

## **Report on the JSSP 2009/JGDA 2009 (SP50) Presentation, “Assessment of Shyness using IAT (2)”**

This is a report on the poster presentation given to the JSSP 2009/JGDA 2009 (SP50) on shyness assessment, using the Implicit Association Test (IAT). A fruitful discussion with many exchanges of opinions followed the presentation.

Compared to other methods which measure individual differences in implicit cognition, IAT has been recognized as a test with superior reliability and stability. Since its advent, increasing numbers of research utilize IAT methodology. Asendorpf, Banse, & Mücke (2002) have validated the double dissociation between implicit and explicit personality self-concept in the case of shyness. In their model, the IAT predicts spontaneous shy behavior (tense posture, etc.), whereas the explicit ratings predict controlled shy behavior (length of speech), resulting in double dissociation.

The research on implicit association measurement predicting the often uncontrollable behavior as represented in the observed change in performance of task achievement (e.g., Egloff & Schmukle, 2002; Fujii & Uebuchi, 2009) shows that it is possible to regard explicit measurement to predict self-controllable behavior, whereas implicit measurement predicts uncontrollable behavior.

Considering the above research outcome, Fujii, Sugimori, & Aikawa (2008) developed IAT which measures shyness by referencing the Asendorpf et al. (2002) model, and implemented the test. The outcome was used to study the relationship between implicit shyness and social desirability. Additional data from Fujii and others was collected and used for re-analysis. The result is reported as Study 1. In Study 2, other assessments by friends and acquaintances of the Study 1 participants were used to examine the subject for assessment in shyness IAT.

### **Study 1<sup>1</sup>**

A Japanese-version shyness IAT was prepared for 47 undergraduate and postgraduate students (11 males and 36 females). The relationship with other types of explicitly measured self-concept of personality was studied.

#### **Materials:**

Shyness IAT (developed by referencing Asendorpf et al., 2002)

Trait-Shyness Scale (TSS: Aikawa, 1991)

Japanese-version Marlowe-Crowne scale (MC: Kitamura, Suzuki, 1986)

Big Five Extroversion scale (Wada, 1996)

#### **Procedures:**

The shyness IAT was given to the participants. Then, TSS, MC, and Extroversion scale responses were requested.

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<sup>1</sup> In Study 1 & 2, explicit measurement was based on the 7-item method.

## Outcome and Observation

The outcome of the correlation analysis involving 44 individuals, excluding 3 people who were considered outliers of the data distribution, is shown in Table 1.

Table 1 Correlation coefficient among each scale/Descriptive statistic (Study 1)

	1	2	3	4	$\alpha$	$M$	$SD$
1 IAT	1	-.07	.12	-.25	—	-.18	.34
2 MC		1	-.31*	.44**	.79	4.05	.66
3 TSS			1	-.77**	.89	3.68	.90
4 Extroversion				1	.90	4.76	.88

\*\* $p < .01$ , \* $p < .05$

Even after including additional data, a comparable outcome as Fujii and others (2008) was confirmed. A significant negative correlation between TSS and MC was shown, indicating that the higher the characteristic shyness is, the lower the social desirability becomes. On the other hand, between IAT and MC, no significant correlation was shown, suggesting that the shyness IAT is not affected by social desirability.

However, no correlation was apparent between the shyness IAT and TSS. As a result, the subject for assessment using the shyness IAT was not identified. When both explicit and implicit measurements are used to assess socially undesirable attitude (racial prejudice, etc.), there tends to be no correlation between the two. Therefore, the outcome of Study 1 may reflect a possibility that the participants were reluctant to manifest their own shyness.

## Study 2

Another assessment method was utilized as an objective indicator. 69 friends and acquaintances of the participants in Study 1 were invited to take part in the Study 2 for the purpose of examining the subject that shyness IAT will predict. The rationale of using assessment by others is to enable others to assess individual behaviors which signal the implicit cognition of the participants in Study 1. (Shimojo, 2008)

### Materials:

Referring to the following, the questions were rewritten to suit other-assessment styles.

TSS

Waseda Shyness scale (Suzuki, Yamaguchi, Netake, 1997)

Desire to gain praise/to avoid denial scale (Ojima, Ota, Sugawara, 2003)

### Procedures:

Three copies of questions for other-assessments enclosed in sealed envelopes were given to the participants of Study 1. The following instructions were given: "Please give each envelope to your friend and ask him/her to respond." And, "Make sure that you do not open the envelopes." The envelopes were given to 40 participants who agreed to take part in Study 2 and they were collected

upon completion of the other-assessment.

