Asendorpf, B, & M + Study 1

(7) obs shy (index (pg 22)), ~~speech dur~~ spontaneous shy behavior — controlled shy behavior

(8) 2 self-shy IATs

(9) B pos shy pos self-rating, shyness scale, soc scale

(10) [illegible] (10)

(11) avg (2) pg 9 (10/k clinical?) pg 2

(12) self (3), pg 9

(13) self (3), pg 10

(14) obs (1), pg 9

(15) obs (5), pg 9

(16) X says scoring (3)

(17) pg 9 words (0)

(18) 2 IATs, pg 8

(19) 3rd IAT

(19-25: pg 8)

(20) 2nd EM

(21) B 1st

(22) aff (2)

(23) aff (2)

(24) same

(25) same

(26) SD 2, pg 9

(27) SD 2, pg 9

(28) spon = 2, control = (1), ~~obs = 5~~

(29) spon IAT: ~~4 (obs)~~, 2 (spon shy), 4 (control shy) pg 9 & 10

(30) spon EMs: same as above, pg 10

(31) opposed — 1.5, pg 9

(32) not (6), pg 2

(33) dual (2), pg 9

Asendorf, B, M – Study 2

7) same as Study 1

8) ~~shy IAT~~ ~~self~~ shy IAT

9) topic adjectives – self shy

10b 9/0 personality pg 2

11b aug

12b self

13b self

14b obs

15b obs

16b 3 (Not ready)

17b words

18b 1 IAT

19b 1

20b 2

21b 3 beh

22b att

23b after

24b same

25b same

26b 2 sd

27b 2 sd

28b spon = 2, control 7, obs = 5

29b 4 (obs), 2 (spon shy), 4 (control shy)

30b same as above

31b 1.5

32b Not race (0), pg 2

33b dual (2),

— says same as study 1, which clear up ambiguity

all 17, unless otherwise noted

Abstract

Using the trait of shyness as an example, we showed that (a) it is possible to assess reliably individual differences in the implicitly measured self-concept of personality that (b) are not accessible through traditional explicit self-ratings, and (c) increase significantly the prediction of spontaneous behavior in realistic social situations. A total of 139 participants were observed in a naturalistic lab situation that induced shyness, and completed an Implicit Association Test (IAT) and explicit self-ratings of shyness. The IAT correlated moderately with the explicit self-ratings, and uniquely predicted spontaneous (but not controlled) shy behavior, whereas the explicit ratings uniquely predicted controlled (but not spontaneous) shy behavior (double dissociation). The distinction between spontaneous and controlled behavior was validated in a second study through the experimental variation of participants' self-presentation of being non-shy.

957 characters

STUDY 1
Method

Participants

Participants were 139 heterosexual young adults that were native speakers of German and had finished high-school (69 male, 70 female; age M=22.6 years, range 19-31 years, 87% university students; psychology students were not recruitedfor this study). Most participants were approached by two experimenters on the campus of Humboldt University, Berlin, and were asked to participate; other participants were acquaintances of the experimenters of the study. The participants were not paid. Instead, they were motivated for participation by informing them that the study was on social perception and that they could receive individual feedback on their results later on. Thus, the participants cooperated in the study mainly for getting individual feedback on their personality.

Assessments and Measures.

Overview. The participants (a) were video-taped in a shyness-inducing situation with a confederate of the experimenter, (b) judged themselves on bipolar personality-describing items, (c) completed a shyness IAT, (d) judged themselves on other personality items, and (e) completed a parallel shyness IAT (only the first 35 males and 35 females). The shyness items of the 2 IATs were explicitly self-rated in step (b). Finally, the participants were thanked, asked for permission for analyzing the videotapes (all gave permission), and were promised individual feedback about their results. Four months after the study was finished, they received a letter explaining the procedures and general findings of the study, and were invited for a feedback session where they were informed about their individual results.

