The Role of Kanji Knowledge Transfer in Acquisition of Japanese as a Foreign Language

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While a large number of studies have investigated the role of first language (L1) transfer in processing the second language (L2) in the spoken form, only a small number of studies have done so in processing L2 in the written form. Those that did so investigated the role of kanji (Chinese characters) knowledge transfer, and reported its positive effects on the initial development of reading skills in Japanese as an L2. More specifically, these studies indicated that at least initially, those who have learned kanji in their L1s outperform those who have not, by transferring that knowledge to Japanese word recognition and reading comprehension. However, whether these positive effects also exist at later stages is not clear. Moreover, whether such transfer could have negative effects should also be investigated.

The purpose of this paper is therefore to clarify these two issues, by examining the reading performance (i.e., reading speed and comprehension of two Japanese texts) of 40 intermediate and advanced nonnative readers of Japanese with and without kanji background. The data from this study indicated that those who could transfer, but did not know the Japanese pronunciations of kanji words, do obtain high comprehension when reading Japanese texts which contain many kanji and Sino-Japanese words, but at the cost of their oral proficiency. Together with the additional finding of the high correlation between the participants' oral skills and their guessing skills regarding the meanings of unknown kanji words, this paper asserts that for the full development of Japanese reading skills, it is crucial to develop solid oral proficiency and to acquire the ability to decode kanji words via Japanese sounds.

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The notion of first language (L1) transfer was initially introduced by Lado (1957), who proposed that learners could transfer their native language habits into their target language (L2) performance for better (positive transfer) or for worse (negative transfer or interference). Positive transfer may occur when the learners' L1 and L2 have the same form (e.g., the word "table" shared in English and French); negative transfer or interference is said to occur when they use an L1 pattern or rule which leads to an error in the L2 (e.g., a French learner of English producing "I am here since Monday" by transferring the French structure "Je suis ici depuis lundi") (Richards et al. 1985: 169).

A large number of studies on L1 transfer have been conducted since Lado (1957) in such areas as phonology, morphology, syntax, vocabulary, and pragmatics (e.g., see Gass and Selinker, 1983, 1992, for review; see also Gass, 1987; Harrington, 1987; Kasper, 1992; Sasaki, 1991, 1994; Takahashi, 1996; Yokota, 1986) in an attempt to answer questions including what is transferred, when and how transfer occurs, and what effects transfer has on L2 development. The majority of the studies, however, looked at the role of L1 transfer in processing the spoken L2; not enough attention has been paid to the nature of L1 transfer in processing the written L2. For instance, what is the role of the scripts in L1 transfer in acquisition of L2? A question like this is an important one, and yet only a small number of studies have attempted to answer it.

Koda (1988, 1989a, 1990), for example, provided data that indicated L1 orthographic influence on L2 processing strategies of words and texts written in English. More specifically, she found that advanced Japanese learners of English were less impaired by phonological inaccessibility or unpronounceability of English words in isolation and in texts, than native readers of Spanish and Arabic with equal English proficiency. She attributed this difference in results to the difference in the processing strategies involved in reading the L1 orthography; native readers of Japanese whose orthography utilizes kanji (Chinese characters), are "morphographic" or "logographic" readers, who rely less on phonological information in word recognition than do native readers of Spanish or Arabic, who are "phonographic" readers (Koda, 1988: 140, 1989a: 206, 1990: 397).

The reversed transfer has also been reported in studies which compared the reading performances of learners of Japanese as an L2 with different orthographical backgrounds. For example, Chikamatsu (1996) asked elementary-level learners of Japanese, whose native language were Chinese or English, to perform kana-word (words written in Japanese syllabic scripts) identification tasks. Her hypothesis was that due to the difference in the type of L1 orthography between Chinese and English, these learners' recognition strategies of kana words would differ. The results indicated, in support of her hypothesis, that Chinese speakers, being "logographic readers," relied more on visual information than did English speakers who are "alphabetic readers" (412). Similar results were obtained by Mori (1998), whose data indicated different strategies

employed by learners of Japanese with and without kanji background for storing artificial characters in short-term memory, and also by Koda (1989b), whose data showed the advantage of beginning learners of Japanese with kanji background, over those learners without kanji background, in recognition of kana words and kanji words.

