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ABSTRACT

A study compared native and nonnative reading styles in order to see whether Japanese readers process text differently than readers whose native language uses a phonetic alphabet. Subjects, 29 native readers of Japanese, 37 advanced-level nonnatives and 39 intermediate-level nonnatives enrolled in Japanese language courses were randomly assigned to read a letter written by a Japanese native and a recent newspaper article prepared in the same way--both were either authentic texts with punctuation, authentic texts without punctuation, or text in which all ideographic symbols (kanji) have been removed and replaced with the phonetic writing known as kana. Reading time, reading comprehension, and the number of right corrections of punctuation missing from the text were measured. Results indicated that: (1) as their Japanese language levels increased, nonnatives were able to process more information from the text in less time and their abilities to insert punctuation into texts increased; (2) native speakers agreed upon the position of periods, but used commas where they felt they needed a pause during reading; (3) no statistical main effect was detected for the variable of reading time or for comprehension scores for graphic representation type across the three language levels; and (4) a significant main effect was found for the punctuation-insertion task scores. Findings suggest that the function of punctuation, particularly periods, plays an important role in helping readers of Japanese to organize information and reduce cognitive overload during their phonetic decoding process. (Two tables of data are included; 18 references are attached.) (RS)

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Western Reading Strategies and Japanese Texts:

The Effects of Punctuation Deletion

Running Head: Punctuation in Japanese

Western Reading Strategies and Japanese Texts:

The Effects of Punctuation Deletion

Recent reading research in Foreign/Second language (L2) has shown that reading is a combination of simultaneous, interactive processes involving reader factors and text factors (Bernhardt, 1991; Swaffar, 1988). Reading comprehension, according to these studies, is the result of the "reconstruction" (Bernhardt, 1990) of the text by the reader based upon perceived text elements, the reader's background knowledge (Alderson & Urquhart, 1988; Carrell, 1983, 1987; Steffenson et al., 1979) and reading strategies (Barnett, 1988; Hamp-Lyons, 1985; Kern 1985). Discoveries such as these have yielded significant insights into the acquisition of reading abilities in L2 students.

L2 researchers (Bernhardt, 1991; Carpenter and Just, 1983; Everson 1987; Koda, 1992; Saito; 1991) also recognize that the reading process is language specific, yet at this time little is known about how American students read Japanese texts. This study compares native and nonnative reading styles in order to see whether Japanese readers process text differently than readers whose native language uses a phonetic alphabet. It asks the question, do Japanese readers decode phonetically, as do Western readers? Or is processing different for a language in which different combinations of written symbols (kanji) trigger new semantic concepts? For example, the kanji for "time" and "measure", when written together, mean "watch" or "clock." Japanese is a language in which synonyms--phonetically ambiguous words, if written in kana-- are conceptually discreet when written in kanji. Thus the word "hashi", if written in kana, can mean "chopsticks" or "bridge" or "edge/tip." Only the kanji characters 橋, 箸, 端,

distinguish these different meanings. Because the graphic structure of Japanese is so different from that of Western/European languages, nonnative readers who are learning to read this completely different orthography have to cope not only with the unfamiliar writing system, but also with conceptual recognition--a new and unfamiliar way of reading. Phonetic reading of graphic characters may confound decoding more than it facilitates understanding. To date, no research has investigated this issue.

Characteristics of the Japanese Writing System and Its Graphic Representation of Text

To expand on the insight that the significant differences between texts written in Japanese and those written in most Western languages are both in the writing system and in the graphic arrangement of text on the page, it is useful to examine the particular difficulties that Western students confront when learning to read Japanese. The Japanese writing system is a complex orthography involving two syllabaries (hiragana and katakana, collectively referred to as kana) and an extensive lexicon of thousands of ideographic symbols (kanji). In authentic Japanese text, kanji are used exclusively for content words, hiragana primarily for function words, and katakana exclusively for words borrowed from foreign languages. In Japanese, for example, instead of reading "Tom went to school" all in the same font and style, readers of Japanese are faced with, "トムは学校へ行きました。" "Tom" is written in katakana as "トム" because it is a foreign name. The relationals ("は," a subject marker and "へ," a particle indicating direction), and the grammatical verb ending

