Reaction toward false Kanji by native and non-native speakers of Japanese

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Abstract

This study examined how native and non-native speakers of Japanese and non-native speakers of Japanese react to Pseudo, Wrong, Vague, and real Kanji (Chinese character in Japanese). The non-native speakers in this study did not learn Chinese characters in their mother language and are begging to intermediate learners. The participants were asked to decide if a character is true (exist) or not true (does not exist) by pushing a key. The correct rates of native speakers were significantly higher than those of non-native speakers. The correct rate of Wrong Kanji in native speakers was 100%, whereas the average correct rate of Wrong Kanji in non-native speakers was 57%. The position of a semantic radical is never change and crucial to get the meaning of a character. It seems that non-native speakers did not realize the importance of the semantic radical positioning even after exposed to 200 Kanji. The importance of the semantic radical should be more emphasized in teaching Kanji.

Keywords

Chinese character, Recognition, Non-native speakers

Introduction

The purposes of this study is exploring graphic features of Kanji (Chinese characters in Japanese) when learners of Japanese from non-Chinese character area (LJNC). That is those who have not learned Chinese characters in their mother language. Chinese characters are graphically very complex, even though some Chinese characters are pictographic. The graphic features of Chinese characters today are abstracted. Learning Chinese characters is a big burden for non-native as well as native speakers of Japanese. Especially for those who start to learn Japanese in adulthood for the first time, learning Chinese characters must be a big obstacle. To reduce LJNC's burdens, finding out what kind of graphic features of Chinese characters make learning difficult are valuable to ease LJNC' learning and develop teaching materials for them.

1 Background

Chinese characters are graphically very complex. Further some very slight graphical differences become distinctive features. For example, in "末(end)" and "未(feature)" or "士(warrior)" and "土(soil)", lengths of the two horizontal lines are crucial to know the meanings of a Chinese character. In this study, we examined how LJNC and Japanese react fake characters such as 未 or 土 those lost distinctive features.

Two third of Chinese characters consist of a semantic radical and a sound radical. The position of a semantic radical in a Chinese character is fixed and the base of arrangement of characters in Chinese character dictionaries. In the author's previous study using Magnetoencephalography (MEG) investigated how beginning LJNC react to wrong Chinese characters in which the position of a semantic radical was displaced, such as 校 (the right character is 校). The result showed that beginning LJNC seemed not to find difference between the original and displaced characters neurologically. In this study, we examine how LJNC and Japanese judge the wrong characters using a behavioral method.

1.1 Method

1.1.1 Participants

The participants were eight JLNC (4 male and 4 female, mean age=25.6) from various countries and eight Japanese (3 male and 4 female, mean age=27.3). The JLNC participants have studied Japanese at least for one year. Around 200 Kanji were introduced in-class. Their proficiency in Japanese ranges from beginning to intermediate.

1.1.2 Chinese character stimuli

There were four groups of Chinese character stimuli, Vague, Pseudo, Wrong and Real. Fake has very minor wrong graphic features, such as equal length of the two horizontal lines, or some dots were rotated 180 degrees. Pseudo follows the correct

radical positioning rules, however, the combination of components does not exist. Wrong does not follow radical positioning rules. The position of a semantic radical was inverted horizontally or vertically. Vague and Wrong consisted of 15 characters. Pseudo consisted of 20 characters. Real consisted of 25 characters.

1.1.3 Procedure

Each character was presented one by one in the computer monitor and remained until a participant's reaction. The participants were asked to decide if a character is true (exist) or not true (does not exist) by pushing a key. The participants' reaction and reaction time were recorded. Mann-Whitney U test was used to compare the mean correct rates between the participant groups. Friedman test was used to examine the differences of the mean correct rates within participant groups.

2 Results and Discussion

Table 1 shows the mean correct rates of Vague, Pseudo, Wrong and Real in each group. Table 2 shows the results of the Mann-Whitney U test for the four character groups between LJNC and Japanese. In the all four character groups, the correct rates of Japanese were higher than those of LJNC. Vague was lowest correct rates in both LJNC and Japanese.

Table 1: Mean correct rates

	Vague	Pseudo	Wrong	Real
LJNC	0.37	0.51	0.58	0.83
	(0.13)	(0.16)	(0.22)	(0.14)
Japanese	0.59	0.88	1.00	1.00
	(0.14)	(0.12)	(0)	(0)

Note: Figure in parentheses is SD.

Table 2: Results of the Mann-Whitney U test for mean correct rates between LJNC and Japanese

	Vague	Pseudo	Wrong	Real
U	2.54	2.96	3.51	3.06
p	0.011**	0.000**	0.000**	0.000**

The position of a radical is crucial for a character formation and is fixed. It was a surprise that the correct rates of Wrong was law in JLNC. A close look at JLNC errors revealed that the correct rates of Wrong seemed to increase according to Japanese proficiency of the LJNC. The correct rates of Wrong might be a good indicator of Chinese character mastering. Friedman test yielded significant differences in both two groups $\chi 2=14.5$ df=3 p=0.002 in LJNC. And $\chi 2=16.7$ df=3 p<0.000 in Japanese. Multiple comparisons showed that the mean correct rate of Vague was significantly lower than that of Real in LJNC. The mean correct rate of Vague was significantly lower than that of Wrong and Real in Japanese. Vague led highest mistakes in both LJNC and Japanese. It seems that slight distorted graphic features of Chinese characters led native speakers' confusion.

Table 4 shows four Vague characters which both All LJNC and Japanese made higher errors. Surprisingly, all Japanese thought 末 is right, even though it does not have distinctive features. It is not "末" or "未". It appears that when 末 was presented alone without context, most of Japanese accepted it as a real character. Probably, Japanese can easily differentiate "末" from "未" from a context. However, for beginning LJNC, it might be difficult to make use of a context as well as Japanese does.

Table 4: Correct rates for Vague characters

Vague	学	向	魚	末
Right	学	向	魚	末
JLNC	0	0.50	0.12	0.12
Japanese	0.50	0	0	0.12

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In this study, the number of participants are limited. Therefore, further research is necessary to examine whether the current results are generalized.

3 Conclusion

Slight distortion in Vague, such as rotation of components of a character or length of lines, seemed to lead highest errors in both native and non-native speakers of Japanese. It is suspected that native speakers depend on the context to reach the meaning of a character when the graphic feature of the character is vague. Learning the correct radical position of a Chinese character might be a good indicator of mastery of Chinese character in LJNC.