While confirming Chinese participants' effective transfer of kanji knowledge on the kanji test and on the reading test, Hatasa (1992) found an interesting phenomenon in the acquisition of reading proficiency by English participants. She looked at the performance of learners of Japanese at the beginning, intermediate, and advanced levels, and found that while Chinese speakers used their kanji knowledge in the same way at all levels, English speakers gained kanji knowledge and improved their reading performance to a significant extent at the advanced level. Based on these results, Hatasa suggested that "relying on knowledge of Chinese characters may be effective only at the initial stage of learning to read [Japanese]" (1992: 74).

Hatasa's suggestion makes one wonder whether transfer of kanji knowledge from L1 to L2 continues to be positive, and whether such transfer can cause any negative effects in the acquisition process of Japanese as an L2. After all, Hatasa's study showed that "overall language proficiency was the strongest factor which affected scores" (1992: 78) on the kanji test, the reading test, and the grammar test. Moreover, in Ishida's (1986) study, it was found that the learners of Japanese who can transfer their kanji knowledge from L1 (i.e., Chinese and Korean participants) had weaker listening skills than those who could not transfer (e.e., English speakers). It is therefore reasonable to hypothesize that even in later stages, those who can transfer their kanji knowledge from L1 may outperform those who cannot in reading performances, but those who rely heavily on such transfer would lag behind those who do not or cannot in oral performances. In order to test these hypotheses, a study was undertaken by the author, and that study is presented below.

Method

Participants

The participants were 40 intermediate and advanced students of Japanese who had taken at least two years of Japanese language instruction at the college level, or who had Japanese proficiency levels beyond the beginning level. At the time of the study, all of them were enrolled in either the third-year level or the fourth-year level of a Japanese course at a university in southern California. Of the 40 participants, 20 were male and 20 were female, and the average age was 29 (ranging from 19 to 68). Their native or dominant languages were English (22), Chinese (12), Spanish (3), Korean (2), and Thai (1).

Materials

Three reading passages were chosen from *Basic Kanji Book*, Volume 2 (Kano

et al. 1992), an intermediate-level textbook that the participants had never read before. One of the passages was a personal letter (p. 29), which was used for the practice session; the other two were a narrative passage about a little girl and her grandmother (p. 192) and a descriptive passage about the Narita Airport (p. 171), both of which were used for the experimental session. The descriptive passage contained more kanji (36.14% of 285 letters) than the narrative passage (24.61% of 520 letters), and contained more Sino-Japanese words (24) than the narrative passage (15). All of the passages were retyped by the researcher without gloss.

In addition to the passages, a vocabulary sheet, a questionnaire, and a passage rating sheet were prepared. On the vocabulary sheet, most of the vocabulary items (except particles and conjunctions) were listed, and the participants were asked, before the practice session, to circle the ones of which they did not know the meanings. This allowed the investigator to compare the vocabulary items of which the participants were able to guess the meanings when they saw those items in contexts (during the experimental session). The questionnaire provided the investigator with the participants' backgrounds, and the passage rating sheet allowed the investigator to examine the text difficulty felt by the participants. Both the questionnaire and the passage rating sheet were given to the participants upon completing the experimental session.

Procedure

Participants were tested individually in the investigator's office. First, the investigator gave them the vocabulary sheet, told them that these items would appear in the passages that they would read later, and asked them to circle the items whose meanings they did not know. Next, the investigator gave them an oral interview in Japanese. The interview was tape-recorded with their consent, and later evaluated by the investigator.

Then, the procedure of the reading sessions (the practice session and the experimental session) was explained to the participants in English. They were told that there would be a discussion in English on the topic of each of the three passages in order to activate appropriate schema, and that they would then be asked to read the passage silently while their reading time was being measured, and to tell the investigator in English what the story was about. They were also told that they would be asked to read the same passage orally and to give the English equivalent orally whenever they felt comfortable (e.g., after reading each sentence, paragraph, or the entire passage). They were encouraged to guess the meanings of unknown vocabulary items as much as possible.

