

Affective variables and Japanese L2 reading ability¹

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Abstract

This study investigates how 17 affective factors are related to Japanese second language (L2) reading comprehension and *kanji* knowledge test scores of 43 university students in advanced Japanese courses. Major findings are that: a) reading comprehension ability and *kanji* knowledge have direct associations with self-perception of Japanese reading ability, perceived difficulty in learning *kanji*, and the intensity of motivation for reading Japanese; b) self-perception of Japanese reading ability is correlated more strongly with demonstrated *kanji* knowledge than with reading comprehension ability; c) students who are more determined to learn Japanese in general seem to have higher intrinsic or extrinsic orientation for reading Japanese, but only those with stronger intrinsic orientation for reading Japanese are more likely to work at reading Japanese; and d) intolerance of ambiguity and disengagement from the analytical study of *kanji* may be signs of lack of intrinsic orientation and motivation for reading Japanese. *Keywords:* affective factors, Japanese, L2 reading, *kanji*, advanced learners

Theoretical background and research rationale

Research examining the relationships between motivation and general L2 achievement

A large body of second language motivation research suggests that second language (L2) development is influenced by or at least associated with various kinds of motivational constructs (e.g., Clément, 1980; Clément, Dörnyei, and Noels, 1994; Clément and Kruidenier, 1985; Gardner, 1985, 1988; Gardner and Lambert, 1972; Gardner, Masgoret, Tennant, and Mihic, 2004; Gardner, Tremblay, and Masgoret, 1997; Kondo, 1999; Masgoret and Gardner, 2003; McGroarty, 1996; Noels, 2001; Noels, Clément, and Pelletier, 2001; Oxford and Shearin, 1994; Samimy, 1994; Samimy and Tabuse, 1992; Tremblay and Gardner, 1995; Warschauer, 1996; Wen, 1997).

Earlier, Gardner and Lambert (1972) had made a distinction between integrative and instrumental motivation, and subsequent motivation research by Gardner and his associates suggests that integratively motivated individuals are successful L2 learners because they are

active learners (Gardner, 1988). In a recent meta-analysis of seventy-five motivation studies, Masgoret and Gardner (2003) examined the relationships of three measures of L2 achievement ("grades", "self-ratings", and "objective tests") to five affective variables from Gardner's motivation model ("attitudes toward learning situation", "integrateiveness", "motivation", "integrative orientation", and "instrumental orientation"). The results indicate that "the correlations between achievement and motivation are uniformly higher than the correlations between achievement and intergrativeness, attitudes toward the learning situation, or integrative and instrumental orientation" (Gardner, 2003: 201).

Socially-grounded motivational constructs in such models as Gardner's (1985) socio-educational model and Clément's (1980) social context model continue to be influential in the field of L2 learning. However, since the early 1990s, a number of L2 motivation researchers have proposed new L2 motivation constructs to expand Gardner's and Clement's L2 motivation frameworks by applying motivation theories established in the field of educational psychology (e.g., Crookes and Schmidt, 1991; Dörnyei, 1994; Noels, 2001; Noels, Pelletier, Clément, and Vallerand, 2000; Oxford and Shearin, 1994; Tremblay and Gardner, 1995).

Among them, Noels et al. (2000) have proposed combining motivation constructs in Deci and Ryan's (1985) self-determination theory with those incorporated in Gardner's and Clément's models in order to develop a more comprehensive L2 motivation model (Noels, 2001; Noels, Clément, and Pelletier, 2001). In self-determination theory, motivation constructs are distinguished along a continuum of two dichotomous motivation behaviors, namely, intrinsic (more self-determined) and extrinsic (less self-determined; more externally controlled) motivation. In Noels et al. (2001: 429-431), one of the issues investigated was the degree to which extrinsic and intrinsic motivation constructs and L2 achievement are related. The results of the correlational analyses indicate that, to some degree, intrinsic motivation is positively correlated with L2 learning persistence and achievement (i.e., $r = .28$ for "intention to continue learning English after the conclusion of the present course" and $r = .29$ for "final course grades").