("ました," which indicates past tense) are written in hiragana. Content words such as 学校 "school", and the verb 行 "to go" are written in kanji. The same sentence can also be written only in kana without any kanji:

"トムはがっこうへいきました。"

Japanese children first learn the kana syllabaries so that they can learn to read phonetic Japanese in kindergarten or the first grade. Japanese children, however, are exposed to kanji throughout their early childhood. By the time they reach formal schooling, they have learned many kanji from their environment and have internalized the expectation of receiving visual communication via symbolic graphic images.

Nonnative students of Japanese also learn the kana first, but they approach kanji without the predisposition to acquire information through graphic symbols. With years of phonetic reading experience, they must learn a new reading process and develop new strategies for comprehension in order to read Japanese. After learning kana, kanji are introduced at a rate of about 75 to 100 new kanji each semester. Thus, the amount of kanji that is taught in a typical college-level, four-semester basic Japanese sequence is still only about one fourth as much as the almost 2000 kanji that a Japanese high school graduate must master (Jordan and Lambert, 1991).

The other characteristic which makes Japanese texts different is the lay-out of Japanese characters on the printed page. No spacing is used to identify word-unit boundaries in Japanese. Furthermore, no capitalization is used to indicate proper names or the beginning of a sentence. The only similarity with Western texts that can be found is the limited use of punctuation. Japanese punctuation, however,

includes only the equivalents of the English period " 。 ", comma " 、 " , and quotation marks " 「 」 ; " there are no colons, semi-colons, dashes, question marks or exclamation marks. When students are confronted with an authentic Japanese text combining both symbolic and phonetic characters, they have at their disposal only a partial inventory of punctuation signs and no spaces between words by which to recognize word boundaries. No study has yet determined what strategies readers employ to decipher the meaning of Japanese texts, and reading pedagogy in Japanese has proceeded with little research-based direction. It may be, for example, that the late introduction of kanji--the conceptual core of authentic Japanese texts--adversely affects non-native readers' strategies.

Method

Research Questions

In order to compare the processing modes of Western and Japanese readers as regards punctuation, Japanese and American students were asked to read an authentic text with punctuation and two texts from which punctuation was deleted. One unpunctuated text was solely in kana. The other used kanji characters. If native speakers of English could read the kana text without punctuation, but were unable to read the punctuated authentic text with familiar kanji characters, it would indicate that kanji characters, not absent punctuation, interfered with their reading comprehension. Moreover, if speakers of Japanese could read all three texts, without significant disparities in comprehension ability, it would suggest that reliance on punctuation is a strategy employed by nonnative readers of Japanese.

The following questions were addressed: (a) Does deleting punctuation from Japanese texts affect reading strategies of native and nonnative readers of Japanese, as measured by indices of reading time and reading comprehension? (b) Does the language level of nonnative readers of Japanese affect their reading strategies when they read Japanese texts that have been manipulated by the removal of punctuation? (c) When exposed to Japanese texts that have been manipulated by the removal of punctuation, are native readers and advanced or intermediate nonnative readers of Japanese able to insert punctuation marks where they would normally appear?

Subjects

A total of 105 college students participated in this study during the Spring semester of 1992. They included 29 native readers of Japanese who are currently studying in the U.S. as college students, 37 advanced-level nonnatives who were enrolled in third- and fourth-year Japanese courses, and 39 intermediate-level nonnatives who were enrolled in the second-year Japanese classes. All the second-year students had co.npleted first-year Japanese I and II or achieved an equivalent language level. The Japanese instruction for these lower division classes is designed to develop the four skills and cultural understanding, but the amount of time spent speaking and listening in classroom activities (about 60%) is greater than time spent on writing and reading instruction (about 40%). First-year students meet six hours and the second-year students meet four hours per week. Advanced-level courses (third and fourth year) place more emphasis on reading and translation, but a majority of the students were also enrolled in advanced-level conversation classes during the same semester.

