

Title	Attrition of Orthographic Skill in Logographic Written Language: Case of Japanese-speaking Native Chinese in Japan
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Citation	
Issue Date	2018-03
Type	Thesis or Dissertation
Text version	author
URL	<a href="http://hdl.handle.net/10119/15151">http://hdl.handle.net/10119/15151</a>
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Description	Supervisor: 橋本 敬, 先端科学技術研究科, 修士 (知識科学)

# **Attrition of Orthographic Skill in Logographic Written Language: Case of Japanese-speaking Native Chinese in Japan**

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March 2018

**Key words:** First language attrition, Written language, Orthographic skill, Similarity in Characters

‘Language attrition’ describes losing a language because of lack of use by speakers who have changed their language environment (Schmid 2011). In language use, four skills are needed: listening, speaking, reading, and writing. In attrition research, speaking and listening have been studied, for they are essential for communication, the attrition of reading and writing skills have not been paid enough attention, although such skills are important in the modern society.

An indispensable skill for reading and writing is the orthographic skill that is the ability to use orthographic knowledge to read and write words. In general, writing systems on which orthographies are based are divided into two: phonographic, such as using alphabetic characters, and logographic, such as using kanji characters. The attrition of orthography skills in a phonogram system has recently been found (Ntim 2016), but in logogram systems is still not clear. Psychological researches suggested an intrinsic difference concerning the processing mode of the two scripts (Biederman and Tsao 1979; Saito 1981; Park and Vaild 1995). Therefore, we aim to clarify a factor which can affect the attrition of orthographic skill in a first language with logographic written language.

As objects to investigate the attrition of orthographic skills in logographic written languages, we chose Chinese (L1) and Japanese (L2), the representatives of logographic written languages. Many kanji characters expressing similar meanings in both languages have similar but somewhat different writing structures due to divergent modification histories. Since this feature may confuse Chinese speakers who have learned Japanese, we hypothesized that the similarity

of characters in both languages affected on the attrition of orthographic skills in Chinese under exposure to Japanese environment regarding orthographic use. Particularly, we focused on answering the following questions:

- i. Whether does Japanese influence on the orthographic perception of Chinese in logographic written language.
- ii. Do proficient Japanese-speaking native Chinese in Japan likely to manifest signs of attrition in their Chinese handwriting?
- iii. Can similarity of characters in both languages hinder to writing accurate characters for Japanese-speaking native Chinese in Japan?

We conducted a dictation task of sentences and words containing Chinese characters with various similarity to corresponding Japanese characters to measure the orthographic skills of Chinese speakers who have learned Japanese and currently living in Japan. Additionally, in order to observe the effect of Japanese Kanji on the written of Japanese-speaking native Chinese who live in Japan, we chose a group of the native Chinese speaker who has never learned or lived in Japan as our control group.

The dictation task tested about the correspondence between phonology and orthography by asking participants to write what they have heard. The number of characters mistakenly written were analyzed using a 2×3 mixed design ANOVA between groups (control, experimental; between subjects) and types of characters (High similarity, Low similarity, Different; within subjects), where the control group consisted Chinese native speakers who have not learned Japanese and have not lived in Japan. The result showed that there was a significant interaction between the group and the type of characters. Therefore, we examined the simple main effects of groups within each type. The results showed that there were significant for the all types between two groups. The simple main effects of three types of characters within each group was not significant in the control group, but significant in the experimental group. Moreover, the bonferroni test was conducted to determine which means differ in the three types of characters from the results of the experimental group. It revealed that there was no significant difference between the low similarity characters and different character type, but there was a significant difference between high and the other two types. These results suggested that the Chinese speakers who have learned Japanese and currently living in Japan failed to write accurate Chinese characters with high similarity to corresponding Japanese characters.

In order better learned whether there was other factor may influence the inaccuracy of experimental group. We have analyzed the relation between inaccuracy mean in dictation task and each influential factors (such as participants' age, length of living in Japan, tendency languages use in the term of orthography, etc), according the participants responded to the questionnaires. The results show that any of these factors involved in current research questionnaire was not related with the inaccuracy mean in dictation task. The reasons for this result could be various, such as the limitation number of participants, or could be the less long length of residences in Japan, on the contrary, the similarity character in both languages as the main factor was found in current research, which effect on the attrition of orthographic skill of

Japanese-speaking native Chinese in their Chinese characters written.

In conclusion, this study has examined language attrition in the orthographic writing skill in Chinese under the influence of Japanese. The results suggested that native speakers of Chinese tended to lose some aspects of the native orthographic skill in writing characters under exposure to Japanese environment regarding orthographic use. It was also suggested that the similarity of characters in both languages affected the attrition of orthographic skills in Chinese. They mean that the attrition of orthographic skill exists in logographic written language, at least in the situation of L1 as Chinese and L2 as Japanese. Current research also gives some indications that the attrition of orthographic skill in the first language may occur when both first and second languages belong to logographic written languages.