



# Implicit Association Test for Aggressiveness: Further evidence of validity and resistance to desirable responding



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## ABSTRACT

This paper reports the results of three interrelated studies investigating the validity and resistance to desirable responding of the Implicit Association Test for Aggressiveness (IAT-A). In Studies 1 and 2, we tested its validity by correlating it with an established explicit measure of aggressiveness, the conceptually closest measure of socially desirable responding (SDR), and various aggression-related criteria in two large samples of participants. The results supported the validity of IAT-A. It had satisfactory reliability, it was non-significantly or weakly related to an explicit measure of aggressiveness and unrelated to the SDR measure, and it explained different aggression-related behaviors over and above the explicit aggressiveness measure. In Study 3, we examined the IAT-A's susceptibility to deliberate response distortion by comparing the IAT-A and self-reported aggressiveness between situations of honest responding and simulated personnel selection. The results revealed that the IAT-A is less susceptible to deliberate response distortion than the self-report measure of explicit aggressiveness. The mean result on the IAT-A was almost identical between the two response situations, whereas for the self-report measure of aggressiveness, participants scored significantly lower in the simulated selection situation. Altogether, the results suggest that IAT-A is a valid and potentially useful implicit aggressiveness measure.

## 1. Introduction

Although aggressive behavior may be triggered by numerous factors, a primary cause of such behavior is the personality trait of aggressiveness (Bergman, McIntyre, & James, 2004). Aggressive individuals tend to perceive ambiguous behavior of others as malicious and hostile (Dodge, 1980). Their attitudes, values and norms favor aggressive behavior (Guerra, Huesmann, & Hanish, 1995) and, instead of alternative options, they are more prone to activate, select and implement aggressive behavior scripts (Banse, Messer, & Fischer, 2015; Huesmann, 1988).

According to the dual-process model of social information processing (e.g., Strack & Deutsch, 2004), personality traits similar to aggressiveness have explicit and implicit components. The explicit component is a part of the personality of which the person is aware, consists primarily of self-ascribed characteristics that are available for introspection and predicts immediate decisions and specific behaviors (McClelland, Koestner, & Weinberger, 1989). Implicit personality refers to the dynamic mental structures and processes that influence individuals behavioral adjustments to their environments that are not accessible through introspection (James & LeBreton, 2012), such as implicit motives and defense mechanisms. They result from repeated

and/or important experiences and are better at predicting long-term outcomes and spontaneous behavior (McClelland et al., 1989). According to the dual process models of personality (McClelland et al., 1989), explicit and implicit personality are only weakly intercorrelated.

Whereas explicit aggressiveness is easily captured with self-report questionnaires (e.g., the Aggression Questionnaire, Buss & Perry, 1992), implicit aggressiveness measurement requires more sophisticated instruments. Over the past decades, researchers have developed different indirect measurement tools to assess implicit personality. One of the best known and most promising is the Implicit Association Test (IAT) for self-concept measurement (Schnabel, Asendorpf, & Greenwald, 2008). The fundamental idea behind the IAT procedure for personality assessment is that implicit self-concept consists of clusters of associations between the concept of the self and various psychological attributes. Individuals have formed those associations based on their everyday experiences and the strength of these associations can be measured with a double-discrimination response latency task. In a typical self-concept IAT, such as the one for measuring aggressiveness, participants need to sort stimuli from two contrasted target categories (e.g., self vs. others) and two contrasted attribute categories (e.g., aggressive vs. peaceful), using two response keys. The key assumption underlying the IAT is that if the target and the attribute concepts are

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highly associated, the classification task will be easier when the associated concepts share the same response key than when they require different response keys (Schnabel et al., 2008). This assumption means that an aggressive individual will have faster reactions and make fewer errors when sorting the stimuli referring to the self/aggressive with one response key and others/peaceful with the other response key than when sorting stimuli referring to self/peaceful with one response key and others/aggressive with the other response key. The situation will be reversed for a non-aggressive individual.

### 1.1. Psychometric properties of IAT for Aggressiveness (IAT-A)

Studies that tested the IAT-A resulted in promising but not conclusive findings. The IAT-A yields satisfactory internal consistencies ranging from 0.66 to 0.91 (Banse et al., 2015; Gollwitzer, Banse, Eisenbach, & Naumann, 2007; Grumm, Hein, & Fingerle, 2011). Test-retest reliabilities were somewhat lower but still substantial. For example, Banse et al. (2015) reported a test-retest correlation over a week of 0.56.

However, findings regarding the relationship of the IAT-A with explicit aggressiveness and its potential in predicting aggressive behavior remain somewhat inconsistent. For example, though most of the studies found that the IAT-A is unrelated to explicit measures of aggressiveness (Richetin, