a, each pair of Kanji in the vocabulary list share a common component that can be used independently: 聞 and 聴 (radical: 耳 "ear"), 叫 and 鳴 (radical: 口 "mouth"), 場 and 地 (radical: 土 "ground, soil"), and 結 and 縛 (radical: 糸 "thread"). Three pairs of Kanji in the category Type 3b also include a common radical; however, the radical does not form an independent Kanji in the following pairs: 海 and 洋, 病 and 痛, and 通 and 過.

Type 3b Similarity. Similarly, the two Kanji 海 ("sea") and 洋 ("ocean") shown as Type 3b characters in Table 4 share a common radical 氵 (*sanzui*) that originates from the Kanji 水 (water). The corresponding Malay words *laut* ("sea") and *lautan* ("ocean") do not contain any word related to water; however, Malay-speaking learners who are shown the two Kanji and their Malay equivalents may easily notice that the meanings of "sea" and "ocean" are closely connected to "water," and this mental process may foster their learning of the listed Kanji. The semantic similarities between Japanese and Malay of Types 3a and 3b are mainly based on structures of Kanji, but their corresponding Malay words also maintain semantic similarities. This is the principal difference from the presentation methods of Kanji textbooks, which do not utilize similarities between a learner's first language and Japanese Kanji.

Table 4. *Example of Type 3b Similarity*

	Malay	**Japanese**
Shared word or component	laut (a root, which can derive to “sea” and “ocean”)	氵(a component, meaning “water,” which cannot be used independently)
Listed word 1	laut (“sea”)	海 (“sea”)
Listed word 2	lautan (“ocean”)	洋 (“ocean” as part of a proper noun)

As described above, there are many examples of semantic similarities between Japanese and Malay despite belonging to different language families. The vocabulary test of the present study will include such examples that may possibly help students learn Japanese words, including Kanji.

Participants

The participants of the vocabulary test were a total of 107 Malaysian university students who are native speakers of Malay. All the participants were Engineering majors. We obtained official written permission from a Malaysian university and collected data in eight different classes. Prior to administering the tests in eight classes, one of the researchers randomized the participants by asking each of them to draw a folded piece of paper from a box which assigned them to either the control group (51 participants) or the experimental group (56 participants). The researcher inquired as to whether the participants had learned Japanese at any institution formally or informally. Those having any prior learning experiences were excluded. None of the participants included in the study had previous knowledge of Kanji characters, and it was not possible to carry out delayed production post-tests for the listed characters in the allotted 30 minutes. In addition, the authors were unable to locate the same Malay-speaking participants for

subsequent tests to examine their long-term retention because of time and curriculum constraints.

Instruments Used

Vocabulary lists as exemplified in Tables 7, 8, and 9 were created for this study to facilitate Malay-speaking learners' memorization of Kanji. All of these Kanji are taught within the six years of primary school in Japan. According to Tokuhiro (2008), which covers approximately 2,100 Kanji (*Jōyō Kanji*) taught in Japanese elementary and junior high schools, the highest- and lowest-frequency rankings of the selected characters are 15th and 1,898th, respectively. Based on these rankings, we deemed the selected Kanji appropriate for this study (See Table 5).

Table 5. *Categorization of Each Pair of Kanji in the Vocabulary Test*

Numeric Codes: (1) = Type 1 (2) = Type 2 (3a) = Type 3a (3b) = Type 3b				
火 and 焼 (1)	見 and 視 (1)	言 and 語 (1)	金 and 銭(1)	生 and 産 (1)
光 and 輝 (1)	妹 and 娘 (2)	叫 and 鳴 (3a)	場 and 地 (3a)	結 and 縛 (3a)
聞 and 聴 (3a)	海 and 洋 (3b)	病 and 痛 (3b)	通 and 過 (3b)	

Procedures

The experimental group was given a list of 28 Japanese words, the corresponding Malay vocabulary and written instructions in Malay. The Japanese words were presented as 14 pairs in the list for this group, and each pair included a common or a similar radical that usually indicated a semantic or phonetic similarity. Simultaneously, the control group received a list of the same Japanese vocabulary and corresponding Malay words without instructions. Both the experimental and control groups were given 30 minutes to learn the words and another 30 minutes to answer the same multiple-choice test consisting of 28 questions. After the test, the number of correct answers by each participant was counted, and the average scores of the experimental and control groups were analyzed using a *t*-test.

