

# The relationship between nonverbal immediacy, student motivation, and perceived cognitive learning among Japanese college students<sup>1</sup>

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**Abstract:** Research in the United States has found a strong and consistent relationship between teacher behavior and learning. Data collected from American college students indicate that perceptions of teacher nonverbal immediacy (NVI) are associated with students' feelings toward learning and perceptions of cognitive learning. The purposes of this study were to accomplish the following: (1) develop standardized Japanese versions of the instruments used to measure teacher nonverbal immediacy, student motivation, and perceived cognitive learning (how much students think they have learned); and (2) assess the relationship between NVI, student motivation, and perceptions of cognitive learning among Japanese college students. Results note that Japanese students report (1) a positive relationship between reported levels of teacher NVI and student motivation; (2) a negative relationship between reported levels of teacher NVI and perceived learning loss; and (3) a negative relationship between student motivation (SM) and perceived learning loss (how much students think they did not learn with their teacher compared to an ideal teacher). Further, cross-cultural comparisons between Japanese and American students were conducted. Results from the cross-cultural comparison suggest that the relationships between reported teacher nonverbal immediacy, student motivation, and learning loss among Japanese college students are similar to those found among American college students, but the dimensional structure of the questionnaires was different.

**Key words:** nonverbal immediacy, student motivation, perceived cognitive learning.

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Nonverbal Immediacy (NVI) has been a major area for communication research for almost 30 years in the United States; and is defined as behaviors that enhance closeness (Mehrabian,

1971). To date, the majority of NVI studies examined the student-reported nonverbal immediacy of teachers, focusing on behaviors such as eye contact, gestures, body position, smiling, vocal

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expressiveness, movement, and proximity (Andersen, 1979). Research indicates that students were more likely to comply with the requests of teachers who were more immediate nonverbally than less immediate teachers. NVI is associated with approachability and availability for communication, and also with increased sensory stimulation, interpersonal warmth, and closeness (Andersen, 1985). Teachers who do not exhibit nonverbal immediacy behaviors frequently are thought to be projecting avoidance, dislike, coldness, and interpersonal distance (Kearney, Plax, Smith, & Sorensen, 1988).

### *Correlates of NVI*

One of the most powerful associations of NVI is its reported relationship with learning. Nonverbal immediacy has been shown to correlate positively with higher levels of learning in the classroom. Research has shown that NVI has a substantial positive relationship with learning ( $r = 0.41$ ), with affective learning ( $r = 0.59$ ), and a negative relationship with perceptions of learning loss ( $r = -0.54$ ) (Gorham, 1988). Nonverbal immediacy is also correlated positively with higher teacher evaluations ( $r = 0.40$ ) (Moore, Masterson, Christophel, & Shea, 1996). Several methods have been used to measure learning. Some researchers have measured attitudes using an affective scale (McCroskey, Richmond, Plax, & Kearney, 1985), while others have used the *Educational Testing Service's Student Instructional Report* (Moore et al., 1996). Another measure, the Learning Loss (LL) Scale (Richmond, Gorham, & McCroskey, 1987; Gorham, 1988), has also been used to measure how much students think they have learned (L1) compared to how much they imagine they would have learned with an ideal teacher (L2). Perceptions of cognitive learning (PCL) is positively related with NVI ( $r = 0.38$ ), and student motivation is negatively related with perceptions of Learning Loss ( $r = -0.47$ ) (Christophel, 1990). Nonverbal immediacy is also positively related with a measure of student motivation, the Student Motivation Scale (SMS) ( $r = 0.34$ ). A recent report has found that perceptions of cognitive learning have a moderate correlation with a test of area content, offering evidence that students' perceptions of

cognitive learning are indeed related to test performance (Chesebro & McCroskey, 2000).

All research on NVI has relied solely on subjective student reports of teacher NVI. Student reports are bound by a student-teacher relationship, and the effect of that relationship on perceived NVI has yet to be extricated, as there are no reports of objective ratings of NVI by raters with a detached relationship with the rates. Thus, the question of an objective NVI score remains unclear.

### *Cross-cultural research on NVI*

The concepts of NVI have also been tested in other cultures and among ethnic groups other than Anglos in the United States. One research report noted little difference in the US between affective learning and NVI among White, Latino, and Asian students (Powell & Harville, 1990), suggesting that the relationship between NVI and affective learning appears to be stable across ethnic groups, although the strength of the correlations differed between countries. However, differences within ethnic groups (i.e., generational, identity, and ancestry) were not measured. Thus, the research is equivocal as to whether all "Asian" students respond in similar ways to nonverbal immediacy in the classroom.

