Implicitly and Explicitly Measured Attitudes Towards Foreigners: A Dual-Process Model Perspective

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Intergroup attitudes are one of the individual difference constructs which may influence motivation to learn a second language (L2) or willingness to communicate in an L2. Drawing on the APE model (a dual-process model which postulates the distinction between explicitly and implicitly measured attitudes), the current study examined 71 Japanese university students' attitudes towards foreigners by utilizing three types of attitudinal measures: self-evaluation about one's prejudice towards foreigners, verbal reports of images about foreigners, and one's implicit association scores obtained by means of the filtering unconscious matching implicit emotions (FUMIE) test. Results indicated that the participants tended to respond in a neutral way on the self-evaluation, whereas the FUMIE test indicated significantly positive attitudes towards foreigners. Further, a dissociation of implicitly and explicitly measured attitudes was found. Finally, the three measures had no significant impact on motivational intensity. The findings are discussed in terms of the dual-process model of attitudes, and implications are provided for future research on intergroup attitudes in the field of L2 learning and communication.

1. Introduction

Among the individual difference constructs that have been argued to influence second language (L2) learning motivation or willingness to communicate (WTC) in L2, one is intergroup attitudes (e. g., Gardner, 1985a, 2001; Gardner, Tremblay, & Masgoret, 1997; MacIntyre, 2007; MacIntyre, Baker, Clément, & Donovan, 2002; MacIntyre, Clément, Dörnyei, & Noels, 1998; Yashima, 2002). Intergroup attitudes have been conceptualized as a hypothetical, complex, and complicated construct that can be inferred on the basis of the learner's beliefs or opinions about the target group. Accordingly, in order to assess such a latent variable, research on intergroup attitudes has utilized, predominantly, direct methods of attitudinal measurement, that is, questionnaires such as the attitude/motivation test battery (AMTB, Gardner, 1985a, 1985b) and the intergroup approach-avoidance tendency scale (Yashima, 2002; Yashima, Zenuk-Nishide, & Shimizu, 2004).

Questionnaires are efficient in allowing researchers to collect data from a great number of respondents (e. g., Brown, 2001, p. 6; Dörnyei, 2003, pp. 9-10). Nevertheless, the method

has some disadvantages, such as social desirability (or prestige) bias and self-deception. In other words, respondents may provide what they deem to be socially desirable responses, particularly in showing attitudes towards some socially sensitive concepts (Dörnyei, 2003, p. 12; Kikuchi, Kinda, & Mori, 2007, p. 107; Skehan, 1989, pp. 61-62; see also Fisher, 1993; Fisher & Katz, 2000; Fisher & Dubé, 2005); or it is difficult to elicit what respondents do not know consciously (Dörnyei, 2003, p. 13). These disadvantages also apply to other types of direct methods (e. g., interviews, ranking methods, and the semantic differential method)[1] (Antonak & Livner, 2000). The disadvantages may be due to "the respondent's realization that his or her attitudes, opinions, or values are being measured and the resultant attempt to modify or distort privately held attitudes when responding to an attitude instrument" (Antonak & Livner, 2000, p. 215).

Recently, in the field of social psychology, researchers have posited dual-process models of attitudes (e. g., Fazio, 2007; Fazio & Olson, 2003; Gawronski & Bodenhausen, 2006, 2007; Gawronski, Bodenhausen, & Becker, 2007; Gawronski & LeBel, 2008) and have distinguished explicitly measured attitudes from implicitly measured attitudes, that is, automatically activated attitudes. One indirect method to measure automatically activated attitudes is the implicit association test (IAT) developed by Greenwald, McGhee, and Schwartz (1998).

Because the explicit/implicit distinction in attitudes has not been discussed sufficiently in the field of L2 learning and communication, this study was designed to examine explicitly and implicitly measured intergroup attitudes, drawing on dual-process models of attitudes. As an indirect method, this study employed a paper-format group performance test of the IAT called the *filtering unconscious matching of implicit emotions* (FUMIE) test (Mori, Uchida, & Imada, 2008). By doing so, it was hoped that this study would provide some insights about the issue of measurement of intergroup attitudes.

In the following two sections, we introduce the dual-process model of attitudes and the IAT as the theoretical background of this study.

1.1 Dual-process models of attitudes: The APE model

Recently, social psychology researchers have argued that attitudes are not a hypothetical construct, but rather exist as evaluative associations in memory. For example, Fazio (2007) defined attitudes as "associations between a given object and a given summary evaluation of the object-associations that can vary in strength and, hence, in their accessibility from memory" (p. 608). Furthermore, it has been proposed that explicitly measured attitudes should be distinguished from implicitly measured attitudes[2] (Fazio & Olson, 2003; Fazio, 2007; Gawronski & Bodenhausen, 2006, 2007; Gawronski, Bodenhausen, & Becker, 2007; Gawronski & LeBel, 2008; Lam, Chiu, & Lau, 2007). This study relied on the association-proposition evaluation (APE) model that referred to the mechanisms of the dissociation of these two aspects of attitudes.