After the procedure was understood by the participants, the practice session began. The participants and the investigator discussed in English a topic related to that of the practice passage. The participants read the passage silently while the investigator measured the reading time, and they told the investigator in English what the story was about. The participants reread the

passage orally and gave the English equivalent orally.   All of the oral output from the participants and the investigator was tape-recorded.   This procedure was repeated in the experimental session, while the order of the two experimental passages was alternated for each subject.   The entire experiment required about one hour for each participant.

Results and Discussion

Kanji vs. Nonkanji Groups

First, one of the participants, a native reader of Chinese, was eliminated from data analyses, due to the fact that her English proficiency was not high enough for her to give English equivalents for the meanings of the passages.   Among the rest of the 39 participants, 11 native speakers of Chinese were identified as those who had kanji background (i.e., fluent readers of kanji in their first language), and who could potentially transfer that knowledge in an attempt to comprehend Japanese texts.   A series of univariate and multivariate analyses of variance (ANOVA and MANOVA, respectively) were performed on the variables of oral scores, comprehension, and reading time, for two groups: one for the 11 native readers of Chinese (kanji group) and the other for the 28 native readers of other languages (nonkanji group).   Table 1 indicates the mean values and standard deviations of those variables for the two groups.

Table 1   Comparison between Kanji Group and Non-Kanji Group in Reading Performance

Variable	Group	
	Kanji[a]	Nonkanji[b]
Oral scores		
M	77.09	84.71
SD	15.42	12.94
	Narrative passage	
Comprehension		
M	89.00	79.09
SD	6.19	16.61
Reading time(s)		
M	234.00	333.53
SD	169.30	191.26
	Descriptive passage	
Comprehension		
M	85.47	61.05
SD	11.32	21.20
Reading time(s)		
M	129.27	258.32
SD	59.79	129.14

Note: [a]$n = 11$, [b]$n = 28$.

The results of the MANOVA showed statistically significant difference between the kanji and nonkanji groups for both the narrative passage [Pillai's $V=.462$, $F (3, 35)=10.021$, $p=.001$], and for the descriptive passage [Pillai's $V=.648$, $F (3, 35)=21.447$, $p<.001$]. The results of the ANOVA described below will further reveal on what variables their performances differed when they read the two passages.

Oral scores. The participants' oral performances (i.e., the tape-recorded oral interviews) were scored by assigning a maximum of 20 points in each of five categories: pronunciation, appropriate use of vocabulary, grammatical accuracy, naturalness, and communication. The scoring was done this way, so that the total scores would reflect the participants' abilities to communicate in Japanese in a linguistically accurate and sociolinguistically appropriate manner. The mean oral scores for the kanji group and the nonkanji group can be seen in Table 1. The difference between the mean scores was not statistically significant [$F (1, 37)=2.461$, $p=.125$].

Comprehension. The participants' comprehension of the experimental passages was scored by calculating the percentage of the correct English equivalents given for the meaningful phrases of each passage. With the exception of one participant whose data were excluded for the reason that her English oral proficiency was low, all of the participants seemed to have no problem providing English equivalents for the parts of the passages which they understood. Thus, English proficiency is not likely to be a factor that could significantly influence their comprehension scores. In fact, for both passages, the kanji group, all of whom were nonnative speakers of English, scored higher than the nonkanji group, most of whom were native speakers of English (see Table 1), although a statistical significance was found only for the descriptive passage [$F (1, 37)=12.973$, $p<.001$]. This result seems to reflect the difference between the two groups in the difficulty of the descriptive passage reported on the passage rating sheet; when the rating was done on the scale of 1 (not at all difficult) to 4 (very difficult), the mean value for the narrative passage was 2.182 ($SD=.603$) for the kanji group, and 2.393 ($SD=.875$) for the nonkanji group; that for the descriptive passage was 2.364 ($SD=.809$) for the kanji group, and 3.571 ($SD=.866$) for the nonkanji group. A statistically significant difference between the two groups was found only for the latter passage [$F (1, 37)=27.674$, $p<.0001$].

Reading time. As shown in Table 1, for both passages, the average reading time for the kanji group was shorter than that for the nonkanji group, and the reading time for the descriptive passage in both groups was shorter than that for the narrative passage. The latter result appears to reflect the length of the passages: The descriptive passage, despite its difficulty, was shorter (285 letters) than the narrative passage (520 letters). Nevertheless, the group difference in reading speed was statistically significant only for the descriptive passage [$F (1, 37)=10.027$, $p<.001$].