Lack of research examining motivation and specific language behaviors

Thus, the association between motivation and L2 learning outcomes continues to be a focus of investigation in recent L2 motivation research. While such research efforts must continue in the future, Dörnyei (2003) has recently raised one problem: most L2 motivation studies that investigated the association between motivation and L2 learning are primarily concerned with how motivation is related to *general* achievement measures such as final course grades, but not to more *specific* learning behaviors or outcomes. To date, motivational variables investigated in relation to specific L2 learning behaviors are emerging: a) willingness to communicate (MacIntyre, Baker, Clement, and Donovan, 2003); b) use of learning strategies (e.g., Schmidt, Boraie, and Kassabgy, 1996; Schmidt and Watanage, 2001); c) oral task engagement (Dörnyei and Kormos, 2000); and d) the degree of extensive reading (Yamashita, 2004). However, in all of these studies except Yamashita (2004), the instruments used to measure the target language learning behavioral variables are *indirect* measures (e.g., use of questionnaire where the learners report their own learning behaviors). In other words, the use of direct measures of specific learning behaviors still appears to be largely lacking.

Recent L2 reading research has discussed potential association between motivation and L2 reading skills (e.g., Day and Bamford, 1998; Hitosugi and Day, 2004; Grabe, 2004). However, as Grabe (2004: 57) observes, "there is little research specifically on the relationship between motivational variables and reading comprehension." One notable related study is the aforementioned Yamashita (2004: 12) study, which suggests that "the performance in extensive reading" measured by the participants' average numbers of pages read per week was related to "positive feelings towards reading" and "self-perception" ($r = .340$ and $r = .263$, respectively).

Purpose of the present research

The present study extends this line of research by investigating the relationships of a number of motivational variables to advanced-level Japanese L2 learners' demonstrated abilities to a) comprehend advanced texts in Japanese and b) read and identify *kanji* compounds. The present study additionally explores the relationship between learner beliefs, another set of affective variables, and Japanese L2 reading ability because previous research indicates that L2 learner beliefs are specifically associated with *kanji* learning variables such as *kanji* learning strategies (Okita, 1995) and *kanji* inferencing ability (Y. Mori, 1999, 2002).

To summarize, the present study seeks to answer the following question: Among L2 learners of advanced college-level Japanese, to what degree are affective factors related to students' demonstrated reading comprehension and *kanji* knowledge?

Method

Participants

The participants were forty-three English first language (L1) learners of advanced Japanese at the University of Hawai'i at Manoa. Students studying Japanese at this university have access to Japanese reading materials at school (e.g., the library has a large collection of Japanese literature and media), in the community (e.g., Japanese newspapers, magazines, advertisements), and through the internet. The participants' language and personal backgrounds were obtained by a background questionnaire. The participants claimed English as their strongest language (except one student whose L1 was Italian, a long-term resident of the U.S.). Twenty-four were female and nineteen were male. Twenty-four participants were learners who have some connection to Japanese heritage.

Unlike many Japanese language learners who choose not to continue learning Japanese beyond requirements (see Jordan and Lambert, 1991, Samimy and Tabuse, 1992; Watt, 1997), the participants had, on average, invested in learning Japanese for six years. Thus, in terms of persistence in learning Japanese, the participants could be characterized as "persistent learners". They were recruited by distributing flyers in the university's advanced Japanese language classes as well as by posting flyers on the department bulletin board. The students participated individually in the research at the researcher's office. Throughout the research sessions, a graduate research assistant was present in order to administer the tests and questionnaire to the individual participants.

Instruments

Reading-related proficiency measures.