In the APE model, Gawronski and Bodenhausen (2006, see also Gawronski & Bodenhausen, 2007; Gawronski, Bodenhausen, & Becker, 2007; Gawronski & LeBel, 2008; Lam, Chiu, & Lau, 2007) proposed that implicitly measured attitudes reflect associative processes defined as "automatic affective reactions resulting from the particular associations that are activated automatically when one encounters a relevant stimulus" (2006, p. 693), whereas explicit measured attitudes involve propositional processes, referred to as "evaluative judgments that are based on syllogistic inferences derived from any kind of propositional information that is considered relevant for a given judgment" (p. 694). Cognitive inconsistency between automatically activated attitudes and the attitudes that result from propositional processes is resolved "by means of propositional reasoning-that is, either by changing the truth value of one proposition or by finding an additional proposition that resolves the inconsistency" (p. 695). Thus, implicitly and explicitly measured attitudes differ "only if additionally considered propositions [based on the propositional processes] question the validity of one's automatic affective reaction as a basis for an evaluative judgment" (p. 695).

To sum up, the model posits two qualitatively different processes in attitudinal evaluations (that is, associative processes and propositional processes) and considers automatically activated attitudes to be a basis for evaluative judgments. The model predicts that when cognitive inconsistencies among the propositions on the basis of the two processes take place, the dissociation between implicitly measured attitudes that may reflect associated processes and explicitly measured attitudes that may reflect propositional processes will be observed.

Drawing on the dual-process model of attitudes, this study attempted to explore intergroup attitudes. The following section summarizes indirect methods for exploring automatically activated attitudes.

1.2 Measuring automatically activated attitudes

The IAT is one indirect method that provides "a measure of strengths of automatic associations" between a target object and evaluative words (Greenwald, Nosek, & Banaji, 2003, p. 197). In the IAT (Greenwald, McGhee, & Schwartz, 1998; Greenwald, Nosek, & Banaji, 2003), respondents are asked to perform categorization tasks on a computer in which they classify the target concepts and evaluative attributes.[3]

Mori, Uchida, and Imada (2008) developed a paper-and-pencil group performance test version of the IAT: the *filtering unconscious matching of implicit emotions* (FUMIE) test (see also Kikuchi, Kinda, & Mori, 2007). The FUMIE test has two major advantages over computer-based individual IAT performance tests. First, it enables researchers to test a number of participants at one time. Second, the test allows researchers to measure attitudes towards single concepts. Mori, Uchida, and Imada (2008) tested the validity and reliability of the FUMIE test. Their participants were 82 Japanese university students. They took both

FUMIE test and the IAT with the target words being romance, marriage, and pregnancy. They found weak but statistically significant positive correlations between the FUMIE tests and the IATs (*rs* = .26 to .35) and argued that the correlations were acceptable, considering that the correlations between other indirect methods and the IATs had been reported to be low (p. 551). They also reported internal consistency correlations (*rs* = .56, .61, and .71) as high as those reported for the IAT (Greenwald, Nosek, & Banaji, 2003).

Although the IAT has been widely used in various areas of research (for a review, see Fazio & Olson, 2003; Gawronski & Bodenhausen, 2006), the number of studies using the IAT is still limited in the field of L2 learning and communication: One exception is Watson Todd and Pajanapunya's study (2009), which used this technique to examine 261 Thai students' attitudes towards native and non-native English speaking teachers (NESTs and non-NESTs). On the explicit measures, the students showed a significant preference for NESTs over non-NESTs, although they displayed significantly warmer feelings towards non-NESTs than towards NESTs; and their performance on the IAT did not show significant differences in attitudes towards non-NESTs and NESTs. The researchers also reported the dissociation between explicitly and implicitly measured attitudes (*rs* = -.083 to .077, *ns*). Therefore, they concluded that "explicitly stated preferences do not provide the whole picture of students' attitudes" (p. 30).

1.3 Research questions

This study focuses on Japanese-speaking English learners' attitudes towards foreigners. As Yashima (2002) argued, the target language speaking groups are hardly specified in places where English is studied as a foreign language, like Japan. Therefore, the target object was set as a relatively general concept, foreigners.