Those Who Did Not Have to Transfer ($M+P+$) vs. Those Who Had to Transfer

(M+P—) vs. Those Who Could Not Transfer (M—P—)

The results of the analyses so far appear to indicate that the native readers of Chinese who could potentially transfer their kanji knowledge were better readers (i.e., better comprehenders with faster speed) than the native readers of other languages, at least for the descriptive passage, which was shorter but contained more kanji and Sino-Japanese words, and with which the native readers of other languages expressed more difficulty. This does not necessarily mean, however, that these Chinese participants were actually transferring their kanji knowledge. Even among them, it is possible that there were people who had to transfer such knowledge and those who did not. Those who had to transfer were presumably forced to do so because of the lack of knowledge of Japanese pronunciations of the lexical items written in kanji, while the others did not have to transfer, being able to read most of the kanji words in Japanese pronunciations.

It is thus reasonable to separate those who had to transfer from those who did not, and to reanalyze the data by grouping the 39 participants under three categories: (a) those who did not have to transfer (M+P+), (b) those who had to transfer (M+P—), and (c) those who could not transfer even if they wanted to (M—P—). The M+ stands for those who knew the meanings of more than 90% of the kanji words appearing in each passage; the P+ stands for those who knew the Japanese pronunciations of more than 90% of the kanji words appearing in each passage. Hence, the M+P+ group included those who knew both the meanings and the Japanese pronunciations of many of the kanji words, regardless of their L1 background (12 for the narrative passage; 6 for the descriptive passage); the M+P— group was exclusively those native readers of Chinese who knew the meanings in Chinese but did not know the Japanese pronunciations of many of the kanji words (7 for both passages); the M—P— group knew neither the meanings nor the Japanese pronunciations of many of the kanji words (20 for the narrative passage; 26 for the descriptive passage). The mean values and standard deviations of the oral scores, comprehension, and reading time for these groups are presented in Table 2.

The results from the MANOVA showed statistically significant differences among the three groups for both the narrative passage [Pillai's $V=.908$, F (6, 70)=9.705, $p<.001$] and the descriptive passage [Pillai's $V=.871$, F (6, 70)= 9.002, $p<.001$]. The results from the ANOVA and Scheffé's post hoc comparisons described below will provide more detailed analyses on each of the three variables for both passages.

Oral scores. The one-way ANOVA and Scheffé's post hoc comparisons indicated that when reading the narrative passage, the M+P+ group had significantly higher oral skill than the M+P— group and the M—P— group at $p<.001$ and $p<.01$, respectively; when reading the descriptive passage, the M+P+ group outperformed the M+P— at $p<.05$, but not the M—P— group. The reason appears to be that some of the participants with higher oral proficiency belonged to the M+P+ group for the former passage, but to the

Table 2   Comparison of Reading Performance by Participants Who Did Not Have to, Had
to, and Could Not Transfer Kanji Knowledge

	Group		
	M+P+	M+P−	M−P−
	Narrative passage		
	(*n* = 12)	(*n* = 7)	(*n* = 20)
Oral scores			
M	94.00	70.57	79.90
SD	5.11	15.98	12.18
Comprehension			
M	94.49	86.32	72.77
SD	5.48	3.54	15.39
Reading time(s)			
M	151.16	291.28	403.00
SD	76.98	192.23	175.97
	Descriptive passage		
	(*n* = 6)	(*n* = 7)	(*n* = 26)
Oral scores			
M	91.66	70.57	83.69
SD	5.57	15.98	12.85
Comprehension			
M	91.91	82.71	58.43
SD	8.65	11.84	19.58
Reading time(s)			
M	91.83	145.00	272.65
SD	24.17	70.21	122.38

Note: M+P+ = Participants who did not have to transfer kanji knowledge from their first languages;
M+P− = Participants who had to transfer; M−P− = participants who could not transfer.

M−P− group for the latter passage; they did not know more than 10% of the kanji words in the latter passage. The M+P− group scored the lowest among the three groups on the oral test, though the difference between the M+P− group and the M−P− group was marginally significant only for the descriptive passage at $p<.1$.