According to McCroskey, Richmond, Sallinen, Fayer, and Barraclough (1995), Puerto Rican and American teachers exhibited nonverbal immediacy behaviors more frequently than Australian and Finish teachers, when measured by student-report. Regardless of the frequency, the relationship between teacher evaluation and NVI was positive and strong. There has also been one study of NVI on a Japanese population.

Neuliep (1997) queried 227 students from a "large university in Tokyo" on the NVI, Learning Loss Instrument, as well as on perceptions of cognitive, affective, and behavioral learning. Neuliep found that Japanese perceived their teachers as less immediate nonverbally ( $M = 22.5$ ,  $SD = 4.6$ ) when compared to Americans ( $M = 27.7$ ,  $SD = 5.6$ ). He also found that NVI was positively correlated with perceptions of cognitive learning for the Japanese sample ( $r = 0.33$ ), however, the correlation was significantly weaker than the correlation obtained from the American

sample ( $r = 0.53$ ). The correlation between learning loss and NVI was not significant within the Japanese sample ( $r = 0.06$ ,  $p > 0.05$ ); although a significant negative correlation was found for American students ( $r = -0.20$ ,  $p < 0.01$ ). However, several validity problems plague Neuliep's study making the findings debatable.

The translation of the Neuliep's NVI scale is questionable. An analysis of the translated instrument revealed word choice and phrasing inappropriate for use on a questionnaire, which might explain the low internal consistency ( $\alpha = 0.68$ ). Several of the most problematic examples follow.

First, the use of the word "kyoju." In the English questionnaire, the phrase "teacher[s]," not "Full Professor," was used in the instructions and not in the body of each question as in the original instrument. Next, the word "seito." The original questionnaire used the word "student." Because the target audience was college students, the term "seito" was clearly incorrect. Finally, a translation mistake which presents a considerable threat to the validity of the questionnaire. Question 7 in English asks "Touches students in class." The Japanese translation used was: "Kyoju wa jugyo chu [ni] seito ni fureru." In addition to being grammatically incomplete, the words kyoju and seito are inappropriate word choices for teacher and student, and strongly implies the presence of an illicit relationship.

While not exhaustive, the examples above show that the translated questionnaire was plagued by major validity problems. While the argument might be made that students were probably able to read and understand it, the mistakes, both grammatical and semantic, leave the reader of the questionnaire with the impression that it was not validated thoroughly before use. Moreover, both the low internal consistency and a weak one-factor solution (explained variance of 23%) suggest that the psychometric properties of the instrument are poor. Finally, Neuliep used a modified scale (1–4) instead of the scale (0–4) used in other NVI research. Thus, restrictions in range (4 point vs. 5 point semantic differential) and attenuation (measurement error) diminish the strength of correlations (Guilford & Fruchter, 1973), which compromises the validity of the findings.

*Justification.* Historical evidence suggests that teachers in Japan are to be respected and a certain distance between students and teachers is natural, and motivation to study is traditionally the student's responsibility (intrinsic) (White, 1987). This is in sharp contrast to American research, which suggests that a considerable portion of motivation to study rests on the nonverbal immediacy of the teacher (extrinsic). Unfortunately, Neuliep (1997) neglected to measure student motivation, which is presumed to be the mediating factor between nonverbal immediacy and learning, making it impossible to determine if the relationship between student motivation, nonverbal immediacy, and learning is similar or different between Japanese and American college students.

While some reports of NVI levels are available, no further conclusions about nonverbal immediacy in Japan can be drawn. Thus, the purpose of this paper is not only to replicate earlier findings using more rigorous and systematic methods, but to discover the relationship between nonverbal immediacy, motivation, and learning loss.

Further, the SMS has never been used in Japan<sup>4</sup>, and there are few research reports of student motivation among college students in Japan. Most of the literature concerning student motivation comes from historical or observational reports. Kelly and Adachi (1993) note:

... "(The) teacher as scholar" perspective leads many Japanese professors to consider teaching the least important of their activities, and their classes can be dismal. It is not unusual to look into a Japanese classroom and find a professor absently reading into a microphone while 10% of the students in the front listen attentively, 20% in the middle do homework for another class, 30% in the back sleep or chat, and 40% are absent. By Japanese standards, this is not dereliction of duty, for *Confucian philosophy maintains that it is the student's duty to learn rather than the teacher's duty to teach.* (p. 162) [italics added]

<sup>4</sup> Based on a literature review conducted on OVID.

Because Confucian philosophy prescribes the role of learning to the student, the logical assumption exhorts that motivation must therefore rest with the student. This implies the presence of intrinsic motivation.