Drawing on dual-process models of attitudes (Fazio, 2007; Gawronski & Bodenhausen, 2006, 2007), attitudes towards foreigners were defined as positive or negative responses towards foreigners, which may be (a) affective reactions deriving from associations between foreigners and a given summary evaluation about foreigners or (b) evaluative judgments reflecting propositional processes. In order to assess attitudes reflecting associative or propositional processes, three measurements were utilized: (a) self-evaluation about the degree of prejudice towards foreigners, (b) self-report images of foreigners, and (c) the FUMIE test.

The following three research questions were posed for this study.

1. What are Japanese university students' explicitly and implicitly measured attitudes towardsforeigners?
2. Is there a relationship between explicitly and implicitly measured attitudes?
3. Do explicitly and implicitly measured attitudes predict degree of motivation to studyEnglish?

The first research question was prompted by the lack of use of indirect methods to

explore intergroup attitudes. So far, Japanese university students' attitudes towards foreigners have been investigated predominantly by direct methods such as questionnaires (e. g, Yashima, 2002; Yashima, Zenuk-Nishide, & Shimizu, 2004). According to the APE model of attitudes, explicitly measured attitudes may or may not reflect implicitly measured attitudes because of cognitive elaboration (Gawronski & Bodenhousen, 2006). In other words, it is probable that explicitly measured attitudes differ from implicitly measured attitudes. Therefore, it remains unclear to what degree Japanese university students possess automatically activated positive or negative attitudes towards foreigners.

The second research question concerns the dissociation between implicitly and explicitly measured attitudes. Because of the paucity of studies using indirect attitudinal measurements in L2 research, it is not clear whether there is a correspondence or dissociation between explicitly and implicit measured attitudes towards foreigners.

Finally, previous studies on L2 learning and communication have suggested that intergroup attitudes may constitute an influential factor when it comes to L2 motivation. Almost all studies investigating the relationships among the individual difference variables have predominantly used questionnaires and have conceptualized the construct of intergroup attitudes as a hypothetical, complex, and latent variable. Thus, it is necessary to examine whether redefined intergroup attitudes drawing on recent social psychology will influence motivation as well.

2. Method

2.1 Participants

The test and questionnaires were administered on two different days (November 11 and December 2, 2008) to Japanese university students taking one course at a Japanese university. The course was taught by ten teachers from three departments of the Faculty of Education (English language education, international understanding education, and Japanese language education), each of whom taught one or two class hours during a semester. The study was carried out on the days when the present researchers taught the course. The course was held once a week from October 2008 to January 2009, and was intended mainly for 1st-year students belonging to the Faculty of Education, but students from other faculties (e. g., the Faculties of Agriculture, Fiber, Economics, Humanities, Science, and Engineering) were allowed to take the course. Of the 115 students enrolled in the course, there were 104 attendants on November 11 and 98 attendants on December 2. Over half of the students belonged to the Faculty of Education (57.7% and 61.2%), and almost all were 1st-year students (98.1% and 98.0%).

The participants were informed that the purpose of the test and questionnaires was to measure individual differences such as attitudes and motivation to study English and that the

Table 1 Participants' information (N = 71)

Characteristics	n	%	Characteristics	n	%
Sex			Chances for Contact		
Male	29	40.8%	No	11	15.5%
Female	42	59.2%	Almost none	30	42.3%
Experience of being abroad			Relatively few	16	22.5%
None	53	74.6%	Relatively many	10	14.1%
Less than 1 week	7	9.9%	Quite a few	1	1.4%
1 week to 1 month	10	14.1%	Unknown	3	4.2%
1 month to 6 months	1	1.4%			

test and the questionnaires would be carried out anonymously. Of the attendants, those who were absent on either of the days, showed missing data, had experienced being abroad for more than one year, or did not agree with the consent forms were eliminated from the analysis. Finally, the data from 71 participants were analyzed for this study.

Table 1 shows the summarized information about the participants. Of the 71 participants, 29 (40.8%) were male, and 42 (59.2%) were female. Most of the participants (n = 53, 74.6%) responded that they had had no experience of being abroad. As to the degree of contact with foreigners, responses of "No" and "Almost no" accounted for more than half (15.5% and 42.3%).

2.2 Attitudinal measures

To measure attitudes towards foreigners, three types of measures were employed: (a) self-evaluation about one's degree of prejudice towards foreigners, (b) verbal reports of one's image about foreigners, and (c) a paper-format IAT (the FUMIE test). Self-evaluation and verbal reports of image are direct methods to elicit explicitly measured attitudes in that both the methods require respondents to report their attitudes verbally and that their purpose is quite transparent to respondents. On the other hand, the FUMIE test is an indirect method to elicit implicitly measured attitudes, that is, automatic activation of associations between the target concept and evaluative words. Further, self-evaluation may be more direct than verbal reports of images because the score calculation for the latter is not straight-forward (see below).