Reading comprehension test. The participants took two reading comprehension tests to measure their ability to comprehend two advanced texts in Japanese: one was an excerpt from Japanese fiction (narrative text) and the other was a Japanese newspaper article (expository text). Each test had ten English multiple-choice questions about the text. Each participant's reading comprehension ability was estimated based on the total scores for the two tests combined (20 points in total). The split-half (adjusted) reliability (based on a correlation of .83 with $p < .001$ between the two sets of scores) was satisfactory (.91).

Kanji knowledge test. Before taking the reading comprehension tests, the participants took a *kanji* test. The target *kanji* words in the *kanji* test were thirty-six *kanji* compounds (i.e., words consisting of two *kanji* characters) from the narrative and expository texts explained above. These compounds were items not included in the university's common curriculum for the beginning and intermediate Japanese language courses. The participants were asked to write both the pronunciations and meanings of thirty-six *kanji* compounds in isolation. The researcher calculated the total scores by combining the scores for *kanji* pronunciations and meanings (with a maximum score of 72 points). No partial scores were given. The Cronbach alpha reliability estimate was very high ($\alpha = .97$).

Affective subscales. A total of seventeen affective subscales were used. Of which, thirteen subscales were the ones developed in previous studies (Noels et al., 2000; Y. Mori, 1999), and four were developed by performing factor analysis on an adapted version of S. Mori's (2002) reading motivation questionnaire. On the affective factor questionnaire, there were a total of eighty-one English statements for which the participants indicated their degree of agreement or disagreement with each statement on a 7-point scale ("7" as "Most strongly agree" and "1" as "Most strongly disagree").

Self-determination motivation subscales (seven subscales). Seven subscales were self-determination motivation constructs from the "Language Learning Orientations Scale" (Noels et al., 2001) discussed earlier. The only changes made to these subscales were to replace "a second language" with "Japanese". These scales were designed to measure learners' self-determination motivation for learning Japanese *in general*. Noels et al. (2001) define seven subscales as follows:

Subscale 1. **Amotivation (AM):** The student fails to see the relationship between Japanese language learning and its positive consequence (e.g., "Honestly, I don't know, I truly have the impression of wasting my time in studying Japanese").

Subscale 2. **External Regulation (EX):** The student has an incentive to learn Japanese solely determined by sources external to him/her (e.g., "Because I have had the impression that studying Japanese is expected of me").

Subscale 3. Introjected Regulation (IJ): The student learns Japanese due to internalized pressure to do so (e.g., "Because I would feel guilty if I didn't know Japanese").

Subscale 4. Identified Regulation (ID): The student learns Japanese because it is regarded as important for achieving a valued goal (e.g., "Because I choose to be the kind of person who can speak Japanese").

Subscale 5. Intrinsic Motivation-Knowledge (IMK): The student learns Japanese because of the pleasure of learning new ideas and gaining new knowledge through the task (e.g., "For the satisfied feeling I get in finding out new things through learning Japanese").

Subscale 6. Intrinsic Motivation-Achievement (IMA): The student learns Japanese because of the sense of satisfaction in accomplishing the task (e.g., "For the satisfaction I feel when I am in the process of accomplishing difficult exercises in Japanese").

Subscale 7. Intrinsic Motivation-Stimulation (IMS): The student learns Japanese because of the pleasure experienced in performing the task (e.g., "For the 'high' feeling that I experience while speaking in Japanese").

Japanese language learning beliefs subscales (six subscales). The next six subscales were from Y. Mori's (1999) Japanese language learning beliefs questionnaire. These belief factors were extracted by performing factor analysis on the survey data obtained from L2 learners of college Japanese. The adopted six subscales were:

Subscale 8. Kanji is Difficult (KJ): The student believes that learning *kanji* is difficult (e.g., "Learning *kanji* is one of the most difficult parts of learning Japanese").

Subscale 9. Analytic Approach (AP): The student adopts analytical approaches when studying *kanji* such as *kanji* character component analysis (e.g., "When I study a new *kanji* character, I try to recognize its parts").