Historical evidence also points to a history of learning as an intrinsically motivated behavior. White (1987) explains that learning is thought of as a virtue unto itself. This concept is echoed by Kelly and Adachi (1993) who argue that because of the historically low numbers of students who went on to study at the university level, "... their high motivation made the Confucian precept that students are responsible for educating themselves tenable" (p. 162). Thus, historical evidence suggests that the role of the teacher in learning is minimal. Instead of relying on the teacher to motivate students to study, the onus of learning rests with the students themselves.

Given the empirical evidence of the importance of the relationship between teacher behavior and student outcomes, including motivation and learning, this investigation has the potential to influence current discussions regarding teaching and learning loss in Japan. If motivation is not chiefly intrinsic as suggested by historical considerations, then learning outcomes cannot be attributed solely to the student. The ramifications introduced by this supposition are staggering in terms of their affect on interaction in the Japanese college classroom.

### Hypotheses and research questions

H<sub>1</sub> There is a negative relationship between teacher nonverbal immediacy and learning loss.

H<sub>2</sub> There is a positive relationship between teacher nonverbal immediacy and perceptions of cognitive learning (replication test of Neuliep, 1997).

H<sub>3</sub> There is a positive relationship between teacher nonverbal immediacy and student motivation.

H<sub>4</sub> There is a negative relationship between student motivation and learning loss.

H<sub>5</sub> There is a positive relationship between student motivation and perceptions of cognitive learning.

RQ<sub>1</sub> What is the relationship between students' reports of nonverbal immediacy and the reports of outside observers?

RQ<sub>2</sub> What is the difference between Japanese students' perceptions of nonverbal immediacy as compared to students in Australia, Finland, Puerto Rico, and the United States?

### Methodology

Participants for this study were freshman through to senior students at a medium-sized university on the Japan seacoast. With some exception, students were given the questionnaires in large lecture classes because more participants could be queried in a shorter period of time, and more teachers' NVI could be measured at one time because small classes were more prevalent before and after large lecture classes. Demographic information appears in Table 1.

### Instruments

Because the validity of the instrumentation developed for the Neuliep (1997) study was questionable, a detailed discussion of translation procedures used in the current study is offered below. Instruments used in the study were translated as prescribed by Vijver and Leung (1997).

**Table 1.** Descriptive statistics for participants

Sex/status	Freshman	Sophomore	Junior	Senior	Total
Male	19	20	29	12	80 (30.9%)
Female	82	31	58	8	179 (69.1%)
Total	101	51	87	20	259
(% of total)	(39%)	(19.7%)	(33.6%)	(7.7%)	(100%)

In particular, the method employed for translation was the committee approach with back translation, which is the method of choice for leading international organizations such as the United Nations and the European Union (Vijver & Leung, 1997, p. 40). The specific procedures, also outlined by Larson (1984) were the same as used by Keaten, Kelly, and Pribyl (1997) in the translation of the *Personal Report of Communication Fear* (McCroskey, Andersen, Richmond, & Wheelless, 1981) into Japanese.

Briefly, the original English instruments were translated into Japanese by a Japanese professor of English. The resulting Japanese instruments were then back translated blind by the back translator. With all instruments available, the whole committee met again to check and discuss the instruments and to examine for equivalence (Samovar, Porter, & Stefani, 1997; Vijver & Leung, 1997). When translating the instruments, Brislin's (1986) guidelines for optimizing the translatability of items were followed.

As discussed below, all of the questionnaires were checked for bias in three separate pilot tests. Vijver and Leung (1997) note that there are three areas in which cross-cultural bias can occur, namely Construct Bias (when the construct measured is not identical across groups), Method Bias (referring to the instrument or its administration), and Item Bias (defined as poor item translation, inadequate item formulation and appropriateness). While no researcher can claim to have an instrument that is perfectly valid, the introduction of methods for determining and limiting bias, described by Vijver and Leung (1997), significantly reduce the chances of bias when measuring phenomena across cultures.

#### *Nonverbal Immediacy Behaviors Instrument (NIBI)*

The most current and often used English NIBI (Richmond, Gorham, & McCroskey, 1987) is a 14-item scale measuring the frequency of nonverbal immediate behaviors, ranging from 0 (never) to 4 (very often). A higher number represents a higher frequency of nonverbal immediacy behaviors. Six of the 14 questions are

reversed coded (thus indicating nonimmediacy), and were recalculated before analysis. Scores on the NIBI range from 0 to 56.

Translation of the NIBI Question 7 (Touches students in the class), "touches" carries a negative connotative meaning in Japanese that would have serious consequences if translated as "sawaru" or "fureru." Touches was thus translated as "shitashige ni gakusei no kata ya senaka wo tatakau," or, "A kind/friendly pat/touch on back or shoulder." Changing questions into more easily understandable phrases that contain the substance, if not the exact words, is a valid translation method known as cultural decentering (Vijver & Leung, 1997, p. 39). All other questions were deemed equivalent by the committee as well as a focus group who completed the questionnaire and were asked to comment on the meaning and connotations of each question.