2.2.1 Self-evaluation about prejudice towards foreigners

The question item was "Do you have prejudice towards foreigners?" Participants answered on a 6-point Likert scale (1. *Definitely yes*, 2. *Yes*, 3. *Somewhat yes*, 4. *Somewhat no*, 5. *No*, and 6. *Definitely no*). The midpoint was 3.5. The word *prejudices* does not necessarily mean negative attitudes or views, but can sometimes refer to positive ones;

however, the immediately evoked meaning of the word in the Japanese language probably has a negative sense. So, higher scores indicate more positive attitudes towards foreigners while lower scores indicate more negative attitudes towards them.

2.2.2 Verbal reports of images about foreigners

Participants were asked to quickly write their images about foreigners in the order they recall them. No limitation was set on the number of images a participant could provide.

The participants wrote 230 images in total. The two researchers independently coded the images into negative, positive, and neutral.[4] The intercoder agreement reached 98.7% (227 out of the 230 images). The disagreements (3 cases) were resolved by assigning them as neutral. Finally, the number of negative images was 58; the number of positive images was 88; and the number of neutral images was 84.

The index of image positivity was calculated by subtracting the number of negative images from the number of positive images. A score above zero represents positive images about foreigners, whereas a score below zero represents negative images about foreigners.

2.2.3 The FUMIE test

The FUMIE test for this study was developed and administered following the procedures presented in Mori, Uchida, and Imada (2008). Since the target concept, foreigners, consisted of three Chinese characters (外国人), the evaluative words were also changed into those consisting of three Chinese characters (see Appendix A).

The test sheet of A3 size (29.70 x 41.99) had 13 columns (see Appendix B). The first column comprised only positive words and negative words. The other 12 columns (2nd to 13th column) consisted of 60 words, that is, 20 sets, each containing one positive word, one negative word, and the target word, randomly arranged: In other words, each column had 20 positive words, 20 negative words, and 20 occurrences of the target word.

Participants were asked to mark a circle on positive words and an "X" on negative words as quickly as possible (see Appendix C). As Mori, Uchida, and Imada (2008) noted, marking a circle for good things and an "X" for bad things is familiar in Japanese culture (p. 547). Column 1 was used for practice. For column 2, participants were asked to mark a circle on the target word, foreigners, as they did for marking positive words (positive task). The time allotted was 20 seconds. Then, for column 3, they were asked to mark an "X" on the target word for 20 seconds as they had done for negative words (negative task). They were provided with positive tasks for columns 2, 4, 6, 8, and 10 and negative tasks for columns 3, 5, 7, 9, and 11, alternately. To eliminate initial and final effects, the first two trials (columns 2 and 3) were not used for the analysis, and the participants were instructed to stop after finishing column 11 so that data were not obtained from the last two columns (columns 12 and 13).

Then, the evaluations for each column were counted. Implicit association scores (IASs) were computed by subtracting the average number of the last four negative tasks (columns

5, 7, 9, and 11) from the average number of the last four positive tasks (columns 4, 6, 8, and 10). Positive IASs indicate positive attitudes towards the concept; negative IASs indicate negative ones.

For internal consistency, correlation coefficients among the trials of each task were computed. The average correlation coefficients were .594 for positive tasks and .589 for negative tasks, suggesting reliabilities as high as those reported in Mori, Uchida, and Imada (2008, *rs* = .56, .61, and .71).

2.3 Motivational intensity

As a measure of motivation, a scale of motivational intensity (MI) consisting of seven items derived from Yashima (2002) was employed. Participants were asked to respond to the items such as "Compared to my classmates, I think I study English relatively hard" and "I really try to learn English," using a 6-point Likert scale: 1. *I definitely disagree*, 2. *I disagree*, 3. *I somewhat disagree*, 4. *I somewhat agree*, 5. *I agree*, and 6. *I definitely agree*). The reliability measured as a Cronbach's alpha was .928. The average scores of the six items were computed and used as a variable.

2.4 Procedures

The questionnaires and tests were administered on two separate days (November 11 and December 4, 2008). On November 11, participants first took the FUMIE test and then responded to a questionnaire consisting of background information questions and assessment of MI. It took about 20 minutes to complete both the test and the questionnaire. On December 4, participants responded to a questionnaire that consisted of self-evaluation about one's prejudice towards foreigners and an open question about one's images about foreigners. It took about 15 minutes. Instructions were given in Japanese. Throughout the study, respondents were asked to use the same identification number that they had chosen on the first day so that anonymity was maintained.

