



## Brief Report

# An assessment of the fakeability of self-report and implicit personality measures

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## ABSTRACT

Researchers are focusing on developing implicit measures of personality to address concerns related to the faking of self-report measures. The present study examined the validity and fakeability of Implicit Association Test (IAT) measures of personality self-concept in a repeated-measures design ( $N = 33$ ). People's predictions about how they represented themselves on the measures were also assessed. Results indicated that participants were able fake self-report measures when instructed to do so and that they could accurately predict how they represented themselves on these measures. Participants were also able to fake an IAT measure of Extraversion, but were unable to fake an IAT measure of Conscientiousness or predict how they represented themselves on either IAT measure.

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## 1. Introduction

Self-report (SR) measures of personality can be easy to fake which has important implications for their use (Rothstein & Goffin, 2006). For example, in a selection context individuals can easily misrepresent their behavioral tendencies and attitudes to best fit what they think an organization is looking for. Faking has led to concerns about the use of these measures for selection or diagnostic purposes (Helmes & Holden, 1986; Rothstein & Goffin, 2006) and as a result, researchers have made concerted efforts to control faking and/or ameliorate its effects (McFarland, Ryan, & Ellis, 2002).

It is typically assumed that individuals can accurately complete SR personality measures because they possess some level of self-awareness. It is also assumed that people should be able to accurately predict their scores on these measures due to measure transparency (Furnham, 1997). As such, the transparency of these measures is a double-edged sword; important for accurate response, but also leading to potential mis-representation of the self (e.g., for personal gain in the context of personnel selection). To address the fakeability of SR measures, researchers have begun exploring implicit measures of personality, which purportedly assess attitudes without requiring introspection on the part of the respondent (Greenwald, McGhee, & Schwartz, 1998). Implicit attitude measures such as the Implicit Associations Test (IAT, Greenwald et al., 1998) have received considerable attention. The IAT is a categorization task based on the assumption that it should be easier to make a particular behavioral response (e.g., a key press) to concepts that are strongly associated in memory than

to concepts that are weakly associated. Initial applications of the IAT were in the domains of attitude measurement but researchers have also adapted self-concept IATs to measure personality constructs (Egloff & Schmukle, 2002). Although these measures do not directly measure personality traits per se, they essentially measure implicit endorsement of traits through assessment of self-concept. Although it is unclear if self-concept IATs assess whether or not an individual possesses a trait, it is clear that behavior and cognition are influenced by self-concept (Asendorpf, Banse, & Mücke, 2002; McDaniel, Perkins, & Smith, 2009). IAT measures provide information about individuals' personalities via trait-self associations, which are related to cognition and behavior independent of explicit personality measures (Asendorpf et al., 2002). Because traits are inferred from (and often assessed based on) behavior and cognition, it is likely that trait-self associations (as measured by self-concept IATs) provide information about individuals' personality traits indirectly through their relationship with behavior.

There is growing validity evidence for personality/self-concept IATs (Asendorpf et al., 2002; Grumm & Collani, 2007). However, despite the hypothesis that implicit measures are immune to faking (Egloff & Schmukle, 2002; Greenwald, McGhee, & Schwartz, 2003), the faking research is equivocal (Fiedler & Bluemke, 2005; Kim, 2003). Studies have shown that subjects can fake when they are given specific instructions on how to manipulate the IAT. Research has also found that the IAT is susceptible to faking without instructions, provided participants have prior exposure to at least one IAT (Fiedler & Bluemke, 2005).

The purpose of this study was to examine the fakeability of implicit measures of personality self-concept using the IAT methodology (Greenwald et al., 1998). We compared the fakeability of personality self-concept IAT measures with SR measures of person-

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**Table 1**

Example procedure for extraversion IAT.

Block sequence	Discrimination task	Target concepts	Attribute concepts	Key assignments for stimuli	
				D key	K key
1	Target discrimination	Self–other		Me, my, mine, self	They, them, their, other
2	Attribute discrimination		Extraversion–introversion	Self assured, active, talkative, energetic	Quiet, independent, reserved, withdrawn
3	Combined discrimination	Self–other	Extraversion–introversion	Me, my, mine, self Self-assured, active, talkative, energetic	They, them, their, other Quiet, independent, reserved, withdrawn
4	Target discrimination	Other–self		They, them, their, other	Me, my, mine, self
5	Combined discrimination	Other–self	Extraversion–introversion	They, them, their, other Self assured, active, talkative, energetic	Me, my, mine, self Quiet, independent, reserved, withdrawn

ability, and assessed whether or not people could predict how they presented themselves on both SR and implicit measures. The Big Five factor model of personality (Goldberg, 1990) refers to five global personality traits including *Conscientiousness*, *Extraversion*, *Openness to Experience/Intellect*, *Agreeableness*, and *Neuroticism/Emotional Stability*. IAT methodology has been used to measure self-concepts of some of these facets including Extraversion (surgency and talkativeness), and Conscientiousness (dependability and achievement motivation; Grumm & Collani, 2007; Steffens, 2004). Results show that the IAT personality self-concept measures are moderately correlated with SR measures.