#### *Student Motivation Scale (SMS)*

The SMS (Rubin, Palmgreen, & Sypher, 1994), is a 16-item, seven-step semantic differential scale ranging from 1 to 7 measuring a student's state motivation toward a particular class. Higher SMS scores indicate higher levels of student motivation. Scores on the SMS range from 16 to 112.

#### *The Learning Loss Scale (LLS)*

The LLS was made to measure both students' perceived cognitive learning and their perceived learning loss (Richmond et al., 1987). The LLS was chosen because of its simplicity and because it has proven levels of reliability and validity as evidenced by widespread use. The scale consists of two questions: L1: How much did you learn in this class? and L2: How much would you have learned with an ideal teacher? Subtracting the L2 score from the L1 score results in the learning loss score.

## **Procedures**

The three questionnaires, printed on one double-sided page, were given out to approximately 400 students in three lecture classes and several smaller classes over a 5-day period in January, 1998. The questionnaires were handed out at

the beginning of each class. To ensure impartiality, in principle, students were requested to choose a teacher that they had immediately before – even if it was on a different day. Students were allowed to choose a class afterwards if they were responding to the questionnaire in a first period class. Students were warned verbally not to pick just any teacher.

Because the questionnaire was administered over a 1-week period, the chance of contamination of the subject pool and thus the data itself existed by students answering the questionnaire about different teachers more than once or by students answering the questionnaire about the same teacher more than once. Thus, all cases with the same student number were eliminated from subsequent analyses. All unidentifiable cases (missing student numbers) were also eliminated for the same reasons.

In order to assess the stability of the NIBI scale, an operational replication was first conducted to test whether outside raters could identify high and low immediacy consistent with student reports. The purpose was to measure the association between outside raters and student reports of nonverbal immediacy.

The first part of the process was to identify teachers with high and low levels of nonverbal immediacy. An  $F$ -test uncovered significant differences in NVI scores between teachers  $F(32,260) = 8.139$ ,  $p = 0.001$ ,  $\eta = 0.465$ , and post-hoc Sheffé tests revealed teachers who were evaluated as high and low in nonverbal immediacy. Scores ranged from a high of 37.7 ( $SD = 6.65$ ), to a low of 4.28 ( $SD = 5.12$ ). The average score on the NVI for Japanese teachers was 23.40 ( $SD = 8.80$ ).

All teachers identified as either high or low in nonverbal immediacy ( $\pm 1 SD$ ) were asked for their cooperation in videotaping their classes. All were told that seven teachers would be video taped, but they were not told why. Some teachers declined to help with the project, but the participation of two high and two low teachers was obtained, along with three teachers whose only purpose (unknown to them) in the study was to serve as decoy.

Videotapes of all seven teachers' classes (four experimental, three decoy) were taken

over a one-week period in January 1998. All seven teachers reported that they were unaware that NVI behavior identification was the goal of the project, but instead reported that they imagined the study was about class content. All seven teachers agreed to let their videos be used for further analyses. The four classes selected (2 high, 2 low) were digitally edited, and one analog VHS format tape was made from the original four. There were four segments to the video: the order of the segments was: (1) High NVI, (2) Low NVI, (3) High NVI, and (4) Low NVI. Each segment was approximately 15 minutes long.

Seven graduate students majoring in psychology were chosen, and paid for their cooperation as trained raters. Raters watched each segment of the video and then scored each NVI level, using the NIBI scale, for that teacher. A 15-minute break was provided in the middle of the session to reduce fatigue.

## Results

### *Descriptive statistics*

Total sample size after elimination of the questionnaires as described above was 328. The number of valid observations available after list-wise case deletion of missing values was 259, and this data set was used. Table 1 shows the crosstabulation by sex and by status. To determine if the unidentifiable cases were significantly different from the remaining cases on the measures of interest, indicating the presence of a confounding variable, a series of  $t$ -tests were run using group (eliminated = 1, kept = 2) as an independent variable and NIBI, SMS, and LLS as dependent variables. Significant differences were not found between eliminated and kept cases. Thus, the elimination of incomplete cases did not affect the results.

### *Internal consistency*

Internal consistency for two scales was measured by Cronbach's alpha. For the NIBI, the initial alpha was moderately high ( $\alpha = 0.76$ ). Item-total correlations were analyzed, and two items, item 1 (Sits behind desk while teaching), and item 9 (Sits on a desk or in a chair while

teaching) had extremely low item-total correlations ( $Q_1 = 0.08$ ,  $Q_9 = -0.11$ ). Low loadings were also noted on the pilot tests, so both items were removed from all subsequent analyses. The remaining 12 items showed high reliability ( $\alpha = 0.81$ ), with no further gains available by elimination of any single item.