Research Design

The research design employed a 3 (between subjects) X 3 (between subjects) X 2 (within subjects) repeated measure design for statistical analysis. There were three independent variables: (a) Japanese language level: intermediate nonnative, advanced nonnative, and native; (b) graphic representation type: unpunctuated kana text, unpunctuated authentic text (kanji and kana), and authentic text (kanji and kana with punctuation); and (c) text type: newspaper article and personal letter.

Materials

The two text types used for this study were a personal letter and a recent newspaper article. The letter was written by a Japanese woman who is currently living in Japan after having lived in the U.S. as an exchange student several years before. It was written to her Japanese friend in the U.S.. The letter contains nine commas and seventeen periods. The newspaper article reports on a baby spoon designed by a famous industrial designer. It contains eight commas and six periods. Both texts were prepared in three graphic representations: an authentic text, an unpunctuated authentic text, and an unpunctuated kana text. The unpunctuated authentic text is the same as the authentic text except that all punctuation has been deleted. Similarly, the unpunctuated kana text is the same as the unpunctuated authentic text, except that all kanji have been removed and replaced by phonetic writing in kana.

Data Collection

Subjects were randomly assigned a pair of texts--the letter and the newspaper article--both of which had been prepared in the same way, i.e., both were either

authentic texts with punctuation, authentic texts without punctuation, or kana texts without punctuation. This procedure made it possible to obtain data from the subjects' responses to two kinds of texts: journalistic prose and the more conversational prose of private correspondence. The order of the texts was counterbalanced to eliminate the order effect.

The three dependent variables measured in this study were (a) reading time, (b) reading comprehension, and (c) the number of right corrections of punctuation missing from the text. To measure reading time, the total amount of time spent processing the text was recorded with a stop watch. Reading comprehension was assessed through recall-protocols written by the subjects after they read the texts. This measure of reading comprehension--the immediate recall protocol- -was used because it is considered a direct reflection of what the reader has actually processed and understood about the text (Bernhardt & James, 1987). Subjects were asked to write in their native language to avoid the confounding effects of second language use (Lee, 1986). A weighted-propositional scoring system (Bernhardt, 1988) was developed and an inter-rater reliability index of .98 was achieved by three Japanese language specialists.

To assess how subjects perceived missing punctuation, the number of right corrections was determined based on a punctuation-insertion task: following the reading comprehension task, subjects were asked to return to the texts they had been assigned and to insert periods or commas in the appropriate places. Subjects who had originally been assigned authentic texts with punctuation were given authentic texts without punctuation and were required to perform the same punctuation-insertion task.

In order to ascertain how readers dealt with punctuation-deficient texts during their reading comprehension and correction task, each subject was asked to answer a list of questions. Short follow-up interviews augmented these written retrospectives. These data-provided information about the readers' text-processing strategies. The total data collection time ranged between 30 and 50 minutes per subject.

Data Analysis and Results

Pearson Product-Moment Correlation Results

Pearson product-moment correlation was used to determine correlations between the text of the personal letter and the newspaper article. Variables included in the correlation matrices were reading time, reading-comprehension scores, and punctuation-insertion scores. The results of the analysis revealed a significant correlation among all three variables: reading time ($r = .884$, $p < .01$); reading comprehension ($r = .810$, $p < .01$); and punctuation-insertion scores ($r = .512$, $p < .01$). This result indicates that reading time, reading-comprehension scores and punctuation-insertion scores by readers of the personal letter correlates very highly with those of readers of the newspaper article. Thus, there was no significant difference in the results based on the text type.

Results of MANOVA

Due to the results showing a high correlation between the two texts (personal letter and newspaper article text), the text type variable was eliminated. A 3 (between subjects) X 3 (between subjects) factorial design was analyzed using MANOVA for statistical analysis followed by univariance ANOVA. The results of the MANOVA for the three dependent variables for Japanese language level

and graphic representation type showed significant effect with Wilkes' Lambda Multivariate: Language Level, F (6, 188) = 23.69, $p < .01$; and graphic representation type, F (6, 188) = 5.66, $p < .01$. No significant effects were obtained for language level and graphic representation type interaction, F (12, 249) = 1.72, $p > .06$.