2.5 Analysis

First, three one-sample *t*-tests for the three variables were performed to test whether the mean score differed from the midpoint. To control for Type 1 error, the alpha level was set at .016 with a Bonferroni adjustment. As effect sizes, correlation coefficients (r) were computed (Field, 2005). According to Field, the cut-point values for small, medium, and large effect sizes are .100, .300, and .500 (p. 32). Second, to examine the relationships among the variables, correlation coefficients (r) were analyzed. Since there were three possible combinations of the variables, the alpha level was set at .016 with a Bonferronni adjustment. Finally, to test whether explicit and implicit measures of attitudes were useful

predictors of MI, a multiple regression analysis was conducted. The independent variables were self-evaluation, image positivity, and IAS.

3. Results

3.1 Participants' explicitly and implicitly measured attitudes towards foreigners

Table 2 shows the descriptive statistics of the three variables. The data for each variable were checked in terms of outliers, skewness, kurtosis, and visually using histograms. For all the variables, no z-scores exceeded 3.29; that is, no outliers were found at the .001 level. Second, the values of skewness and kurtosis did not deviate from the normal distribution at the .05 level. Further, the histograms of the three variables were checked visually. All the variables appeared to follow the normal distribution pattern.

Table 2 also shows the results of one-sample *t*-tests. For self-evaluation and image positivity, the hypothesis that the population mean will be at the midpoint (3.50 and 0 respectively) was not rejected, although the result for image positivity approached significance (p = .037). On the other hand, the hypothesis that the population mean will be at the midpoint (0 for IAS) was rejected for IAS. In particular, the effect size for IAS was large (r = .732), whereas the effect size for image positivity was small (r = .247). In other words, explicitly measured attitudes elicited through direct measures (self-evaluation and image) indicate that the participants tended to show neutral attitudes towards foreigners; implicitly measured attitudes obtained from a more indirect measure (IAS) shows their tendency to respond more positively to the target concept *foreigners*.

Table 2 Descriptive statistics for three measures

	M	*SD*	Skewness	Kurtosis	*t*(70)	*p*	*r*
Self-evaluationImage	3.51	1.04	0.10	0.13	0.057	.955	.007
Image Positivity	0.42	1.67	−0.46	1.07	2.132	037	.247
IAS (FUMIE)	3.08	2.89	0.26	−0.41	8.991	.000	.732

Note. *SE* for skewness = 0.29; *SE* for kurtosis = 0.56.

3.2 Correlations among the variables

Correlational analyses found that the correlation between self-evaluation and image positivity was weak but significantly positive (r = .302, p = .010); the IAS did not correlate with the other variables significantly (r = .153, p = .203 for self-evaluation; r = .149, p = .216 for image positivity). The two explicitly measured attitudes correlated to each other; in other words, participants who reported higher self-evaluation measures tended

to indicate higher image positivity. In addition, significant correlation was not found between implicitly and explicitly measured attitudes; that is, participants who had automatically activated associations between the target concept, foreigners, and positive evaluative words may or may not show their positive attitudes on more direct measures. Thus, the results indicate a dissociation between the two.

3.3 Relationships among attitudinal measures and MI

A multiple regression analysis was performed with MI as the dependent variable and self-evaluation, image positivity, and IAS as the independent variables. The descriptive statistics for MI were as follows: M = 3.537, SD = 1.178, skewness = 0.185, kurtosis = -0.193. No outliers were found at the .001 level; the values of skewness and kurtosis did not deviate from the normal distribution at the .05 level; and the distribution of the scores was checked visually. Then, assumptions for the regression analysis were checked (Tabachnick & Fidell, 2007). The scatterplot of residuals against predicted values showed the normality, homoscedasticity, and linearity of residuals. Multicollinearity was not found by a collinearity diagnostic test (tolerance and VIF) and the correlational matrix (see the above section). The analysis of Mahalonobis distance found no multivariate outliers (p = .001).

Table 3 shows the results of the multiple regression analysis. The results show that, among the three variables, none of the three measures of attitudes significantly explains the variance of MI. R was not significantly different from zero ($F(3, 67)$ = 1.101, p = .355). In other words, the findings suggested that redefined attitudes towards foreigners, whether measured explicitly or implicitly, may not have a significant impact on motivation to study L2.

Table 3 Multiple regression analysis with MI as a dependent variable

	B	*SE*	*Beta*	*t*	*p*
Self-evaluation	0.221	0.143	.196	1.553	.125
Image Positivity	−0.001	0.089	−.001	−0.006	.995
IAS (FUMIE)	0.028	0.049	.069	0.566	.573

Note. R = .217; R^2 = .047; adjusted R^2 = .004; $F(3, 67)$ = 1.101, p = .355.