The SMS showed even higher internal consistency ( $\alpha = 0.94$ ) than the NIBI without removal of any items, which was in line with results of the pilot tests. All 16 items on the SMS were used for subsequent analyses.

### *Principal components analysis*

*NIBI.* A principal components analysis of the NIBI revealed all items loaded on the first factor. However, item 6 (Has a very tense body position while talking to the class) loaded stronger on secondary factors. In the United States, “forced two, three, and four rotated factor solutions (oblique) did not yield interpretable results” (Gorham, 1988). Kearney (1994), after reviewing the literature on NVI, noted that the items on the NIBI “consistently result in a single-factor solution when analyzed with the items from the verbal immediacy scale” (p. 239). Neuliep (1997) reported that the NVI was unidimensional when excluding factors with eigenvalues of less than 1.0. Thus, available evidence in the United States suggests that NVI is a unidimensional concept when analyzed through normal factor analytical methods.

Because the measurement of nonverbal immediacy in Japan is in its genesis, a rotated factor analysis, which is a common procedure in cross-cultural research, was run to determine the dimensional structure of the scale. Varimax rotation revealed three factors with eigenvalues over 1 and item loadings over 0.30. The three factors explained 55% percent of the variance as shown in Table 2. The first factor, named “Relational Expressiveness” consisted of questions concerning smiling and vocal variety, gestures; the second factor, named “Animation,” was made up of questions referring to how the teacher acts and behaves, such as moving around the class, gestures, and body position while teaching. The third factor, called “Non-relational Behavioral Expressiveness” was made up of items such

as “looks at board or notes,” “lectures in monotone/dull voice.”

Internal consistency measurements were as follows: Factor 1,  $\alpha = 0.83$ , Factor 2,  $\alpha = 0.63$ , Factor 3,  $\alpha = 0.64$ . Correlations between factors are, Factor 1 and Factor 2, 0.53; Factor 2 and Factor 3, 0.34; and Factor 1 and Factor 3, 0.48.

*SMS.* A principal components analysis of the SMS (see Table 3) revealed that all items loaded on the first factor. For the same reasons as with the NIBI above, a Varimax rotation was run. Varimax rotation with eigenvalues over one and loadings over 0.30 revealed a two-factor solution that explained 64% of the variance. Scree plot analysis also suggested that a two factor solution was appropriate for the SMS scale. The first factor, named “Affective Disposition” consisted of questions about feelings toward classes such as enthusiasm, fascination, and motivation. Factor 2, named “Cognitive Appraisal” was comprised of questions about the utility of the class.

Internal consistency measurements were as follows: Factor 1,  $\alpha = 0.94$ , Factor 2,  $\alpha = 0.85$ . The correlation between Factor 1 and Factor 2 was 0.71.

### *Means and standard deviations*

The NIBI had an average score of 23.4 ( $SD = 8.80$ ). The standard deviation in this sample was considerably higher than in the Neuliep (1997) sample ( $SD = 4.6$ ), which might be due to the scale differences (5 point vs. 4 point semantic differential). The mean of the SMS was 69.6 ( $SD = 18.91$ ), and LL was calculated from L1 and L2 for a mean of 1.9 ( $SD = 1.90$ ).

### *Hypothesis testing*

The NIBI was correlated negatively with learning loss ( $r = -0.36$ ,  $p < 0.001$ ) and positively with perceptions of cognitive learning ( $r = 0.38$ ,  $p < 0.001$ ) giving support to hypotheses one and two. *T*-tests using high and low NVI (Average  $\pm 1 SD$ ) as independent variable and learning loss as dependent variable revealed strong and significant differences ( $t = 4.21$ ,  $p < 0.001$ ,  $\eta^2 = 0.179$ ) with students reporting lower levels of learning loss from teachers with high immediacy (see

**Table 2.** Rotated factor analysis of the NIBI scale

Factor NIBI items	Factor 1 Relational expressiveness	Factor 2 Animation	Factor 3 Non-relational behavioral expressiveness
13 Smiles at individual students in the class.	0.84		
5 Smiles at the class while talking.	0.80		
14 Uses a variety of vocal expressions when talking to the class.	0.68	0.43	
<i>11 Stands behind podium or desk while teaching.</i>		0.71	
8 Moves around the classroom while teaching.		0.69	
2 Gestures while talking to the class.	0.37	0.57	
12 Has a very relaxed body position while talking to the class.		0.53	
7 Touches students in the class.	0.38	0.51	
<i>10 Looks at board or notes while talking to the class.</i>			0.76
6 Has a very tense body position while talking to the class.			0.71
3 Uses monotone/dull voice when talking to the class.			0.63
4 Looks at the class while talking.	0.48		0.50
Variance Explained by Factors	34.3	12.7	8.7
Eigenvalues	4.11	1.52	1.03
Mean (SD)	1.8 (1.19)	1.2 (.81)	3.0 (.84)

Items ordered by factor loadings within each dimension, not by questionnaire order.