Language Level (Table 1) : Separate univariate analyses revealed that there were significant main effects for the variable of language level: reading time, F (2, 101) = 53.37, $p < .01$; reading-comprehension scores, F (2, 101) = 28.25, $p < .01$; and punctuation-insertion scores, F (2, 101) = 32.83, $p < .01$. Follow-up analyses using Schefee procedures for reading time and reading-comprehension scores revealed that all three groups were significantly different from each other ($p. < .05$). The variable punctuation-insertion scores, however, revealed that the native group was significantly different from the intermediate and advanced groups ($p. < .05$).

Graphic Representation Type (Table 2): Separate univariate analyses revealed no significant graphic representation type effects for reading time, F (2, 101) = .627, $p > .54$; and reading comprehension scores, F (2, 101) = 2.789, $p > .06$. There was, however, a significant graphic representation type effect for punctuation insertion scores, F (2, 101) = 17.010, $p < .01$. A follow-up analysis using the Schefee procedures ($p < .05$) showed that authentic text is different from unpunctuated texts (both kana texts and kana and kanji texts).

Discussion

The Effect of Japanese Language Levels

The results of this study clearly indicate the readers' developmental stage. As their Japanese language abilities increased, nonnatives were able to process more information from the text in less time and their abilities to insert punctuation into texts increased. Across the three texts, intermediate-level students (M =1787.27) took 9.5 times longer and advanced-level (M = 974.87 sec.) took 5.3 times longer than native readers of Japanese (M =183.71). The data, however, show that even though the reading time of advanced-level students was significantly shorter than that of intermediate students, the difference between advanced-level students and native readers is still considerable.

The amount of time needed to process information for intermediate-level readers indicates that students' cognitive attention to unfamiliar features resulted in low reading comprehension scores. Intermediate readers (M=39.49) understood at a degree 1.89 times lower and advanced readers (M=46.26) understood at a degree 1.32 times lower than native readers (M=66.90). Written retrospectives and oral interviews revealed that being able to recognize word units is the most fundamental but most important step for reading comprehension. In order to identify word units in Japanese texts, nonnatives tended to process phonological information to arrive at concepts. For example, to recognize a word, students attempt to process both kana and kanji characters. They consistently, they subvocalized, thereby searching their learned vocabulary to see if they recognized a word represented phonologically. Students with limited familiarity with kanji tended to decode pieces of ideographs: a "time" and "measure" rather than watch

or clock. They tended to ignore context and decode individual words rather than discourse meanings. Some conceptual processing occurred among more skilled advanced-level learners. Intermediate-level learners, on the other hand, seemed to rely exclusively on phonological processing--clearly a nonnative strategy--even when they could identify kanji concepts.

Punctuation-insertion scores also separated natives and nonnatives. Native readers were able to identify correctly 29.48 punctuation marks which differentiated them from advanced (M=22.78) and intermediate (M=19.92) readers. Native speakers seemed to agree upon the position of periods, but, interestingly, the use of commas was inconsistent among them. Native readers tended to put commas where they needed to pause during reading. Both advanced and intermediate-level students of Japanese were able to identify the ends of sentences, but neither group seemed able to identify correct placement of commas. Nonnatives used very few commas as compared to periods. These data suggest that commas are perhaps less important for reading strategies and reading comprehension than are periods.

The Effect of Graphic Representation:

Among the three dependent variables, no statistical main effect was detected for the variable of reading time. Both native and nonnative readers took approximately the same amount of time for the authentic texts (M = 1027.01 sec.) and unpunctuated kana and kanji texts, (M = 1023.94 sec.) and took slightly more time for unpunctuated kana texts (M = 1129.91 sec.). In the oral interview, both natives and nonnatives expressed their discomfort when reading the kana texts and this discomfort probably resulted in slightly longer reading times for both groups.