The written instructions and meaning of the given Japanese words on the lists and the tests for the experimental and control groups were written in Malay. The sheets distributed to the experimental and control groups both contained the abbreviations: “(adj.)” (adjective), “(n.)” (noun), and “(v.)” (verb). A vocabulary list without additional instructions was distributed to the control group. It contained the same Japanese words as those for the experimental group, but only presented the spelling and pronunciation of the Japanese words, their Malay translations, and abbreviations for the part of speech (see Table 6). The Japanese characters to be learned were printed in bold.

Table 6. *Example of Words in the Vocabulary List for the Control Group*

インド**洋** Indo yō	lautan Hindi (n.)
地元の jimoto-no	tempatan (adj.)
視力 shiryoku	penglihatan (n.)
光 hikari	cahaya (n.)

Questioned Vocabulary and Written Instructions for Experimental Group

In order to illustrate the kinds of items used in the study’s tests, this section presents four examples of lists and instructions for the experimental group. These examples utilized Malay root words such as *cahaya* (“light”) and *dengar* (“hear”). Table 7 demonstrates *cahaya* (“light”), *bercahaya* (“to shine”), and their corresponding Japanese words. The Kanji 光 (“light”) includes a variant form of 火 (“fire”). The Kanji 輝 (part of 輝く “to shine”) includes 光 as its sign of meaning. Similarly, the Malay word *cahaya* (“light”) is also included in *bercahaya* (“to shine”).

Table 7. *Sample Pairing of Malay and Type 1 Kanji*

Root word: *cahaya* (light)	
cahaya (n.)	**光** hikari
bercahaya (v.)	**輝**く kagayaku

Table 8 demonstrates *mendengar* (“to hear”) and *pendengaran* (“hearing”), as well as their corresponding Japanese words. The Kanji 聞 and 聴 both include the Kanji 耳 (“ear”).

Here, 聞 (“to hear”) is used as a part of the Japanese verb *kiku* 聞く, and 聴 is used as part of the word *chōryoku* 聴力 (“hearing”).

Table 8. *Sample Pairing of Malay and Type 3a Kanji*

Root word: *dengar* (hear)	
mendengar (v.)	**聞**く kiku
pendengaran (n.)	**聴**力 chōryoku

Finally, Table 9 demonstrates *laut* (“sea”), *lautan Hindi* (“the Indian Ocean”), and their corresponding Japanese words. The Kanji 海 (“sea”) and 洋 (“ocean”) both include the same sign of meaning, which has a global meaning of water. The Japanese word *Indo* means India. In general, the Kanji 洋 is used as a part of proper nouns such as the example in the table.

Table 9. *Sample Pairing of Malay and Type 3b Kanji*

Root word: *laut* (sea)		
laut (n.)	海	umi
lautan Hindi (n.)	インド洋	Indo yō

Results and Discussion

Scores of Experimental and Control Groups

Table 10 presents the scores for the experimental and control groups in the vocabulary test. In total, the mean scores of the experimental and control groups were 17.5 and 12.55, respectively (n = 107). At a 5% confidence level, a significant difference was found between the scores of the two groups (p < .001), with a healthy effect size of 1.34.

Table 10. *Total Scores for the Experimental and Control Groups (*n = *107)*

	Experimental Group	Control Group
Group Total	980	640
Mean Score	17.5 (maximum: 28)	12.5
SD	4.29	3.02
Number of Participants	56	51
p-Value	< .001	
t-Value	6.893 (> 1.983)	
Df	105	
Cohen's d	1.34	

Numbers of Participants Who Chose Correct Answers

It is interesting to note early on that in five classes out of the total eight classes, many participants in the experimental group repeatedly practiced writing the Kanji and corresponding Malay words on the sheet including vocabulary lists and L1 written

instructions before the test. Although the sheet was returned to the administrator, these participants might have learned and carefully observed the details of the listed Kanji compared with other participants. Writing new vocabulary repeatedly is suggested to be an efficient learning practice as proposed by Oxford (1990, p. 66). It may enable rapid visual learning even before learners know the right stroke order of the Kanji to be learned.