(Reversed items were recalculated before analysis, thus all items appear positive. For example, Item #10: "Looks at board or notes while talking to the class" is recoded to mean "Does not look at board or notes while talking to the class." Reversed items are indicated in italics.)

**Table 3.** Rotated factor analysis of the SMS scale

Factor/SMS items	Factor 1 Affective disposition	Factor 2 Cognitive appraisal
9 Unenthused/Enthused	0.85	
13 Dreading it/Looking forward to it	0.82	
12 Not fascinated/Fascinated	0.81	
5 Don't want to study/Want to study	0.75	
2 Interested/Uninterested	0.75	0.45
7 Unchallenged/Challenged	0.75	
1 Motivated/Unmotivated	0.73	0.40
8 Uninvigorated/Invigorated	0.72	0.32
4 Not stimulated/Stimulated	0.72	0.31
10 Excited/Not excited	0.55	0.32
15 Useful/Useless		0.90
16 Helpful/Harmful	0.30	0.87
14 Important/Unimportant	0.32	0.82
6 Inspired/Uninspired	0.40	0.53
11 Aroused/Not aroused	0.47	0.51
3 Involved/Uninvolved	0.32	0.47
Variance Explained by Factors	34.52	20.12
Eigenvalues	8.72	1.51
Mean (SD)	4.1 (0.63)	3.4 (1.23)

Items ordered by factor loadings within each dimension, not by questionnaire order.

**Table 4.** Comparison of perceived cognitive learning, learning loss, and student motivation by reported Levels of NVI

	Perceived cognitive learning	Learning loss	Student motivation
Reports of high NVI (43 cases)	6.21 ( <i>SD</i> = 1.89)	1.33 ( <i>SD</i> = 1.60)	80.81 ( <i>SD</i> = 2.83)
Reports of low NVI (40 cases)	3.88 ( <i>SD</i> = 2.02)	3.35 ( <i>SD</i> = 2.69)	54.68 ( <i>SD</i> = 2.75)

Table 4). *T*-tests using high and low NVI (Average  $\pm 1$  *SD*) as independent variable and perceived cognitive learning as dependent variable revealed strong and significant differences ( $t = 5.42$ ,  $p < 0.001$ ,  $\eta^2 = 0.179$ ) with students reporting almost double the levels of perceived cognitive learning from teachers with high immediacy, than those from teachers with low immediacy. NVI also was correlated positively with student motivation ( $r = 0.42$ ,  $p < 0.001$ ) supporting hypothesis three. *T*-tests using high and low NVI (Average  $\pm 1$  *SD*) as independent variable and student motivation as dependent variable revealed strong and significant differences ( $t = 6.63$ ,  $p < 0.001$ ,  $\eta^2 = 0.267$ ), with students reporting higher levels of motivation (30 points) from teachers with high immediacy. Student motivation was correlated negatively with learning loss ( $r = -0.53$ ,  $p < 0.001$ ) and positively with perceptions of cognitive learning ( $r = 0.78$ ,  $p < 0.001$ ) strongly supporting hypotheses four and five.

To answer research RQ<sub>1</sub>, in assessing interrater reliabilities, a series of Kendall's Coefficient of Concordances were run on the scores obtained from the seven trained raters. As shown in Table 5, coefficients (*W*) ranged from 0.60 to 0.75 ( $p < 0.001$ ).

The raters correctly identified the high and low teachers and rated them accordingly. The raters were not only in agreement with student reports of who was high and who was low in NVI, but also shared a high degree of interrater reliability.

To answer RQ<sub>2</sub>, a modified mean was calculated using the 10 items that were found valid in a multicultural study conducted by McCroskey et al. (1995). These 10 items were calculated from the data and the resulting score was called the Revised Nonverbal Immediacy

**Table 5.** Kendall coefficients of concordance for interrater reliability

Teacher	Raters	<i>W</i>	$\chi$	d.f.	<i>p</i>
1 (High NVI)	7	0.75	57.78	11	0.001
2 (Low NVI)	7	0.72	55.84	11	0.001
3 (High NVI)	7	0.71	54.38	11	0.001
4 (Low NVI)	7	0.60	46.31	11	0.001

**Table 6.** Means and standard deviations of RNIM by country

Country	Mean	<i>SD</i>	<i>N</i>
Australia	25.6	6.1	139
Finland	23.9	7.9	151
Japan	21.8	7.9	259
Puerto Rico	28.8	5.6	431
USA	28.2	7.8	365

Note: All comparisons with Japan significant at  $p < 0.01$ .