Subscale 10. Risk Taking (RT): The student believes in the effectiveness of taking a risk in leaning Japanese (e.g., "I don't mind making mistakes if I can learn to communicate").

Subscale 11. Avoid Ambiguity (AA): The student is intolerant of ambiguity in learning Japanese (e.g., "I get frustrated when the teacher's explanation is different from what my grammar book says").

Subscale 12. Japanese is Easy (JE): The student believes that Japanese is easy to learn (e.g., "I do not think Japanese is as difficult as many people say").

Subscale 13. Reliance on L1 (RE): The student believes in L1 use in learning Japanese (e.g., "If you know the meaning of a Japanese word, you should be able to give the clear definition of it in your native language").

Japanese L2 reading motivation subscales (four subscales). The remaining four subscales were motivation constructs *specific to* Japanese L2 reading. In order to develop these constructs, a Japanese reading motivation questionnaire (33 statements), which was developed in reference to S. Mori's (2002) reading motivation questionnaire (30 statements), was administered to the present participants. S. Mori developed her questionnaire for English L2 learners based on Wigfield and Guthrie's (1995, 1997) reading motivation studies as well as Gardner's motivation studies (e.g., 1985, 2001). In order to identify the best items for the Japanese L2 reading motivation subscales, the Principal Component Analyses method was used first. Based on a scree plot and the eigenvalue criterion (i.e., minimum of 1.0), four factors were extracted for follow-up Promax rotations. Factor loadings of .40 and above were chosen as the criterion for interpretation. Items that did not contribute to the solution (i.e., those with loadings < .40, or those with complex loadings) were eliminated, and the correlation matrix was reanalyzed. In the end, 15 statements were eliminated, and the results with the remaining eighteen statements yielded the following four interpretable factors (subscales 14-17) that accounted for 65% of the variance (see Table 1).

Subscale 14 (factor 1). Lack of Motivation for Reading Japanese (LMR): The student would not work at reading Japanese because of the lack of a desire to do so.

Subscale 15 (factor 2). Intrinsic Orientation for Reading Japanese (IOR): The student desires to read Japanese because of his/her inherent interest in the activity and its associated pleasure and satisfaction.²

Subscale 16 (factor 3). Extrinsic Orientation for Reading Japanese (EOR): The student desires to learn to read Japanese for some instrumental end.

Subscale 17 (factor 4). Self-Perception of Reading Japanese (SPR): The student has a positive judgment or perception of his or her own ability to read Japanese.

Table 1: Factor Analysis

Statements in the questionnaires	F1	F2	F3	F4	h2
Learning to read in Japanese is not important for me: It is a waste of time.	0.98*	0.13	0.09	0.05	0.98
I would not voluntarily read in Japanese unless it is required as homework or assignment.	0.88*	-0.02	0.18	0.01	0.80
I do not have any desire to read in Japanese even if the content is interesting.	0.79*	-0.03	0.07	-0.16	0.66
I often feel lazy or bored when I engage in reading assignments for Japanese classes	0.62*	-0.18	-0.10	-0.09	0.44
I am learning to read in Japanese merely because it is required for graduation.	0.59*	0.03	-0.11	0.28	0.44
I like reading Japanese novels in original texts.	0.13	0.94*	-0.35	-0.18	1.05
Reading Japanese is a challenge I enjoy.	-0.14	0.73*	0.24	-0.01	0.61
I get immersed in interesting stories even if they are written in Japanese.	0.04	0.73*	-0.06	0.08	0.54
I tend to get deeply engaged when I read in Japanese.	-0.05	0.69*	0.09	0.20	0.53
Even when reading materials are dull and uninteresting, I always finish the assignments.	-0.01	0.66*	0.26	-0.12	0.52
By learning to read in Japanese, I hope to enhance my ability to read Japanese newspapers and/or magazines in original texts.	0.05	0.02	0.77*	-0.18	0.63
By learning to read in Japanese, I hope to enhance my ability to browse the internet in Japanese	0.14	-0.04	0.71*	0.22	0.57
Learning to read in Japanese is important because it will make me a more knowledgeable person.	-0.05	-0.16	0.66*	-0.24	0.53
By learning to read in Japanese, I hope to learn more about various opinions of Japanese people.	0.12	0.12	0.65*	-0.03	0.45
I am learning to read in Japanese because I might work or study in Japan in the future.	-0.17	0.03	0.63*	0.28	0.51
I think I am good at reading in Japanese.	0.13	-0.02	-0.03	0.98*	0.99
I think my fluency in reading Japanese is native-like or almost native like.	-0.02	0.05	-0.25	0.86*	0.81
My grades for college Japanese classes with an emphasis on reading were excellent.	-0.02	-0.10	0.16	0.78*	0.64
% of variance explained by each factor	0.18	0.17	0.15	0.15	0.65