Comprehension.   The one-way ANOVA and Scheffé's post hoc comparisons showed that in both narrative and descriptive passages, the M+P+ group and the M+P− group had significantly higher comprehension scores than the M−P− group at $p<.05$. This result seems to indicate the importance of knowing the meaning of kanji words regardless of whether the readers had to transfer their kanji knowledge from their L1. Nevertheless, the M+P+ group scored the highest among the three groups in both passages, despite the lack of statistical significance in the difference between the M+P+ and M+P− groups.

Reading time.   According to the one-way ANOVA and Scheffé's post hoc comparisons, the M+P+ group was found to be significantly faster readers

than the M−P− group for the narrative passage at $p<.001$, but the M+P− group was not. For the descriptive passage, on the other hand, both the M+P+ group and the M+P− group were found to be significantly faster readers than the M−P− group at $p<.01$ and $p<.05$, respectively. The fact that the reading speed of the M+P− group did not significantly differ from that of the M−P− group for the narrative passage, seems to indicate that those who had to transfer lost to some degree their reading efficiency for the passage which contained a lesser number of kanji and Sino-Japanese words. The M+P+ group, in contrast, was the most efficient readers among the three groups for both passages, despite the lack of statistical significance in the difference between the M+P+ and M+P− groups.

Correlational Analyses of the Oral Proficiency, the Reading Performance, and the Knowledge of the Japanese Pronunciations of Kanji Words

The next analyses to be presented are the correlational analyses of the reading performance and the oral proficiency of the kanji group and nonkanji group. Correlations were calculated among four variables: the three dependent variables used in the previous analyses and the number of kanji words whose meanings were understood (M+) without knowing their Japanese sounds (S−) (S−M+ hereafter). These correlational analyses will clarify whether oral proficiency and knowledge of the Japanese pronunciations of kanji words matter for nonnative readers to become proficient readers of Japanese. Tables 3 and 4 show the results for the kanji group and nonkanji group, respectively.

As Table 3 indicates, for the narrative passage, the kanji group's oral proficiency was highly correlated with their reading time and S−M+; for the descriptive passage, their oral proficiency was significantly correlated with read-

Table 3   Intercorrelations between Performance Variables: Data from Participants with Kanji Background

Variable	1	2	3	4
		Narrative passage ($n=11$)		
1. Oral Score	—	−.635**	.504	−.973*****
2. Reading Time		—	−.357	.543*
3. Comprehension			—	−.595*
4. No. of S−M+				—
		Descriptive passage ($n=11$)		
1. Oral Score	—	−.801***	.718**	−.934*****
2. Reading Time		—	−.491	.782***
3. Comprehension			—	−.590*
4. No. of S−M+				—

Note: 1=Oral score; 2=Reading time; 3=Comprehension; 4=Number of kanji words whose meanings were understood without knowing their Japanese pronunciations (S−M+).
*$p<.1$, **$p<.05$, ***$p<.01$, ****$p<.001$, *****$p<.0001$.

Table 4　Intercorrelations between Performance Variables: Data from Participants without Kanji Background

Variable	1	2	3	4
		Narrative passage ($n=28$)		
1.　Oral Score	—	$-.866$*****	$.828$*****	$-.581$***
2.　Reading Time		—	$-.795$*****	$.561$***
3.　Comprehension			—	$-.743$*****
4.　No. of S$-$M$+$				—
		Descriptive passage ($n=28$)		
1.　Oral Score	—	$-.771$*****	$.717$*****	$-.504$***
2.　Reading Time		—	$-.542$***	$.417$**
3.　Comprehension			—	$-.426$**
4.　No. of S$-$M$+$				—

Note:　1＝Oral score; 2＝Reading time; 3＝Comprehension; 4＝Number of kanji words whose meanings were understood without knowing their Japanese pronunciations (S$-$M$+$).
*$p<.1$, **$p<.05$, ***$p<.01$, ****$p<.001$, *****$p<.0001$.

ing time, comprehension, and S$-$M$+$. Moreover, for the descriptive passage, the variable of S$-$M$+$ was strongly correlated with reading time and marginally correlated with comprehension; for the narrative passage, S$-$M$+$ was marginally correlated with both variables. The weaker correlations found between S$-$M$+$ and reading performance measures for the narrative passage appear to indicate that other factors, such as difficulty with syntactic processing, may have affected their reading performances to a greater degree for this passage than for the descriptive passage. This interpretation comes from the fact that the narrative passage had fewer kanji and Sino-Japanese words, but was longer than the descriptive passage; in other words, the former passage required more language skills (not just lexical processing of kanji words) to process than the latter passage. In any event, it can still be said that oral proficiency and knowledge of the Japanese pronunciations of kanji words did matter for skilled reading in Japanese, even for the learners who could potentially transfer their kanji knowledge from their L1.