4. Discussion

This study was guided by these three research questions: (a) What are Japanese university students' explicitly and implicitly measured attitudes towards foreigners?, (b) Is there a relationship between explicitly and implicitly measured attitudes?, and (c) Do explicitly and implicitly measured attitudes predict motivational intensity? To summarize,

first, the findings of this study showed that the participants' attitudes towards foreigners were positive on the FUMIE test (indirect method), whereas they tended to choose neutral responses on more direct methods (self-evaluation and image positivity). The answer to the second research question is that the two explicitly measured attitudes intercorrelated statistically significantly; nevertheless, little correlation on the relationship between explicitly and implicitly measured attitudes was found. Third, the variance of the MI scale was not explained significantly by the three attitudinal measures. That is, the redefined definition of intergroup attitudes was not found to have a significant impact on L2 motivation.

The results are discussed in terms of (a) the dissociation of explicitly and implicitly measured attitudes, (b) possible explanations for the dissociation, and (c) possible reasons for low impact of the attitudinal measures on MI. First, the results of this study suggest that explicitly and implicitly measured attitudes may reflect qualitatively different processes, lending support to theories about dual-process models of attitudes. The dissociation of explicitly and implicitly measured attitudes may not be caused only by self-presentation, taking into consideration the following conditions of this study: (a) the attitudinal object (that is, foreigners) was a rather general concept, (b) great care was taken to maintain anonymity of responses throughout the study, and (c) the test and the questionnaires were not performed individually, but rather in a class in which individuals were not identified. The APE model predicts that when propositions to be judged for evaluation are inconsistent with the propositions derived directly from the associative process, dissociation will occur. Thus, on the basis of the model, the participants for this study may have showed explicitly measured attitudes that are different from implicitly measured attitudes because of some cognitive inconsistencies. This point will be discussed below.

Second, although researchers have pointed out that respondents may choose a socially desirable response in direct assessment methods, such a response bias was not observed in this study. Rather, explicitly measured attitudes leaned towards negativity as compared to implicitly measured attitudes. One possible explanation for these findings is a midpoint response style that "represents one's attempt to find a 'place to hide' on the response scale by selecting only the middle or neutral value" (Antonak & Livneh, 2000, p. 215). However, it is interesting to note that our participants showed positive attitudes in the indirect method (that is, on the FUMIE test). In other words, the findings suggest that our participants tended to hide their positive attitudes towards foreigners, but that they were detected on the implicit measures.

The APE model may provide more detailed interpretations of the results. According to the APE model, there might have been some propositions considered for evaluation, which are inconsistent with implicitly measured attitudes. One possibility is that the participants may have taken social values about foreigners into consideration. For example, cultural relativism is emphasized in English education in Japan (e. g., Ishikawa, 1998), but at the same time, Japanese students are expected to have a positive view towards their own culture

(Ministry of Education, Culture, Sports, and Technology, 2003). Thus, positive attitudes towards foreigners revealed by the FUMIE test (e. g., "Foreigners are good.") may be inconsistent with the propositions derived from culture relativism ("No culture is good or bad.") or from patriotism ("Japanese are better than foreigners."). Another possibility is that the term foreigners might have reminded the participants of particular ethnic groups. According to Toyota and Marggard (2003), Japanese university students may display differing attitudes depending on the target ethnic group: that is, they showed more positive attitudes towards English-speaking peoples (e. g., Americans and British) than towards non-English speaking peoples (e. g., Koreans). If their observation is relevant, participants might have acceded to propositions about attitudes towards foreigners such as "Americans and British are good, but Koreans are not." Such propositions may have caused inconsistencies with the proposition derived from positive attitudes towards foreigners that were automatically activated. Thus, the view that respondents may reveal desirable or expected responses for self-presentation may be rather simplistic (see also Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). Rather, this study suggests that respondents may not show their automatically activated attitudes directly on explicit measurements of attitudes and that how respondents resolve cognitive inconsistencies may be determined by the proposition presented for judgment. In this study, the participants tended to choose neutral responses even though their implicitly measured attitudes were positive.

Third, the redefined attitudes towards foreigners did not show a significant influence on MI. Our findings did not confirm those of Yashima (2002; Yashima, Zenuk-Nishide, & Shimizu, 2004). In Yashima's studies, the variable referred to as *international posture* was found to have a significant relationship with L2 motivation consisting of MI and the motivational desire. One major difference between her studies and this one lies in the definitions of intergroup attitudes. She defined international posture as "interest in foreign or international affairs, willingness to go overseas to stay or work, and *a readiness to interact with intercultural partners* [italics added]" (Yashima, Zenuk-Nishide, & Shimizu, 2004, p. 125). Her variable included intergroup attitudes as a subcomponent. The subscale for intergroup attitudes was the intergroup approach-avoidance tendency defined as "an individual's tendency either to approach or to avoid interaction with people from different cultures" (Yashima, 2002, p. 58). Thus, the conceptualization of intergroup attitudes was defined in terms of psychological distance towards foreigners. On the other hand, in this study, attitudes towards foreigners were investigated in terms of the positive/negative (or favorable/disfavorable) distinction. Therefore, hoping to interact with intercultural partners may lead to higher motivation to learn an L2, but feeling that foreigners are good may not relate to L2 motivation. In other words, there seem to be discrepancies between the two conceptualizations of attitudes towards foreigners in relation to L2 motivation.