19-25

18

Shyness situation. Upon arrival at the lab, the participant was guided by the experimenter to the observation room, which was furnished as a living room. An above-average physically attractive, unfamiliar, opposite-sex peer sat at a low table. This confederate was trained to play the role of another participant and to respond friendly to initiatives of the participant but to be otherwise rather reserved. The experimenter introduced the participant to the confederate and asked her or him to sit down at a chair that was placed in a 90° angle to the confederate's chair.

Next, the experimenter read the instruction: "As you know, this experiment is on social perception, that is, how you perceive yourself and how you are perceived by others. You have now 5 minutes for getting to know each other. Subsequently, you will judge your conversation partner in a questionnaire, for example, how likeable s/he is. Your answers in this questionnaire will be treated strictly confidentially; in particular, your conversation partner will not get to know your judgment. Thus, you should try not to gloss over the facts. There (experimenter points to the camera) is a video camera that records your conversation. This is part of our routine procedure. Later on, you will separately complete various computer tasks. Because people usually differ in their speed, you will probably not see your conversation partner again." This procedure was designed to induce shyness by (a) the unfamiliarity, (b) the opposite sex, (c) the attractiveness, and (d) the evaluation of the confederate, and (e) the video recording.

Subsequently, the experimenter left the room. After the 5-minute conversation, she returned, and asked the participants to judge their conversation partner on various bipolar scales (not analyzed for the purpose of the present study). Finally, the experimenter asked the confederate to wait for another experimenter, and guided the participant to another room.

The participant and the confederate were videotaped by a camera that was operated from another room using S-VHS video. Camera settings were constant for all participants. A VITC time code was imprinted on the tapes that started when the experimenter had closed the door. If the participant stood up and/or walked away, the confederate was instructed to get him

or her back as quickly as possible; the time period until s/he sat down again was defined as missing. Secondary tapes were prepared that contained the first 3 minutes of nonmissing interaction of all participants. These tapes were used for the judgments and codings.

Global judgments of shyness. Three student judges that were unfamiliar with the participants judged independently the 3-minute video recording of each participant on a 7-point scale for shyness (the poles were labeled "not shy" and "shy"). The judgments were anchored by presenting beforehand two examples of extremely shy and extremely nonshy participants from the study by Asendorpf (1989). The 6 ratings of each judge were averaged.

Codings of shy behavior. The videotaped behavior of all participants in the first 3 minutes was coded by one coder; coding reliability was assessed by independent coding of 40 randomly selected participants by another coder. Codings were done on a PC that was synchronized with the time code of the videotape. For each behavioral code, the onset and the offset of the behavior was coded by pressing an appropriate button on the keyboard. Coded in independent runs were (a) speech of the participant, (b) body movements of the participant, (c) tenseness of the body posture, and (d) gaze aversion. For each code, its duration (expressed as percentage of observation time) was analyzed.

Body movements were coded according to Ekman and Friesen's (1972) classification, distinguishing illustrators (movements illustrating speech, including emblems, i.e. movements with culturally defined meaning), facial adaptors (self-stimulation of face or neck), and body adaptors (self-stimulation of other parts of the body). Facial adaptors were distinguished from body adaptors because some facial adaptors may be redirected spontaneous movements of covering the face and may be therefore more specifically related to shyness than other self-stimulations that mainly serve arousal-regulating functions (see Asendorpf, 1990).

Gazing was coded in terms of the onset and offset of participants' gaze toward the face of the confederate; the video recording did not make it possible to distinguish between face-directed gazing and eye-contact. Gaze aversion was defined as the duration of not gazing.

Tenseness of body posture was coded on a 3-point scale: normal, slight, and strong tension. Normal tension was defined by 4 standard body postures that require minimum muscle activity. Slight/strong tension was defined by slight/strong deviations of head, shoulders, arms, hands or legs from the standard positions that were described to the coders by 2(degree of deviation)×4(standard positions) = 8 additional prototypical body postures. The durations of the 3 tension categories (in % of observed time) were summed, using the weights 0, 1 and 2, and were then divided by 2, yielding scores that could range from 0% to 100%.