Currently only one study has examined faking on personality self-concept IATs. Steffens (2004) conducted an examination of the fakeability of IAT measures of Conscientiousness self-concept (CIAT) and Extraversion self-concept (EIAT). In two separate experiments, Steffens asked participants to present themselves as either conscientious or not conscientious or as extraverted or introverted. Participants were also asked to estimate how well they succeeded in faking both the implicit and SR measures. Results showed that participants could not reliably manipulate their responses on the faking CIAT relative to baseline CIAT but could reliably present themselves as more extraverted on the EIAT (relative to baseline EIAT) when instructed to do so. Participants were also able to reliably predict how well they faked all measures except for the CIAT. One limitation of this study was that the baseline instructions were always followed by faking instructions. This may have allowed participants to gain experience with the IAT that they used to manipulate results in the faking instruction. The current study is a replication and extension of the Steffens study. To address potential order effects we counterbalanced the order of these conditions, which allowed us to examine differences between individuals that had been allowed prior experience (honest or baseline IAT completed first) and individuals that were not allowed prior experience with IAT (faking IAT instruction completed first). We also used English versions of the CIAT and EIAT.

## 2. Method

### 2.1. Participants

Thirty-three undergraduates at small private university in the southwestern United States volunteered for the study. Due to failure to follow instructions, data for four participants were excluded from analysis, which resulted in a final sample of 29 (15 women,  $M_{age} = 19.72$ ,  $SD = 1.0$ ).

### 2.2. Materials

All participants completed SR personality measures, a CIAT, an EIAT, and a perceived impression measure. The IATs were adapted based on

Steffens (2004) with modified stimuli. Stimuli that (1) appeared to have negative valences when translated to English or (2) did not seem to represent the constructs of interest were modified to reflect neutral/positive valence and adequate construction representation.

#### 2.2.1. Extraversion and Conscientiousness SR measures

We used the Conscientious and Extraversion scales from the 50-item measure of the Big Five from the IPIP (10 items per facet; Goldberg et al., 2006). Participants were asked to rate how accurately each item described them on a Likert-type scale (1 = very inaccurate to 5 = very accurate). Sample items are "Am the life of the party" for Extraversion and "Am always prepared" for Conscientiousness.

#### 2.2.2. Extraversion and Conscientiousness IATs

The IAT methodology used is described in Greenwald et al. (1998). The IATs for extraversion and conscientiousness consisted of five blocks as detailed in Table 1. Words representing *Self*, *Other*, *Extraversion* and *Conscientiousness* can also be seen in the table. Stimulus items were presented alternately from the target concept and attribute categories, with the particular stimulus item randomly chosen from the available set and presented in the center of the computer screen. Participants were given instructions to respond as quickly and as accurately as possible.

#### 2.2.3. Perceived impression

This questionnaire included six representative and understandable descriptors of Conscientiousness (*responsible*, *dependable*, and *disorganized*) and Extraversion (*outgoing*, *shy*, and *talkative*). There was no overlap among the IAT stimuli and these adjectives. Participants rated how they thought they scored on these adjectives on all SR and IAT measures on a 7-point Likert scale (1 = not at all, 7 = very).

### 2.3. Design and procedure

The study was a within subjects  $2 \times 2$  design (faking/baseline  $\times$  SR/IAT) for both Extraversion and Conscientiousness. Participants were tested in groups in a laboratory. All measures were administered on computers except the paper and pencil perceived impression measure. The order of faking/baseline instructions was counterbalanced, as was the order in which participants completed the Conscientiousness and Extraversion measures. For the faking condition, participants were given the following instructions: "Studies have shown that employers value applicants that are highly extraverted and conscientious. Please answer these measures appearing as extraverted and conscientious as possible. Honesty is not necessary for the test." Baseline condition participants were told to "Please answer the following measures as honestly and accurately as possible." Instructions were given verbally and

**Table 2**

Intercorrelation matrix.