5. Limitations and implications for future research

The study reported in this article has some limitations, and so the results must be interpreted with some caution. First, the number of participants for this study was small, and an intact class was used. Thus, random-sampling was not ensured. For generalization, a greater number of L2 learners are needed. Second, this study focused on a single concept (foreigners) to explore intergroup attitudes. As discussed above, some participants might have had particular ethnic groups in mind. As Gardner (1985a) pointed out, general and specific objects may result in different attitudes. It is necessary to explore intergroup attitudes using both general and specific concepts. Thirdly, the number of methods employed for this study was limited. Antonak and Livneh (2000) and Fazio and Olson (2003) listed a variety of direct and indirect methods. Comparing other methods may be necessary. In particular, questionnaires, or scales, were not used in this study. One reason is that neither the AMTB nor the intergroup approach-avoidance tendency scale was considered to assess redefined attitudes towards foreigners for this study. However, it will be important to investigate the relationships among those measurements.

Despite the limitations of this study, the results obtained have important implications for research on intergroup attitudes. First, future research including both direct and indirect methods may be helpful to further clarify the unique role of intergroup attitudes in L2 learning and communication. According to dual-process models of attitudes (e. g., the APE model), two qualitatively distinct processes are posited; and indirect methods such as the IAT and the FUMIE test are usable to measure automatically activated attitudes. This study reported the dissociation of explicitly and implicitly measured attitudes towards foreigners, suggesting that respondents may face cognitive inconsistencies in answering questions about their attitudes towards foreigners. Thus, further research on intergroup attitudes that will incorporate indirect methods is necessary.

Second, it may be necessary to discuss and examine the construct of intergroup attitudes carefully. The findings of this study suggest that attitudes conceptualized and assessed in Yashima's (2002; Yashima, Zenuk-Nishide, & Shimizu, 2004) studies may be different from our redefined attitudes in terms of their relationship with L2 motivation. How intergroup attitudes should be defined and operationalized may influence the relationships among individual difference variables.

Third, as Mori, Uchida, and Imada (2008) argued, this study indicated the usability of the FUMIE test with a large number of participants. Following the procedures of Mori, Uchida, and Imada (2008), a FUMIE test can be made and implemented easily according to the purpose of each study. Mori, Uchida, and Imada (2008) pointed out that the use of the FUMIE test may not be limited to research, but it can be used in classrooms for assessment of affective aspects. The FUMIE test has much potential for both research and teaching.

In summary, drawing on the dual-process model of attitudes, this study attempted to detect automatically activated attitudes by using a paper-format version of the IAT, the

FUMIE test. We examined implicitly and explicitly measured attitudes towards foreigners and found that Japanese university learners of English possessed differing attitudes on the two: They tended to show positive attitudes on implicit measurement, but neutral responses on the explicit measurement. Further, this study found little relationship between redefined attitudes towards foreigners and L2 motivation. Therefore, we maintain that the dual-process model of attitudes may be helpful to explain performance on explicit and implicit attitudinal measures and that the FUMIE test can be a useful tool to assess automatically activated attitudes.