Implicit association tests (IAT). Care was taken to design the tests as similar to the original IATs by Greenwald et al. (1998) as possible. Target-concept discrimination was Me – Others, attributes were Shy – Nonshy. In a first step, participants discriminated Me – Others, then Shy – Nonshy. In the initial combined task they discriminated Me and Shy from Others and Nonshy. Subsequently, they discriminated Others – Me, and finally Others and Shy from Me and Nonshy (see Table 1). The difference between the mean reaction time in the reversed combined task minus the mean reaction time in the initial combined task was the main dependent variable (IAT score); positive differences indicated faster associations between Me and Shy than between Others and Shy.

- Table 1 –

Participants used the letter A on the left side of the keyboard and the number 5 of the right-side numeric keypad for discrimination. The targets and/or attributes assigned to the response keys were presented in the left and right upper corners of the computer screen throughout each task. The stimuli were presented in the center of the screen until the participant responded. The stimuli for the two parallel IATs are presented in Table 1; the attribute stimuli were identical with the corresponding bipolar adjectives in the explicit self-

ratings. In the two combined tasks, the stimuli alternated between target and attribute. Target and attribute stimuli were randomized in order within blocks of 20 trials. Thus, the internal consistency of the IAT could be evaluated across 4 subtests that included the same 20 trials in a different order. Interstimulus interval was 250 ms; after an incorrect response, the word FEHLER (German for error) immediately replaced the stimulus for 300 ms, resulting in a 550 ms interstimulus interval. Because this study focused on interindividual differences, all participants received the stimuli in the same order to minimize interindividual variance due to order effects. Participants needed approximately 12 min for completing the IAT.

Participants were instructed to respond as quickly and accurately as possible. Their responses were recorded using ERTS software (Beringer, 1994). Following Greenwald et al. (1998), the first two responses in the combined tasks were not analyzed, response latencies below 300 ms were recoded as 300 ms, and latencies above 3000 ms as 3000 ms. These raw latencies were used only for reporting means and standard deviations. All other statistical analyses were based on log-transformed latencies to correct for the skewed latency distribution.

Explicit self-ratings. In a first block, participants responded to 40 bipolar adjective pairs that were presented one-by-one on a computer screen (e.g., shy 1—2—3—4—5—6—7 nonshy). They were instructed to indicate how well the two opposed adjectives described their personality by pressing the appropriate number on the keyboard. 10 adjective pairs were selected for assessing shyness, agreeableness, conscientiousness, and intellect, respectively. The 20 shyness-descriptive adjectives were selected by high or low factor loadings on both introversion and neuroticism in a factor analysis of self-ratings of 830 unipolar personality-descriptive adjectives used by Asendorpf and Ostendorf (1998). The other adjectives were selected by high or low factor loadings on the agreeableness, conscientiousness, and intellect factor of these adjectives, and served as distractors. The resulting 40 bipolar items were then randomly mixed.

After completion of the first IAT, the participants answered 27 personality-descriptive items that were again presented one-by-one at the computer screen on a 5-point scale (scores ranging from 1 to 5, with labels not at all true for me to completely true for me) by pressing the appropriate number. Five items referred to shyness and another 5 to sociability. These two 5-item scales were used by Asendorpf and Wilpers (1998), and were included to validate the bipolar shyness adjectives. These items were randomly mixed with 17 distractor items.

Results

Description of the Main Variables

IATs. For both IATs, the individual incorrect response rates for the 156 analyzed responses in the two combined tasks were similar to those reported by Greenwald et al. (1998) (for the first IAT, M=5.0%, SD=4.2%; for the second IAT, M=3.6%, SD=2.2%). Inspection of the error distributions indicated one clear outlier (a participant with 35% errors in the first IAT); all other error rates were below 17% (first IAT) or 9% (second IAT). Therefore, this participant was excluded from all analyses, and the following analyses refer to 138 participants (68 males, 70 females).