Out of 120 envelopes distributed, 69 came back. (A collection rate of 57.5%). 15 participants received responses from all three friends. Nine participants received responses from two friends. Six received responses from one friend. In sum, the other-assessments for 30 participants from Study 1 were obtained.

### Outcome and Observation:<sup>2</sup>

Using factor analysis (principal factor method/Promax rotation) on other-assessment data from 66 respondents, after eliminating outlier data, items with low factor load were deleted and 4 factors were extracted. Each factor was named after its characteristic as shyness, gaining praise, being nervous among people, and denial of avoidance behavior. (Table 2)

Table 2 Outcome of factor analysis on the other-assessment scale  
(Three highest factor load items are listed.<sup>3</sup>)

He/She ...	Shyness	Gaining praise	Being nervous among people
is able to make new friends easily.	<b>-.833</b>	-.096	.073
speaks with the opposite gender frequently.	<b>-.820</b>	-.131	.281
likes to socialize with many people.	<b>-.752</b>	-.033	.069
tries to make him/herself appeal when speaking with others.	-.256	<b>.805</b>	.161
thinks a responsible position gives him/herself an opportunity to leave a strong impression about him/herself on others.	.180	<b>.786</b>	-.254
tries very hard to stand out when many people are gathered.	-.179	<b>.705</b>	-.085
is calm standing in front of people.	.221	.112	<b>-.942</b>
is seldom seen blushing during interpersonal communication.	.106	.408	<b>-.775</b>
is seldom in a situation that his/her hands and legs tremble when being assessed.	-.036	-.010	<b>-.735</b>

Next, the shyness IAT and TSS scores of Study 1 participants were taken as independent variables and the score of other-assessment factors was considered as the dependent variables, then, path analysis was conducted. (Figure 1)

<sup>2</sup> When the shyness IAT score and TSS score of participants who received other-assessment responses were compared to the scores of those who did not receive the response, there was no significant difference. Therefore, it makes sense to assume that those who participated in the experiment and those who did not, reported comparable degrees of shyness about themselves.

<sup>3</sup> The factor of denial avoidance behavior showed no correlation to independent variable, and therefore was omitted from the analysis below.

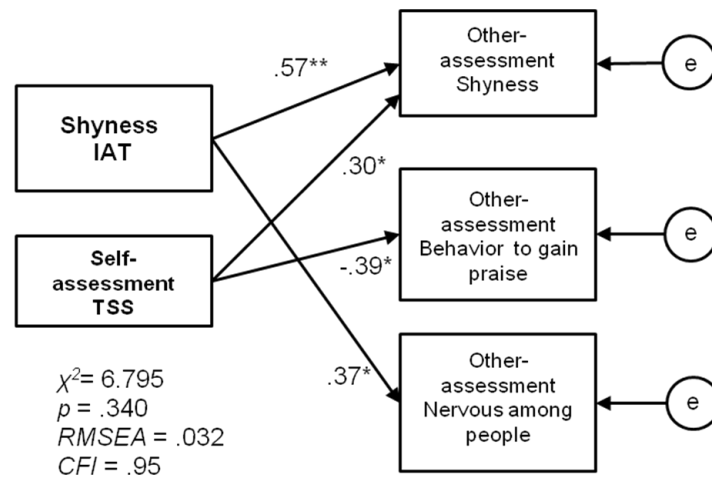


Figure 1 Outcome of the Path Analysis

Between the shyness IAT, an implicit measurement, and the aspects of other-assessment predicted by TSS which is an explicit measurement, differences were recognized. It is quite intriguing to find that “nervous among people” shown on other-assessment was predicted only by the shyness IAT. This factor consists of items which are difficult to control consciously, such as trembling hands and blushing. On the other hand, “behavior to gain praise” consists of distinct conscious behaviors, such as making oneself appealing and standing out. This can be interpreted as the confirmation of the outcome presented by Asendorpf et al. (2002).

Depending on the assessment method (explicit/implicit) used, predicted aspects were different even though the concept of shyness was shared. It means that the use of both explicit and implicit measurement may result in more extensive assessment, beneficial for understanding personality.

### Main reference

- Aikawa, A. (1991). A study on the reliability and validity of a scale to measure shyness as a trait. *Japanese Journal of Psychology*, 62, 149-155.
- Asendorpf, J. B., Banse, R., & Mücke, D. (2002). Double Dissociation Between Implicit and Explicit Personality Self-Concept: The Case of Shy Behavior. *Journal of Personality and Social Psychology*, 84, 380-393.
- Fujii, T., Sugimori, S. & Aikawa, A. (2008). “Assessment of Shyness using IAT” Collection of Papers presented at the JAEP 50th General Assembly, 92.

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