A significant main effect was not found for comprehension scores for graphic representation type across the three language levels. Although the analysis failed to detect a significant difference statistically, differences in reading comprehension were marginally significant between authentic texts (M= 53.38) and unpunctuated texts (Unpunctuated kana, M=53.38; and unpunctuated authentic, M=42.64) at the .06 level, suggesting more successful comprehension of reading authentic texts. This data indicates that punctuation may have some impact on the reading comprehension of native and nonnative readers.

Qualitative analysis indicates that readers of unpunctuated texts had to change their reading strategies by searching for verbs, which commonly occur at the end of Japanese sentences. As they started to read the punctuation-deficient texts, both natives and nonnatives noticed that punctuation marks were missing from the text and they started to go back and reread by subvocalizing. Natives reported that when they realized that punctuation was missing, they were able to insert punctuation by focusing on the meaning as they read along. Nonnative readers, especially those at the intermediate level reported great effort finding the ends of sentences. Repeatedly, they noted memory overload resulting from frustration in identifying when sentences commenced. Thus most of the nonnative readers broke the text down into phrase or micro-thought units to reconstruct by translating individual words (on the side of the paper) rather than to connect ideas during the reading process. Only subsequent to dissecting did they try to reconstruct these pieces into connected propositions.

The significant main effect detected for the punctuation-insertion task scores revealed that there was a difference between authentic texts (M= 27.65) and

unpunctuated texts, but there was no significant difference between kana unpunctuated texts (M= 22.91) and kana and kanji unpunctuated texts (M = 20.50). The significant difference between authentic texts and unpunctuated texts may be the result of a memory effect. According to the written retrospective and oral interview, both native and nonnative readers who read the unmodified texts seemed to refer to their memory when asked to insert punctuation in the unpunctuated texts.

Conclusions and Implications

This study revealed that the function of punctuation, particularly periods, plays an important role in helping readers of Japanese to organize information and reduce cognitive overlord during their phonetic decoding process. For nonnative readers who are still coping with an unfamiliar writing system, punctuation becomes the only indication to identify minimum idea units. Reading Japanese texts which have no spaces to indicate word units, they tended to focus their cognitive effort at the micro-thought unit level. Thus they tended to get lost in the process of reconstructing the text. Native readers, however, were able to connect ideas during the reading process. They could go straight to the meaning of the text without having first to reconstruct the missing punctuation by focusing on grammar, as nonnative readers tended to do. Native readers seemed to be guided by the graphic representation and content of the text, while Western readers searched for the placements of periods which is familiar from Western styles of reading.

For students from Western language backgrounds in the early stages of language instruction, learning to read authentic Japanese poses challenges that are

significantly different from those confronted by students attempting to learn to read another Western language. It may be that advanced students of Japanese, who are learning a substantially different orthographic system, can only attain native-like automaticity after years of reading experience.

Several practical suggestions are implied. First, if Western readers apply phonetic strategies at the sentence level, it may be that Western typography is a more important aid to their reading comprehension than is a reduced Japanese orthography, which largely restricts character systems to kana for beginners. It appears, however, that the introduction of authentic Japanese texts at the initial stages of language learning would be most beneficial to students, and that the early exclusion of kanji may actually be counterproductive. After students have been introduced to the kana system, they may need early exposure to authentic texts which combine kana and kanji. Early introduction and use of kanji and kana will help learners to improve reading strategies because kanji necessitates that students practice visual rather than phonological literacy. In other words, linking knowledge of morphological markers, function words (kana), and concept words (kanji) at the onset of instruction will help students to learn the visual strategies readers need to decode Japanese texts.

References

Alderson, J.C., & Urquhart, A.H. (1988). This test is unfair: I'm not an economist. In P.C. Carrell, J. Devine, & D. E. Eskey *(Eds.), Interactive approaches to second language reading (pp. 168-182). Cambridge: Cambridge University Press.