The internal consistency of the two IATs was evaluated by computing Cronbach's α for the IAT scores (which were determined by calculating differences scores between the two combined tasks split into 4 consecutive blocks, based on log-transformed latencies).. As Table 2 indicates, α was high for the first test and satisfactory for the parallel test.

- Table 2 -

Table 2 also indicates that the mean IAT scores were slightly below zero. Negative means might be due to (a) more nonshy than shy people in the sample or the population, (b) a positively biased implicit self-concept of shyness, or (c) learning or other order effects that

the present boss is still in another meeting for about 10 minutes. You have been asked to fill in for these 10 minutes and to make the situation as comfortable for your future boss as possible." In the assessment center condition, this instruction was continued: "You should present yourself as favorably as possible. Have in mind that your role play partner will be your future boss." In the control condition, the instruction was continued differently: "Act in the role play just as you would do in real life."

Role play. The participant was shown into the observation room. An older-looking, unfamiliar, male, advanced psychology student, dressed in a business suit, was already sitting at a low table. This confederate was not aware about the assignment of the participant to the experimental condition. He was trained to play the role of the future boss described in the instruction. In particular, he was instructed to act slightly indignant at the delay of the meeting with the present boss and to slightly patronize the participant. As in Study 1, the participant was seated on a chair placed at a 90° angle to the confederate's chair.

This procedure was designed to induce shyness by (a) the unfamiliarity and (b) the status difference of the boss, (c) the assumed evaluation by the boss, (d) the opposite sex of the boss, and (e) the videotaping. Thus, we expected a similarly strong induction of shyness as in Study 1 for both experimental conditions. Both interactants were videotaped as in Study 1; again, the first 3 minutes were used for all behavioral codings and judgments.

Judgments and codings of shy behavior. Identical procedures as in Study 1 were used except that gazing was not coded because it did not differentiate between IAT and the explicit self-rating in Study 1. In particular, indices of spontaneous and controlled shy behavior were computed as in Study 1. Coding reliability was satisfactory in each case (for the observer judgments, α=.94; for the intercoder agreement for 15 participants, $r \geq .80$ for each behavior).

Implicit association test (IAT) and explicit ratings. As in Study 1, the interaction situation was followed by explicit ratings of bipolar adjectives and the shyness IAT. The same bipolar adjectives and IAT procedures as in Study 1 were used in the control condition. In the experimental condition, the participants were reminded before the IAT and the explicit ratings that "You should present yourself in the following task in such a way that you will get the job". The steps (d) – (e) of Study 1 were skipped.

Feedback. In the experimental condition, the role play partner watched the videotape of the role play together with the participant, commented on her behavior, and suggested alternatives for less competent behavior. He was trained to stress participants' competencies and to provide constructive alternatives. In the control condition, participants were invited for an individual feedback after the full analysis of their data.

Results

For the IAT, the individual incorrect response rates for the 156 analyzed responses in the two combined tasks were highly similar to those in Study 1 (M=5.1%, SD=3.4%). Inspection of the error distributions indicated no extreme scorers (all error rates were below 15%). The distribution of the log-based IAT scores was not even marginally different from a normal distribution, $Z<1$. The internal consistency of the IAT was evaluated as in Study 1; Cronbach's α was .84. The internal consistency of the shyness self-ratings was .86. Thus, the reliabilities were satisfactory for both the implicit and the explicit measures.

- Table 5 -

The means and SDs for all dependent variables are reported in Table 5 separately for the two experimental conditions. In a first step, differences between the control condition and the 70 female participants in Study 1 were explored by a MANOVA, followed by post hoc t tests. An overall effect, $F(8,79)= 3.11$, $p<.01$, was found which was due to the expected difference in speech duration, $t(1, 86)=3.08$, $p<.003$. The other 7 dependent variables did not