Variable	M	SD	1	2	3	4	5	6	7	8
1 SRCons-B	36.82	7.77	(.91)							
2 SRCons -F	45.55	5.72	.22	(.92)						
3 SRExtra-B	33.28	7.91	.18	.12	(.92)					
4 SRExtra-F	46.03	5.21	.34*	.67**	.08	(.89)				
5 CIAT-B	.41	.47	.07	-.33*	-.12	-.17	(.83)			
6 CIAT-F	.46	.41	.01	-.15	.21	-.21	.50**	(.84)		
7 EIAT-B	-.04	.37	.04	-.12	.47**	.09	.17	.04	(.82)	
8 EIAT-F	.39	.41	-.12	.11	.19	.29	-.04	.10	.29	(.84)

Note:  $n = 29$ . SRCons-B = Self-report Conscientiousness baseline, SRCons-F = Self-report Conscientiousness faking, SRExtra-B = Self-report Extraversion baseline, SRExtra-F = Self-report Extraversion faking, CIAT-B = Conscientiousness Implicit Association Test baseline, CIAT-F = Conscientiousness Implicit Association Test faking, EIAT-B = Extraversion Implicit Association Test baseline, EIAT-F = Extraversion Implicit Association test faking. Reliabilities are in parentheses.

\*  $p < .10$ ,  $p < .05$ .\*\*  $p < .01$ .

were also visually shown on the computer screen throughout the experiment. Participants first completed the SR personality inventory, followed by the counterbalanced CIAT and EIAT, and the perceived impression questionnaire (all measures completed under one instruction set at a time). It is convention in IAT research to present explicit measures before implicit measures and research has shown no effects associated with counterbalancing explicit and implicit measures (Study 2; Egloff & Schmukle, 2002). After completion of all materials, participants were debriefed and thanked for their participation.

### 3. Results

#### 3.1. Construct validity and reliability of IAT

Descriptive statistics, intercorrelations of the study variables, and reliability estimates are shown in Table 2. Reliability estimates for the EIAT and CIAT were obtained by correlating two subsets of IAT data and applying the Spearman-Brown prophecy formula (practice trials from blocks 3 and 5 and test trials for blocks 3 and 5; see Greenwald et al., 2003 for a description of this procedure). Construct validity of the IATs was assessed by examining convergent and discriminant relations among the IATs and their respective SR measures. The baseline EIAT was positively correlated with SR Extraversion ( $r = .47$ ,  $p = .01$ ) and was not significantly correlated with SR Conscientiousness. The CIAT was not significantly related to SR Conscientiousness or SR Extraversion.

#### 3.2. Faking the IAT

The procedure used for scoring the IAT was identical to that used by Greenwald et al. (2003). Response latencies for the combined discrimination task (block three) were subtracted from the response latencies for the reversed combined discrimination task (block five), and this difference score was converted into an effect-size measure similar to Cohen's  $d$ . Positive scores indicated higher Extraversion/Conscientiousness and negative scores indicated lower Conscientiousness/Introversion. A repeated-measures ANOVA was used to examine the overall score differences in IAT with instruction set (baseline or faking) as the within-subjects variable and order of instruction set as the between-subjects variable. The score difference on the EIAT between the faking ( $M = .39$ ,  $SE = .08$ ) and baseline ( $M = -.04$ ,  $SE = .06$ ) conditions was significant,  $F(1,27) = 25.97$ ,  $p < .001$  and the size of the effect was moderate ( $\omega^2 = .48$ ). There was no significant difference between the faking ( $M = .46$ ,  $SE = .08$ ) and baseline ( $M = .41$ ,  $SE = .09$ ) conditions on the CIAT,  $F(1,27) = .49$ ,  $p = .492$ . For both the EIAT and CIAT, there was no significant effect of instruction order  $F(1,27) = 2.05$ ,  $p = .163$  (EIAT), and  $F(1,27) = 2.04$ ,  $p = .165$  (CIAT).

#### 3.3. Experience with IAT

To assess differences between groups that had been allowed prior experience with the IAT and those that had not, paired-sample  $t$ -tests were conducted for participants who completed baseline measures first (prior experience,  $n = 15$ ) and participants who were asked to complete faking instruction first (no prior experience,  $n = 14$ ). The independent variable of interest was instruction set and the dependent variable was the IAT effect (differences in IAT scores). For the EIAT, both groups showed significant differences between baseline and faking scores ( $t(13) = -2.44$ ,  $p = .029$ , no experience;  $t(14) = -4.82$ ,  $p < .001$ , with experience). The mean difference for the prior experience group ( $M = -.56$ ,  $SE = .12$ ) was larger than the no experience group ( $M = -.30$ ,  $SE = .13$ ) but this effect was not significant ( $t(27) = 1.54$ ,  $p = .14$ ). For the CIAT, there were no significant differences between groups ( $t(13) = -1.45$ ,  $p = .17$ , no experience;  $t(14) = .26$ ,  $p = .80$ , prior experience).