Note: Extraction Method: Principal Component Analysis.

Rotation Method: Promax with Kaiser Normalization.

* = loadings > .40

Results and discussion

Descriptive statistics

Table 2 provides the descriptive statistics for the two proficiency measures in terms of the number of items (*k*), reliabilities (estimated by Cronbach alpha internal-consistency), maximum scores, minimum scores, means, standard deviations (*SD*), and skewness. As shown in the table, there were considerable individual differences in demonstrated reading comprehension ability and *kanji* knowledge among the participants. Table 3 provides the same information (except maximum and minimum scores) for the seventeen affective variables.³ Note in Table 3 that the reliability for *Risk Taking* (RT) was very low ($\alpha = .33$), which was judged unacceptable and hence this measure was eliminated from subsequent analyses.⁴

Table 2: Descriptive Analyses for Three Reading Proficiency Measures ($N = 43$)

Dependent variables	<i>k</i>	<i>Reliability</i>	<i>Max.</i>	<i>Min.</i>	<i>Mean</i>	<i>SD</i>	<i>Skew</i>
Reading comp. test (20 max.)	20	.91	18	6	12.4	3.9	.00
<i>Kanji</i> test (72 max.)	72	.97	50	0	12.2	15.3	1.26

Table 3: Descriptive Statistics for 17 Affective Variables ($N = 43$)

Subscales	<i>k</i>	<i>Reliability</i>	<i>Mean</i>	<i>SD</i>	<i>Skew</i>
Amotivation (AM)	3	0.79	1.4	0.7	1.74
External Regulation (EX)	3	0.68	3.5	1.6	.38
Introjected Regulation (IJ)	3	0.64	2.9	1.5	.74
Identified Regulation (ID)	3	0.74	5.3	1.4	-.85
Intrinsic Motivation-Knowledge (IMK)	3	0.66	5.3	1.1	-1.03
Intrinsic Motivation-Achievement (IMA)	3	0.84	4.9	1.6	-.55
Intrinsic Motivation-Stimulation (IMS)	3	0.94	4.2	1.8	.04
<i>Kanji</i> is Difficult (KJ)	5	0.45	5.5	0.9	-.53
Analytic Approach (AP)	4	0.78	4.4	1.3	-.59
Risk Taking (RT)	7	0.33	5.2	0.7	-.27
Avoid Ambiguity (AA)	4	0.49	3.3	1.0	-.01
Japanese is Easy (JE)	4	0.49	3.8	1.1	-.02
Reliance on L1 (RE)	3	0.53	4.2	1.3	-.47
Extrinsic Orientation for Reading Japanese (EOR)	5	0.71	5.7	1.0	-.51
Intrinsic Orientation for Reading Japanese (IOR)	5	0.81	4.9	1.2	-.44
Lack of Motivation for Reading Japanese (LMR)	5	0.88	1.9	0.9	1.84
Self-perception of Japanese Reading Ability (SPR)	3	0.84	3.3	1.5	-.27

Correlations between the two proficiency measures

The correlation of reading comprehension and *kanji* test scores was reasonably strong ($r = .73$, $p = 0.01$) indicating that reading comprehension scores had a 53% overlapping variance ($r^2 = .73^2 = .53$) with *kanji* test scores. Thus, to some extent, the present proficiency measures

were providing similar, overlapping information about reading ability, but at the same time, each measure is also providing non-overlapping information or error.