Measure (RNIM). The RNIM was calculated in order to compare this data with the means reported by McCroskey et al. (1995). Results indicate that Japanese students report significantly less teacher immediacy than students in Australia, Finland, Puerto Rico, and the US. (see Table 6)<sup>5</sup>

Finally, to determine how nonverbal immediacy affects perceptions of cognitive learning and leaning loss irrespective of student motivation, partial correlations were calculated on

<sup>5</sup> Because original data was not available for statistical comparison, a series of *t*-tests were run between participant data from Japan and that of other countries; all comparisons were significant at  $p < 0.01$ .

the SMS, NIBI, PCL, and LL. When controlling for student motivation, the partial correlation between NIBI and LL was  $-0.17$  ( $p < 0.05$ ), while the partial correlation between NIBI and PCL was  $0.09$  (*ns*).

## Discussion

The present study indicates that student perceptions of teacher nonverbal immediacy are correlated positively with motivation and learning. All research hypotheses were supported. Students reported more motivation when taught by a teacher perceived to be more nonverbally immediate. They also reported learning less when taught by a teacher perceived as less immediate nonverbally. Students who reported higher levels of motivation also tended to report higher levels of learning and lower levels of learning loss. When holding motivation constant, partial correlation analysis suggested that while there is a weak but statistically significant link between nonverbal immediacy and reports of learning loss, no significant relationship between nonverbal immediacy and perceived learning exists. Thus, the results suggest that student motivation may not be a potential mediating factor for nonverbal immediacy and learning loss, but is for perceived cognitive learning. Finally, the current investigation found that trained raters could accurately identify teachers reported by other students as being more or less immediate, even after only 15 min of viewing a particular class, thus providing evidence suggesting that NVI does not necessarily stem only from a relationship, but is a phenomenon that can also be independently observed by a third, disinterested party.

The findings of the current study both supported and contracted the findings reported by Neuliep (1997). The correlation between nonverbal immediacy and learning of the present study ( $r = 0.38$ ) was similar to that found by Neuliep ( $r = 0.33$ ). The correlation between nonverbal immediacy and learning loss, however, was significant in the present study ( $r = -0.36$ ) but quite different from Neuliep ( $r = 0.06$ ). Given the extensive procedures used to validate the instrument along with greater internal consistency

and less range restriction, it appears that the version of the nonverbal immediacy scale developed for this study is more valid.

Although Japanese college teachers are perceived as less immediate nonverbally when compared to perceptions of students in Australia, Finland, Puerto Rico, and the United States, students in Japan still associated more immediacy with greater learning and higher motivation. The findings of this study suggest that there is a range of appropriate nonverbal immediacy within cultures. Within this range, students tend to associate more immediacy with greater learning and increased motivation.

One potential explanation for a weaker correlation might stem from a mixing of East and West. In addition to Confucian virtue, Western influences may be influencing Japanese education. Japanese students may be noticing and responding to the motivating factors of NVI, yet the educational system still propagates traditional teacher and student roles as noted by Kelly and Adachi (1993).

Another potential explanation may lie in the concept of face-saving (Ting-Toomey, 1988). Theoretically, in an "other face-saving" society such as hypothesized to exist in Japan, one concern is the potential of social desirability entering into the students' reports of NVI. For example, social desirability may manifest itself in student responses being biased toward higher nonverbal immediacy because of respect for the teacher. Empirically, socially desirable responses can easily be detected by looking for score inflation. An inflation of scores would be noted by a reduction in the strength of the correlation coefficient characterized by a cluster of students who are highly motivated by teachers with high levels of NVI, with few or no points on the opposite end of the scatterplot. This was not the case. Scores ranged from the low single digits to near maximum on both the NVI and student motivation. Thus, we have reason to believe that social desirability did not factor into the results. These results are similar to results summarized by McCrae and Costa (1983) in reviewing more than 20 years of research outcomes on social desirability. McCrae and Costa (1983) found that the effects of social

desirability on test results are minimal, and scant evidence exists to support the theory that social desirability changes the results of research outcomes.

Just as reported in the United States, students who perceive their teacher as exhibiting nonverbal immediacy behaviors more frequently also tend to report higher levels of motivation. In this study, student motivation was highly correlated with cognitive learning, which is a sign of extrinsic motivation. So, while respect for the teacher and an intrinsic love of learning may hold an important place in Japanese society, extrinsic motivation also seems to exert a moderately strong influence on the learning process among Japanese college students. These results are in contrast to the traditional view of Japanese students as having high levels of intrinsic motivation.