#### 3.4. SR measures

There was a significant difference between scores in the faking and baseline conditions for both SR Extraversion,  $F(1,27) = 55.46$ ,  $p < .001$ , and SR Conscientiousness,  $F(1,27) = 30.86$ ,  $p < .001$  (see Table 2). These effects were large ( $\omega^2$ 's = .95 and .91 for Extraversion and Conscientiousness, respectively).

#### 3.5. Participant expectations of performance

Paired  $t$ -tests were conducted to examine whether there were differences in participants' perceived impression scores between the honest and faking conditions. For IAT and SR measures, participants expected to appear significantly more conscientious and extraverted in the faking condition than in the baseline condition ( $t(28) = 4.79$ ,  $p < .001$  for SR Conscientiousness;  $t(28) = 4.92$ ,  $p < .001$  for SR Extraversion;  $t(28) = 3.16$ ,  $p < .004$  for CIAT; and  $t(28) = 2.84$ ,  $p < .009$  for EIAT). Furthermore, participants' perceived impression of their baseline SR scores were significantly correlated with actual baseline scores for SR Conscientiousness ( $r = .51$ ,  $p = .006$ ) and SR Extraversion ( $r = .69$ ,  $p < .001$ ) but perceived impression for the faking condition was only significantly correlated with faking scores for Conscientiousness ( $r = .51$ ,  $p = .005$ ). Participant expectations of IAT scores, however, were only significantly correlated with the baseline Extraversion condition ( $r = .36$ ,  $p = .05$ ).

### 4. Discussion

We believe this study contributes to the current literature in three ways. First, we provide additional evidence that self-report, and to a lesser degree, implicit measures of Big Five personality

self-concept are susceptible to faking. Second, the current study addressed the need to examine the effect of prior experience with IATs on the ability to fake these measures. It appears that prior experience does make the EIAT, but not the CIAT, more susceptible to faking. Finally, we found that participants are not able to accurately predict how they portray themselves on all implicit tests when attempting to fake.

In terms of fakeability of the IAT measures, we found that the EIAT was fakeable both when participants had prior experience with the IAT and when they did not. The CIAT however was resistant to participants' attempts to fake. One potential explanation may involve the salience of the attribute concepts used. Extraversion may be better understood and more easily observed and therefore encoded in memory than Conscientiousness. Future research should measure the salience of IAT attribute concepts and SR attitudes toward IAT stimuli in order to determine the role of salience in Extraversion and Conscientiousness IAT scores (Rothermund & Wentura, 2004).

We also examined whether individuals are able to predict how well they are able to create desired impressions. For the IAT, participants were able to predict their performance on the EIAT in the baseline condition; however, they were unable to predict their performance in the other IAT administrations (i.e. faking EIAT, baseline and faking CIATs). This finding may speak to the validity of the EIAT in that people may have responded to the baseline administration of the perceived impression scale in a way that reflected their levels of Extraversion, indeed the perceived impression scale for Extraversion and the SR Extraversion measures are highly correlated.

The validity of the EIAT is apparent in the significant correlations between the EIAT, the SR Extraversion scale and the baseline perceived impression scale of Extraversion. However, for the CIAT, participants were unable to predict how they represented themselves in either baseline or faking conditions. This, along with the non-significant relation between the Conscientiousness SR and CIAT measures may point to a lack of validity for the CIAT measure used in this study. However, we have no reason to believe that the CIAT measure used in this study is different, in any measurable way from the CIAT used by Steffens (2004): we translated her stimuli into English and modified them based on issues related to valence and balance from previous research (Nosek, Greenwald, & Banaji, 2005). Indeed, we have used the same CIAT in other research (McDaniel et al., 2009) and have found it to be modestly correlated with SR measures of Conscientiousness. That we did not find these relations in this study is somewhat puzzling, but we do not believe it invalidates our results given our replication of Steffens' findings regarding the fakeability of the CIAT and the lack of correlation with perceived impressions.

Participants' perceived impression scores were also significantly different between baseline and faking conditions on both SR and IAT measures, suggesting that people were very confident in their ability to fake. This false confidence is notable, largely because it suggests that there may be little relationship between the impression an individual believes he/she made and their actual score for implicit measures.

This study is limited in that we used a small, university sample that arguably could have had prior experience with the IAT. We believe that prior experience is unlikely given that our participants were not from the psychology pool and thus would have low or no exposure to the IAT. Also, our use of a sample restricted in size and range of personality traits may have served to attenuate our results. Future research should expand study to a broader sample of adults as this would increase the external validity of the results obtained. Although we have discussed the importance of our research question within the context of work psychology, other areas of psychology, where assessment is paramount (clinical, educational, counseling) would also potentially benefit from the use of IATs for self-concept assessment; further research is warranted to examine the usefulness of implicit measures of personality such as the IAT in these contexts.

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