Table 11 demonstrates the numbers of respondents who chose the correct answers.

Table 11. *Numbers of Respondents who Chose the Correct Answers and Kanji (*n = *107)*

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
78 生	60 銭	79 火	87 光	56 語	73 見	57 海	61 痛	31 縛	53 鳴
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
40 産	85 言	66 視	37 過	36 地	59 結	61 娘	52 洋	58 聞	82 金
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
43 叫	51 病	40 場	73 輝	56 通	41 聴	63 妹	59 焼		

The results of the vocabulary test indicate that the Kanji 光, 言, 金, 火, 生, 輝, 見, 視, 妹, 痛, and 娘 were the easiest to learn for participants in the test. The 10 most difficult Kanji characters for the participants were 縛, 地, 過, 産, 場, 聴, 叫, 病, 洋, and 鳴. Characters including 10 strokes or more, such as the Kanji 輝 (15 strokes), 痛 (12 strokes), 視 (11 strokes), and 娘 (10 strokes) are included in the 11 most-correctly identified Kanji. In particular, the characters 光, 見, and 妹, which were included among

these 11 characters, and simpler characters in the pairs presented with the characters 輝, 視, and 娘, assisted the test participants in learning both characters in these pairs.

The Malay *dilahirkan* (“to be born”) derived from the root *lahir* and *penglihatan* (“eyesight”) from the root *lihat* demonstrated as first-language equivalents to the listed Japanese words 生まれる (“to be born”) and 視力 (“eyesight”), respectively, include a combination of a prefix and a suffix; however, this Malay structure did not cause many participants to make errors. The tenth most correctly identified Kanji 痛 includes the radical 疒, which occupies the left and upper sides of the character and seems more difficult to recognize than radicals located either on the left or right side of the character. Despite this difficulty, 61 participants (approximately 57%) recognized this character. However, the Kanji 病, which shares the same radical, is included in the nine least correctly identified Kanji. This demonstrates the difficulty of a radical covering two sides of a character.

The Kanji 叫 (43 correct answers or approximately 40%) was presented with 鳴 (53 correct answers or approximately 50%) in the same pair. Although the former includes fewer strokes, it obtained less correct answers. The component 鳥 on the right side of the Kanji 鳴, which comes from a picture of a bird and could be used as an independent Kanji, may have been easier for participants to recognize than the component 口. The Kanji 叶 and 呼, which were shown as other options in the questions on the Kanji 叫 and 鳴, may have confused participants. It would be necessary to carefully present Kanji such as 鳴 and 場, which comprise more than 10 strokes and whose shared

component is visually simpler (e.g., 口 and 土) than the other part of the character, which appears to draw learners' attention more than the shared part. Very simple Kanji of the Type 3a category, such as 叫, could be presented independently, as learners may not need much effort to memorize them.

Figure 1 demonstrates means based on the bootstrap method and the 95% confidence intervals for proportion of correct answers regarding Types 1, 2, and 3 Kanji characters. Statistically significant differences were found between Types 1 and 3 and also Types 2 and 3. However, no significant difference was observed between Types 1 and 2.

Figure 1. Bootstrapped means and the 95% confidence intervals for proportion of correct answers regarding Types 1, 2, and 3 Kanji characters.