Correlations among the four Japanese reading-specific affective variables

Among the four Japanese reading-specific affective variables, three significant correlations were found. First, *Extrinsic Orientation for Reading Japanese* (EOR) was correlated positively with *Intrinsic Orientation for Reading Japanese* (IOR) ($r = .33, p = 0.05$). Second, while EOR and IOR were significantly related to each other, only the latter (IOR) was positively correlated with *Self-Perception of Reading Japanese* ability (SPR) ($r = .35, p = 0.05$) and negatively with *Lack of Motivation for Reading Japanese* (LMR) ($r = -.38, p = 0.05$). These results suggest that, while students who were intrinsically motivated to read Japanese may also see some instrumental value in improving reading ability in Japanese, only intrinsically motivated students may strive to learn to read Japanese and have positive self perception of Japanese reading ability.

Correlations between the four Japanese reading-specific affective variables and other affective variables

Table 4 shows the results of Pearson correlation coefficients between the four Japanese reading-specific affective variables and other affective variables. As the table shows, *Extrinsic Orientation for Reading Japanese* (EOR) was correlated positively with *Externally Regulation* (EX) ($r = .34$) as well as with four self-determined motivation variables (ID, IMK, IMA, and IMS) ($r = .36, r = .48, r = .61, r = .48$, respectively) and negatively with *Amotivation* (AM) ($r = -.41$). Second, *Intrinsic Orientation for Reading Japanese* (IOR) was correlated positively with self-determined motivation variables (ID, IMK, IMA, and IMS) ($r = .37, r = .49, r = .36, r = .32$, respectively) as well as *Analytic Approach* (AP) ($r = .40$) and negatively with AM ($r = -.54$), and *Avoidance Ambiguity* (AA) ($r = -.51$). *Lack of Motivation for Reading Japanese* (LMR), which was negatively correlated with IOR ($r = -.38$, see Table 3), was correlated (where significant) in opposite directions with all variables that were correlated with the IOR variable (i.e., AM, ID, IMK, IMA, IMS, AP, AA). Thus, students who are more determined to learn Japanese in general indicated higher extrinsic or intrinsic orientation for reading Japanese. However, as discussed earlier, only those with higher intrinsic orientation are more likely to work at reading Japanese. These students are also more likely to be tolerant of ambiguity in learning Japanese and adopt analytical approaches in studying *kanji*. Lastly, in Table 4, *Self-Perception of Reading Japanese* (SPR) was correlated positively with *Japanese-is-Easy* (JE) ($r = .32$) and negatively with *Kanji-is-Difficult* (KJ) ($r = -.38$), which is not surprising.

Table 4: Pearson Correlation Coefficients Between All Pairs of 16 Affective Variables^a

	AM	EX	IJ	ID	IMK	IMA	IMS	KJ	AP	AA	JE	RE
EOR	-.41**	.34*	n.s.	.36*	.48**	.61**	.48**	n.s.	n.s.	n.s.	n.s.	n.s.
IOR	-.54**	n.s.	n.s.	.37*	.49**	.36*	.32*	n.s.	.40**	-.51**	n.s.	n.s.
LMR	.33*	n.s.	n.s.	-.35*	-.33*	-.38*	-.30*	n.s.	-.35*	.39**	n.s.	n.s.
SPR	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	-.38*	n.s.	n.s.	.32*	n.s.

Note: ** $p = .01$, * $p = .05$; ^aAs discussed earlier, the *Risk Taking* (RT) variable was eliminated from the original 17 affective variables due to its low reliability reducing the total number of affective variables to 16.