Table 4 reveals the similar but stronger results for the nonkanji group. For both narrative and descriptive passages, oral skill was again found to be highly correlated with reading time, comprehension, and S$-$M$+$. In addition, for both passages, the variable of S$-$M$+$ was positively correlated with reading time and negatively correlated with comprehension. This means that among the participants who had not learned Chinese characters in their L1s, those who had lower oral proficiency, and who did not know the Japanese pronunciations of many kanji words, tended to have lower comprehension with lower efficiency for both passages.

Assessment of the Participants' Ability to Guess the Meanings of Unknown Kanji Words

The final analysis reported in this paper is that of guessing skills of the meanings of unknown kanji words. This was done in two steps: first, by eliminating the data from subjects who did not have to guess the meaning of more than ten kanji words in each passage (e.g., the kanji group); second, by calculating the extent to which the remaining subjects successfully guessed the meanings of ten or more unknown kanji words. The number of participants whose data were entered into the correlational analysis was 18 for the narrative passage and 25 for the descriptive passage. The results are shown in Table 5.

Table 5   Intercorrelations between Participants' Guessing Ability of Unknown Kanji Words and Other Performance Variables

Variable	1	2	3	4	5
		Narrative Passage ($n=18$)			
1. Oral Score	—	−.782*****	.721****	−.447	.704***
2. Reading Time		—	−.675***	.391	−.584**
3. Comprehension			—	−.714****	.626***
4. No. of S−M+				—	−.387
5. MG %					—
		Descriptive Passage ($n=25$)			
1. Oral Score	—	−.656****	.665****	−.462**	.496**
2. Reading Time		—	−.370	.352	−.252
3. Comprehension			—	−.362	.815*****
4. No. of S−M+				—	−.392
5. MG %					—

Note: 1 = Oral score; 2 = Reading time; 3 = Comprehension; 4 = Number of kanji words whose meanings were understood without knowing their Japanese pronunciations (S−M+); 5 = Percentage of kanji words whose meanings were successfully guessed (MG %).
$*p<.1$, $**p<.05$, $***p<.01$, $****p<.001$, $*****p<.0001$.

As Table 5 indicates, for both passages, the number of kanji words whose meanings were successfully guessed (MG%) was found to be highly correlated with oral skills and comprehension. These figures mean that those who had higher oral proficiency were better guessers of the meanings of unknown kanji words from the given contexts, and good comprehenders of the texts. Moreover, the additional correlation between the variables of MG% and reading time for the narrative passage indicates that those who guessed the meanings of more kanji words were efficient readers (i.e., faster readers) as well as good comprehenders, at least when reading the easier passage.

SUMMARY AND CONCLUSION

The purpose of this study was to investigate whether L1 kanji transfer affects positively the development of reading skills in Japanese as an L2 at stages

beyond the beginning level, and whether it negatively affects the development of oral/aural skills.   To do so, oral and reading performances of intermediate and advanced nonnative students of Japanese were analyzed in four ways. First, comparisons were made between the kanji group, native readers of Chinese who could potentially transfer their kanji knowledge from Chinese, and the nonkanji group, native readers of other languages who had little or no previous knowledge of kanji, in terms of their oral score, comprehension, and reading time.   Second, on the same variables, comparisons were made among the participants who did not have to transfer kanji knowledge from their L1s, those who had to transfer, and those who could not transfer.   Third, for the kanji group and the nonkanji group, correlations were calculated among oral score, comprehension, reading time, and the number of kanji words whose meanings were known but whose Japanese pronunciations were not.   Fourth, in relation to the same variables, the participants' ability to guess meanings of unknown kanji words was assessed.