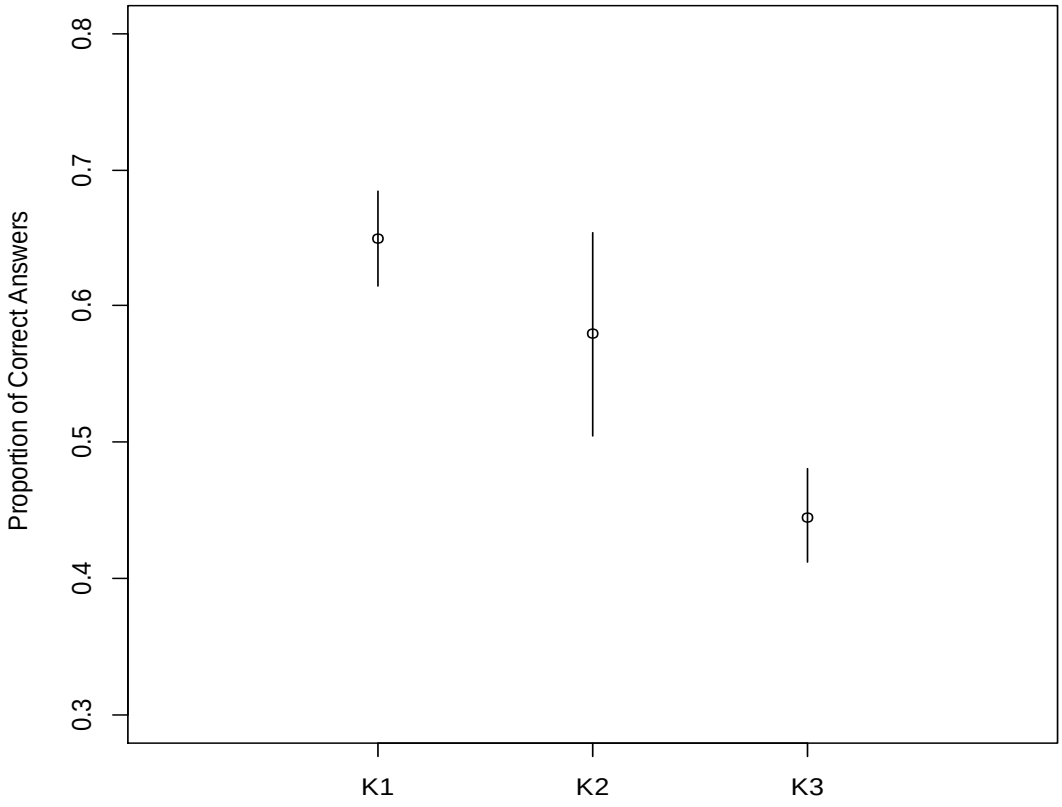

Table 12 presents the 13 most-frequently recognized Kanji in the test and the associated Kanji in each pair. Only two out of the 10 most-frequently recognized characters share their counterpart Kanji (i.e., 産 and 病), with the least-frequently identified Kanji. A majority of participants could focus on both the simpler and more complex Kanji in most pairs. Among Type 3a characters that appeared to be the most difficult among the listed characters, the Kanji 結 comprising 12 strokes was more frequently recognized than other Kanji in the same category, such as 叫 and 地, which require only six strokes. These two Kanji and their counterpart characters (鳴 and 場) were included in the least-frequently recognized Kanji. This may well indicate that the radical 糸 shared in 結 and its counterpart Kanji (縛) are more useful for learning than the very simple 口 and 土 components, which can be less conspicuous than the other component in the character.

Table 12. *The 13 Most-Frequently Recognized Kanji in Test 3 and the Associated Kanji in Each Pair*

Rankings	Most-Frequently Identified Kanji and their Listed Meanings	Meaning of the Associated Kanji in Each Pair
1.	光 light	to shine (輝)
2.	言 to say	word (語)
3.	金 money	small change (銭)
4.	火 fire	to burn (焼)
5.	生 to be born	to give birth (産)
6.	輝 to shine	light (光)
7.	見 to see	eyesight (視)
8.	視 eyesight	to see (見)
9.	妹 younger sister	daughter (娘)
10.	痛 pain, painful	sick, ill, illness (病)
11.	娘 daughter	younger sister (妹)
12.	銭 small change	money (金)
13.	結 to tie	to be bound (縛)

Conclusion

The results of the test conducted in this study revealed that written instructions in Malay assisted Malay-speaking university students to learn the listed Kanji characters with statistically significant differences. The characters 輝 (15 strokes), 痛 (12 strokes), 視 (11 strokes), and 娘 (10 strokes) are included in the 11 most-correctly identified

Kanji, and indicate the explicit presentation of the following whilst sharing a common component to help Malay-speaking students of Japanese to learn visually complex Kanji (with special reference to those characters including nine or more strokes). The explicit presentation of similarities utilized in this study may also benefit intermediate students' learning of visually complex Kanji. In a questionnaire survey conducted after the vocabulary test, approximately 70% of the total respondents positively answered the question "The form of the Kanji 輝 (Type 1) and the written instructions on the character in Malay in the Kanji test previously administered, helped me to understand the meaning of the character, i.e., 'to shine'." Participants offered positive responses to similar questions regarding the characters 視 (Type 1), 妹 (Type 2), 娘 (Type 2), and 痛 (Type 3b). In addition, approximately 67% agreed or strongly agreed with questions regarding the benefits of an explicit demonstration of pairs of similar characters: 光 ("light") and 輝 ("to shine"), 見 ("to see") and 視 (part of "eyesight"), 火 ("fire") and 焼 ("to burn"), 言 (part of "to say") and 語 ("word, language"), and 金 ("money") and 銭 (part of "small money"), respectively.