Barnett, M. (1988). Teaching reading strategies: How methodology affects language course articulation. Foreign Language Annals 21 (1988): 109-119.

Bernhar E. B. (1991). Reading development in a second language: Theoretical, empirical, and classroom perspectives. Norwood, NJ: Ablex.

Bernhardt, E. B. (1990). A model of Reconstruction: The recall of literary text by learners of German. In A. Labarca & L. Bailey (Eds.), Issues in L2: Theory as practice/practice as theory (pp. 21-43). Norwood, NJ: Ablex.

Bernhardt, E. B. (1988). Merging research and assessment perspectives in foreign language reading. Technical report submitted to the Institute of Advanced Studies Melon Fellowship Program. Washington, D.C.: National Foreign Language Center.

Bernardt, E.B., & James C.J. (1987). The teaching of comprehension in foreign language learning. In D.W. Birckbichler (Ed.), Foreign language: Proficiency, policy, and professionalism (pp. 65-81). Lincolnwood., IL: National Textbook.

Carpenter, P.A., & Just, M.A. (1983). What your eyes do while your mid is reading. In K. Rayner (Ed.), Eye movements in reading: Perceptual and language processes (pp.275-307). New York: Academic Press.

Carrell, P. L. (1983). Three components of background knowledge in reading comprehension. Language Learning, 33. 183-207.

Everson, M.E. (1987). The effect of word-unit spacing upon the reading strategies of native and non-native readers of Chinese: An eye-tracking study. Unpublished doctoral dissertation, Ohio State University, Columbus.

Hamp-Lyons, L. (1985). Two approaches to teaching reading: A classroom-based study. Reading a Foreign Language 3, 363-73.

Ippon no Bebii Supoon. (1992, January). The Yomiuri America, p.15.

Jorden, E. H. & Lambert, R. (1991). Japanese language instruction in the United States: Resources, practice, and investment strategy. National Foreign Language Center Monograph series.

Kern, R. G. (1985). Second language reading strategy instruction: It's effects on comprehension and word inference ability. Modern Language Journal, 73, 135-49.

Koda, K. (1992). The effects of lower-level processing skills on FL reading performance: Implications for instruction. Modern Language Journal, 76, 502-512.

Lee, J. F. (1986). Background knowledge & L2 reading. Modern Language Journal, 70, 350-354.

Saito, Y. (1992). Effects of relational deletions in Japanese texts. In C.H. Kinzer & D. J. (Ed.), Literacy research, theory, and practice: Views from many perspectives. Forty-first yearbook of the National Reading Conference (pp.243-251). Chicago: National Reading Conference.

Steffenson, M.S., Joag-Dev, C., & Anderson, R.C. (1979). A cross-cultural perspective on reading comprehension. Reading Research Quarterly, 15, 10-29.

Swaffar, J. K. (1988). Readers, texts, and second languages: The interactive processes. The Modern Language Journal, 72, 123-149.

Table 1

Language Level

MANOVA $F(6, 188) = 23.69$, $p < .01$

IV / DV		Language Level (N = 105)		
		Intermediate (n = 39)	Advanced (n = 37)	Native (n = 29)
Reading Time	*	1787.27[a]	974.87[b]	183.71[c]
Reading Comprehension	*	33.49[a]	46.26[b]	66.90[c]
Correction Task Scores	*	19.92[a]	22.78[a]	29.48[b]

* Univariance Analysis F significant

a, b, c Super scripts are different by scheffee post hoc test at .05 level.

Table 2

Graphic Representation Type

MANOVA F (6, 186) = 5.66, P < .01

IV	Graphic Representation Type (N = 105)		
	Unpunctuated kana text	Unpunctuated authentic text	Punctuated authentic text
DV	(n = 33)	(n = 38)	(n = 34)
Reading Time	1129.91	1023.94	1027.01
Reading Comprehension	42.64	45.08	53.38
Correction Task * Scores	22.91[a]	20.50[a]	27.65[b]

* Univariance Analysis F significant

Super scripts a and b are different by scheffee post hoc test at .05 level.