The results in the first analysis (Table 1) appeared to show that despite the equal oral proficiency between the two groups, those who could potentially transfer their kanji knowledge were better readers (i.e., better comprehenders with faster speed) than those who could not, at least for the descriptive passage, which was shorter but contained more kanji and Sino-Japanese words, and with which the participants without kanji background expressed more difficulty.   In the second analysis (Table 2), moreover, those who had to transfer kanji knowledge from their L1 performed as well as those who did not have to transfer, in comprehension and reading time; on both variables, they also outperformed those who could not transfer, though they did slow down when reading the narrative passage, which contained a lesser number of kanji and Sino-Japanese words.

Does this mean that transfer of kanji knowledge from the first language is positive for acquisition of literacy in Japanese even at later stages?   One answer seems to be that it is advantageous for comprehending the Japanese texts that contain many kanji words, in particular, Sino-Japanese words, for which such transfer works well.   However, in terms of the development of oral/aural skills, the answer seems to be negative.

As seen in the second analysis (Table 2) above, the difference between those who did not have to transfer and those who did was clearly observed in their oral scores; the participants who had to transfer their kanji knowledge from their L1 scored significantly lower than those who did not have to transfer.   In other words, those who knew the Japanese pronunciations of kanji words had higher oral proficiency than those who did not.   Since the backgrounds of the participants between these two groups, including the length of Japanese instruction, did not differ, this result seems to indicate that those who did not know the Japanese pronunciations of kanji words and had to transfer their kanji knowledge from their L1 have not reached the oral proficiency level that they should have.   This is not a positive outcome of the transfer, but a negative

one. Obviously, these learners should focus on rebuilding fundamental oral skills without relying on kanji, so that they would not have to slow down to read a passage which does not contain many kanji. As indicated in the correlational analyses (Table 3) above, even for those who could transfer kanji knowledge, it seems essential for the full development of reading skills to develop oral/aural skills as well as to acquire the ability to decode kanji words in Japanese pronunciations.

The correlational analyses (Table 4) also indicated that the same skills are necessary for those who do not have kanji background in their L1s, and for that reason, could not transfer. This is a group of participants who were in either the M+P+ group or the M−P− group in the second analysis (Table 2) above. A way for those who did not know either the meanings or the Japanese pronunciations of many kanji words (the M−P− group) to improve their reading skills would be to learn to apply their oral skills to decode kanji words better, while continuing to improve their oral skills. In other words, they should learn to associate the vocabulary items which they already know in the spoken Japanese with the kanji in the texts. By so doing, their reading skills would approach those of the M+P+ group, and by further improving their oral skills, they would also improve skill at guessing the meanings of unknown kanji words from the given contexts. This assumption is possible because of the high correlation between the guessing ability and oral skills (see Table 5).

In closing, it can be said that the present study provided evidence to suggest that regardless of the learners' kanji backgrounds, what is crucial for the full development of Japanese reading skills is the development of solid oral proficiency and the acquisition of the ability to decode kanji words via Japanese sounds. An important pedagogical implication from this is not to overlook the negative effect of learners' overreliance on the L1 kanji transfer (i.e., inadequate development of oral/aural skills). One should keep in mind that after all, despite the initial advantages of those who can transfer kanji knowledge from L1 in learning to read Japanese (e.g., Chikamatsu, 1996; Koda, 1989b), the ultimate winners are those who belong to the M−P+ group (in Table 2) —proficient speakers of Japanese who can apply that skill to decode automatically the scripts via Japanese sounds for text comprehension.

Of course, it is difficult to draw a decisive conclusion about the relationship between the kanji knowledge transfer and its effects on the development of oral skills based on this study alone. Replications are necessary and can be done by enhancing the present study in the following ways. One is to increase the number of participants to strengthen the data. Second, one can further objectivize the research methodology by having more than one person evaluate participants' oral and reading performances, and by checking the evaluators' reliability. Third, a different way of evaluating reading comprehension can be employed, such as recall tests, to verify the results. Fourth, different types of reading materials with differing numbers of kanji can be used. It is the author's hope that by applying these enhancements, future studies will further clarify the role

of script in L1 transfer, and thus further explore the issue of transfer in L2 acquisition research.

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