Most participants in this study's vocabulary test became more aware of semantic similarities between Malay and Japanese by comparing selected pairs of words provided in the questionnaire survey. Despite differences in derivation systems and word structures between Malay and Japanese, most participants may have discovered possible ways to learn a broader range of Kanji characters by utilizing their first-language vocabulary knowledge. In the process of gaining a better understanding of the connection of their first language to the learning of Japanese, learners' motivation and interest in Japanese can be enhanced. This understanding can also encourage them to spontaneously find ways to make the best of their first language in learning the target language. For future studies, it would be desirable to examine the possibility of

developing teaching materials including vocabulary lists and instructions in Malay, such as those described in this study.

There are a number of implications that this study may afford other researchers and language teachers. The findings of this study suggest that Malay-speaking learners may benefit from the teaching of Japanese as a foreign language that incorporates Malay in the learning process, especially the development of teaching 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 educational institutions, especially universities that offer Japanese courses as a foreign language. Furthermore, these findings may also be applied to other learners of Japanese as a foreign language whose L1 may share common semantic patterns to that of Japanese, but additional research is required to investigate whether similar results are achieved with other L1s. For example, 見 in the Japanese word *miru* (“to see”), 視 in *shiryoku* (“eyesight”), and their corresponding English words to see and eyesight, which both are related to the verb to see, can be presented in a similar vocabulary list for English-speaking learners of Japanese. In addition, *kiku* 聞く (“to hear”) and *chōryoku* 聴力 (“hearing” as a physical sense) can be demonstrated as visually and semantically similar characters. By using around 30 similar pairs, we may be able to examine the usefulness of English words in the teaching of Japanese Kanji. Thus, through carefully selecting the listed words in learners’ first language and their target language, the presentation method utilized in this study may be applicable for many different languages whose vocabulary derives from a radical and whose meaning is expanded by affixes.

The main limitation of this study relates to the limited number of Japanese and Malay words that share semantic similarities. Despite this limitation, the presentation method described in this study is nonetheless appropriate for the systematic learning (at least in

the short-term) and revision of basic Kanji characters by Malay-speaking beginners. Because of time and curriculum constraints of the semester in which the vocabulary test took place, the author was unable to locate the same Malay-speaking participants for subsequent tests to examine their long-term retention. Future studies would require the exploration of numerous aspects not covered by this study, as well as research designs that allow for more long-term measuring of the impact on retention.

Biodata

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Appendix

Other Examples of the Listed Words and Instructions to the Experimental Group (English Translation)

Root word: *lahir* (birth, born) (Type 1)	
dilahirkan (v.) (to be born)	**生**まれる *umareru*
melahirkan (v.) (to give birth)	**産**む *umu*

This table demonstrates the Malay *dilahirkan* (to be born), *melahirkan* (to give birth), and their Japanese equivalents. Both verbs derive from the same root *lahir* (birth, born). As well as Malay, the corresponding Japanese verb *umareru* (to be born) is the passive form of *umu* (to give birth). The Kanji 生 means *to be born* and also *to live*. Three letters which follow the Kanji are Japanese phonetic characters. In addition, the Kanji 産 (to give birth) includes the Kanji 生 as its radical.

Root word: *bakar* (burn) (Type 1)	
kebakaran (n.) (destructive fire)	**火**事 *kaji*
membakar (v.) (to burn)	**焼**く *yaku*

The Malay root *bakar* has a holistic meaning of “to burn.” The character 火 in the Japanese *kaji* means “fire.” The form of 火 originates from a picture of fire. The character 事 means *matter*. The combination of these two Kanji (火事) means “destructive fire.” The left part of the character 焼 is 火 (fire).