Correlations between proficiency measures and affective variables

Table 5 shows correlations between the proficiency measures and the affective variables. As the table shows, both proficiency measures — the reading comprehension test and *kanji* test — were positively correlated with *Self-Perception of Reading Japanese* (SPR) ($r = .38$ and $r = .60$, respectively) and negatively with *Kanji-is-Difficult* (KJ) ($r = -.52$ and $r = -.59$, respectively) and *Lack of Motivation for Reading Japanese* (LMR) ($r = -.32$ and $r = -.33$, respectively).

Table 5: Correlations Between Proficiency Measures and Affective Variables

	READ	KANJI
Amotivation (AM)	n.s.	n.s.
External Regulation (EX)	n.s.	n.s.
Introjected Regulation (IJ)	n.s.	n.s.
Identified Regulation (ID)	n.s.	n.s.
Intrinsic Motivation-Knowledge (IMK)	n.s.	n.s.
Intrinsic Motivation-Achievement (IMA)	n.s.	n.s.
Intrinsic Motivation-Stimulation (IMS)	n.s.	n.s.
<i>Kanji is Difficult</i> (KJ)	-.52*	-.59*
Analytic Approach (AP)	n.s.	n.s.
Avoid Ambiguity (AA)	n.s.	n.s.
Japanese is Easy (JE)	n.s.	n.s.
Reliance on L1 (RE)	n.s.	n.s.
Extrinsic Orientation for Reading Japanese (EOR)	n.s.	n.s.
Intrinsic Orientation for Reading Japanese (IOR)	n.s.	n.s.
Lack of Motivation for Reading Japanese (LMR)	-.32*	-.33*
Self-Perception of Japanese Reading Ability (SPR)	.38*	.60**

Note: ** $p = .01$, * $p = .05$

Thus, students who scored higher on the reading comprehension test or on the *kanji* test were more likely to a) disagree that *kanji* is difficult to learn, b) perceive their own reading ability

better, and c) work at reading Japanese. It is not surprising that students who scored higher on the present proficiency measures indicated more positive perceptions of their own reading abilities. However, it should be noted that *Self-Perception of Reading Japanese* is correlated more strongly with *kanji* test scores than with reading comprehension test scores.

The observed association between reading ability and the intensity of motivation for reading Japanese seems consistent with Gardner's assertion that the intensity of motivation is a contributing factor to L2 achievement and vice versa (Masgoret and Gardner, 2003). On the other hand, none of the self-determination motivation variables (ID, IMK, IMA, and IMS) seem to be directly related to the present reading proficiency measures. However, as discussed earlier, these variables were significantly correlated with three Japanese reading-specific affective variables (EOR, IOR, LMR) suggesting that self-determined motivation for learning Japanese in general may be indirectly relating to Japanese L2 reading development.

Conclusion

The students in this study, who may be characterized as "persistent learners" (i.e., six years of instruction on average), demonstrated sizable individual differences in reading comprehension ability and *kanji* knowledge. The results show that affective variables have direct and indirect associations with the development of L2 reading ability of these students. This paper concludes by discussing pedagogical recommendations for the study's major findings.

First, this study suggests that students' reading comprehension ability and *kanji* knowledge have moderate yet significant associations with a) perceptions of their own reading abilities, b) perceived difficulty in learning *kanji*, and c) the intensity of motivation for reading Japanese. In other words, students with lower reading ability had lower evaluations of their own reading abilities, perceived more difficulty in learning *kanji*, and were less likely to work at reading Japanese. Thus, in dealing with lower achieving students, it may be advisable for teachers to encourage them to read Japanese by providing reading tasks in which the difficulty level, especially, in terms of *kanji* usage, is carefully considered and appropriately adjusted to their levels. At the same time, teacher efforts to provide effective *kanji* instruction should continue to be a priority (Kondo-Brown, 2006; Y. Mori, 1999; Shimizu and Green, 2002). Given the considerable individual differences in demonstrated *kanji* knowledge, the use of instructional materials that students can practice on an individual basis (e.g., the use of online *kanji* practice tools) may prove helpful so that the students can study *kanji* at their own pace.