Also of consequence here is that potentially higher extrinsic motivation (lower intrinsic motivation) may play a larger part than imagined in students' study patterns. As this is the first study of student motivation in relation to classroom learning, not only are the results significant for understanding student motivation in Japan, but also a more thorough picture of Japanese college classrooms, especially in a cross-cultural perspective, becomes available for researchers and teachers alike. With "accountability" becoming a key concept among Japanese college educators and administrators, a better understanding of student motivation may be a useful tool to improve the quality of education being offered in Japanese colleges and universities.

### **Cross-Cultural Implications**

Cross-cultural comparisons of NVI, SM, and LL revealed several interesting findings. Each area of interest is outlined separately, and then an explanation as to why such differences exist is offered.

While the NVI has been shown to be valid cross-culturally, the instrument has had to be adapted to the culture in which it was used. The current study had to eliminate two questions from the NIBI to obtain a high level of reliability.

In contrast to studies reported in the United States, meaningful subdimensions were found on the NIBI and the SMS scales in the present study. Kearney (1994), analyzed the NVI along with another scale, the Verbal Immediacy Scale. When both scales were subject to factor analysis, the scales split the items cleanly between the NVI and SMS, and no further analyses were conducted. For all practical purposes, the NVI is reported to be, and is used as, a unidimensional instrument in the United States. However, as the instrument has not been thoroughly tested on Japanese populations, cross-cultural research protocol dictates the use of factor analysis to determine if perceptual differences or similarities exist between groups.

Vijver and Leung (1997) suggest that differences in perception between cultural groups can be noted through the use of exploratory factor analysis. Based on factor analysis, there is evidence suggesting that Japanese students may be seeing different aspects of both NVI and student motivation. In other words, Japanese students may be reading deeper into each context.

As Japan has been reported to be a high context culture (Hall, 1976), Japanese students could be identifying various nuances and aspects of nonverbal behavior that students in low context cultures, such as the United States, may not perceive as easily. The factors identified in NVI instrument, "Relational Expressiveness", "Animation", and "Non-relational Behavioral Expressiveness" serve as clear examples. Assuming that high context cultures are more adept at reading what is not said (nonverbal behaviors), it is logical to assume that this sample of Japanese students are able to distinguish between behaviors that are meant to promote closeness (Relational Expressiveness) from those that are part of an "act" of teaching (Animation), and behaviors that fall in between (Non-relational Behavioral Expressiveness).

Similarities in nonverbal immediacy appear to mimic results of nonverbal communication in general. It is well known that Anglo American students are extrinsically motivated by teacher NVI, and nonverbal communication is just as important. One line of research on the effectiveness of teachers suggests that "as many as 82%

of teacher messages are nonverbal, while only 18% are verbal” (Grant & Hennings, 1971). Because NVI is linked with learning, and up to four times as many messages are sent nonverbally than verbally, the impact on learning outcomes is immense. As Japanese are able to identify postures in a similar manner to Americans (Kudoh & Matsumoto, 1985), the connection between NVI and student motivation becomes even stronger. However, Japanese are able to recognize nonverbal behaviors and postures that are indicative of status and power better than Americans (Kudoh & Matsumoto, 1985), thus also helping to explain the dimensional structure differences found on the NVI scale. Yet, Japanese students report the lowest NVI scores for their teachers, indicating that although NVI can be identified and classified, it is comparatively lacking in Japanese classrooms.

Likewise, Japanese students were able to discern the dimensions of “Affective Disposition” and “Cognitive Appraisal” in student motivation. Affective Disposition, made up of items such as enthusiasm, fascination, and motivation, indicates that one aspect of motivation is the excitement and charm that a class has to offer. Cognitive Appraisal, or the evaluation of the utility of the class, can be considered an assessment of the motivation of the future usefulness of the class for their lives. Thus, with regards to motivation, students in this study may believe that there are two distinct parts to motivation that affect their view of the classes they take, and this view may not be shared by their western counterparts. Data suggest that there is a definite and strong relationship between teacher motivation and immediacy, implying that the stereotype of the intrinsically motivated Japanese student who studies for the sake of study may be miscast. In fact, extrinsic motivation appears to exert a significant influence on the motivation of Japanese college students.

### Future Research

Researchers need to look at various experimental designs to further uncover the relationship between learning and NVI in Japan; perhaps an experimental design is needed to

eliminate alternative causality arguments regarding the relationship between NVI and student motivation.

Next, a look at the indigenous aspects of NVI and motivation are indicated as there may be other behaviors that compose the construct of NVI in Japan that are not being measured by the current instrument. Naturally, traditional aspects of motivation in Japanese culture need to be reviewed, and their impact on learning behavior be assessed as well.

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