

Attrition of Orthographic Skill in Logographic Written Language: Case of Japanese-speaking native Chinese in Japan

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Keyword: First language attrition, Written language, Orthographic skill, Similarity in Characters

1. Background and purpose of study

'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. While the attrition of orthography skills in a phonogram system recently has been found (Ntim 2016), that 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.

2. Research content

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.

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. 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, Middle similarity, Low similarity; within subjects), where the control group consisted Chinese native speakers who have not learned Japanese and have not lived in Japan. There was a significant interaction between the

group and the type of characters, $F(2, 116) = 17.42, p < .0001$. Therefore, we examined the simple main effects of groups within each type. They were significant for the all types; $F(1, 58) = 34.13, p < .0001$ for high similarity; $F(1, 58) = 19.11, p < .0001$ for middle similarity; $F(1, 58) = 20.84, p < .0001$ for low similarity. The simple main effects of three types of characters within each group was not significant in the control group $F(2, 87) = 1.14, p = 0.32$, but significant in the experimental group, $F(2, 87) = 14.31, p < .0001$. 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 and middle similarity types ($p = .099$), but there was a significant difference between high and the other two types ($p < 0.001$). 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.

3. 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.