Second, the data show that, between the two reading ability measures used in this study (i.e., comprehension test and *kanji* test scores), the *kanji* test scores more strongly correlated with the *Self-Perception of Japanese Reading Ability* variable than the reading comprehension scores were. This is interesting because, in Clément's motivation model (1980), self-perception is conceptualized as a component of self-confidence, which directly influences the learner's motivation to contact in the target language indirectly contributing to L2 achievement (Clément and Kruidenier, 1985). If Clément's model can be applied to L2 literacy development, it may follow that students who demonstrate better *kanji* knowledge perceive themselves as better readers, and therefore, become more active readers. Previous cognitive research dealing with

Japanese L2 reading suggests that *kanji* word recognition and other forms of lower-level processing influence efficiency of comprehending Japanese texts (e.g., Everson and Kuriya, 1999; Horiba, 1990; Koda, 1992; Y. Mori, 1998). The present study suggests that the lack of adequate *kanji* knowledge may not only decrease efficiency in reading but also significantly reduce motivation to read. Thus, again, careful attention to *kanji* usage in the course reading materials is highly recommended.

Third, students who were more determined to learn Japanese in general indicated higher intrinsic or extrinsic orientation for reading Japanese. However, only those with stronger intrinsic orientation for reading Japanese are more likely to work at reading Japanese. Thus, in developing curricula for advanced reading classes, the enhancement of intrinsic orientation or the enhancement of pleasure and satisfaction of reading should continue to be a priority. The effect of certain instructional strategies that may enhance learners' extrinsic orientation (e.g., giving tests on the reading materials, talking about the importance or future value of reading ability) may not influence learners' reading behavior unless the students experience pleasure and satisfaction in reading Japanese as well. If teachers want their students to become autonomous, active readers, they should provide *attractive* texts that the students enjoy reading (e.g., finding materials on topics related to students' interests that are at appropriate reading levels).

Fourth, the present study suggests that certain learning attitudes such as intolerance of ambiguity (e.g., impatience with teacher use of unknown words) and disengagement from the analytic approach in learning *kanji* characters (e.g., unwillingness or inability to analyze components of *kanji* characters to figure out meanings) could be signs of lack of intrinsic orientation as well as motivation for reading Japanese. Teachers should therefore consider these learning behaviors in teaching L2 reading and provide adequate support for learners' affective needs.

Notes

1. The research presented in this article was part of the University of Hawaii NRCEA (National Resource Center East Asia) Heritage Language Instruction Project in Chinese, Japanese and Korean (2003-2006) in which the author is the principal investigator.
2. According to Noel (2001: 45), intrinsic orientations refer to "reasons for L2 learning that are derived from one's inherent pleasure and interest in the activity; the activity is undertaken because of the spontaneous satisfaction that is associated with it."
3. Note in Tables 2 and 3 that distributions for one reading proficiency variable (*kanji* test) and five affective variables (AM, IJ, ID, IMK, and LMR) were significantly skewed (i.e., skewness value > .72 [standard errors of skew x 2]). These variables with skewed distributions were therefore transformed, and the original data and the transformed data were compared using correlational analyses. However, the results were nearly identical, and so the present study reports only the results of the correlational analyses with the original data (for further information of this procedure, see Tabachnick and Fidell, 2001: 83).

4. As Table 3 shows, in general, beliefs-related subscales adopted from Y. Mori's (1999) study indicated lower ranges of reliability (except Analytical Approach [AP], i.e., $\alpha = .78$) than the rest of affective subscales, which proved to have satisfactory internal consistencies (i.e., reliability indexes ranged from $\alpha = .64$ to $\alpha = .94$).

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