Notes

1. Several studies on attitudes that did not use questionnaires were conducted by Oller and his colleagues (Oller, Baca, & Vigil, 1977; Oller, Hudson, & Liu, 1977). They used the identity scale, a technique similar to the semantic differential method. In the semantic differential method, the target concept is anchored between bipolar adjectives; in the identity scale, the target concept is rated with mono-polar adjectives. Their participants were presented with 30 adjectives (e. g., *humble, helpful*, and *thrifty*) and asked to rate on a 5-point scale about how well each adjective describes their ethnic group and the target group. The researchers claimed that the identity scale was more an indirect measure (Oller, Hudson, & Liu, 1977, p. 5). However, the identity scale should be categorized as a direct method because respondents can modify or distort their responses, realizing that their attitudes are being assessed. Antonak and Livneh (2000) categorized the semantic differential method as one type of direct method (pp. 213-214).
2. In this paper, we intentionally avoid using the terms *implicit attitudes and explicit attitudes*. First, Fazio and Olson (2003, p. 302; see also Fazio, 2007, p. 623) pointed out that the term *implicit attitudes* implies the existence of unconscious attitudes, that is, attitudes outside one's awareness. This identification of implicit attitudes with unconscious attitudes may be due to Greenwald and Banaji's (1995) definition of implicit attitudes as "introspectively unidentified (or inaccurately identified) traces of past experience that mediate favorable or unfavorable feeling, thought, or action towards social object" (p. 8). Fazio and Olson argued that implicit or indirect measurements such as the IAT are not designed to test whether one has attitudes without awareness or not. Second, Fazio and Olson pointed out that the terms *implicit attitude* and *explicit attitude* imply that the two types of attitudes have separate representations in memory (pp. 302-303). In their MODE model, they questioned dual representations of attitudes and considered explicit attitudes to "be constructed on the spot" (p. 303). Following Fazio and Olson's arguments that implicit and explicit attitudes are misleading labels, the terms *implicitly measured attitudes and explicitly measured attitudes* are used in this paper.
3. For examples of the IAT, see https://implicit.harvard.edu/implicit/.

4. Similarly, Lam, Chiu, and Lau (2007) coded impressions about the target object into three categories (negative, neutral, and positive) and quantified the categories with −1, 0, and +1. They used these scores (valences of negative and positive) for statistical analyses. In this study, we did not analyze the valences of negative and positive separately; rather, we obtained the difference score by subtracting the negative valence from the positive valence. One major reason for this was that, because the number of images that the participants had written was not large, the distributions of negative and positive valences were negatively skewed, causing a deviation from the normal distribution.

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Appendix A Fourteen pairs of evaluative words in the FUMIE test

Positively Evaluative Words		Negatively Evaluative Words	
安心感	peace of mind	不安感	anxiety
安全性	Safety	危険性	danger
意欲的	Enthusiastic	無気力	unwillingness
楽観的	Optimistic	悲観的	pessimistic
完結作	Completion	未完成	incompleteness
合格者	Success	不合格	failure
自然体	naturalness	不自然	unnaturalness
親孝行	dutiful children	親不孝	undutiful children
親切心	kindness	不親切	unkindness
積極的	positive	消極的	negative
責任感	sense of	無責任	irresponsibility
当選者	responsibility	落選者	unsuccessful
有意義	successful candidate	無意味	candidate
好景気	significance	不景気	non-significance
	prosperity		depression

Appendix B Part of the FUMIE test for the present study

	Column 1	Column 2	Column 3	Column 4	Column 5
1	親切心	楽観的	意欲的	不親切	無気力
2	楽観的	外国人	不景気	好景気	外国人
3	不景気	不親切	外国人	外国人	好景気
4	危険性	消極的	未完成	当選者	悲観的
5	不親切	意欲的	有意義	外国人	外国人
6	当選者	外国人	外国人	親不孝	安心感
7	無意味	無意味	安全性	外国人	外国人
8	好景気	完結作	外国人	不景気	不自然
9	安全性	外国人	親不孝	安心感	楽観的
60	有意義	無気力	有意義	無責任	外国人

Notes. The target word is foreigners (外国人); the other words are evaluative words. The whole test contains 60 rows and 13 columns. Column 1 is for practice; so it does not contain the target word 外国人. Columns 2 and 4 are used for positive tasks; columns 3 and 5 for negative tasks.

Appendix C Example of positive and negative tasks on the FUMIE test

	Column 1	Column 2	Column 3	Column 4	Column 5
1	親切心 ○	楽観的 ○	意欲的 ○	不親切 ×	無気力 ×
2	楽観的 ○	外国人 ○	不景気 ×	好景気 ○	外国人 ×
3	不景気 ×	不親切 ×	外国人 ×	外国人 ○	好景気 ○
4	危険性 ×	消極的 ×	未完成 ×	当選者 ○	悲観的 ×
5	不親切 ×	意欲的 ○	有意義 ○	外国人 ○	外国人 ×
6	当選者 ○	外国人 ○	外国人 ×	親不孝 ×	安心感 ○
7	無意味 ×	無意味 ×	安全性	外国人 ○	外国人 ×
8	好景気 ○	完結作 ○	外国人	不景気 ×	不自然
9	安全性	外国人	親不孝	安心感 ○	楽観的
60	有意義	無気力	有意義	無責任	外国人

Notes. Throughout the tasks, participants are asked to put a circle on evaluative words with good meaning and mark an "X" on evaluative words with bad meaning. For columns 2 and 4 (positive tasks), they are asked to mark a circle on the target word *foreigners* (外国人); for columns 3 and 5 (negative tasks), they are asked to mark an "X" on the same target word.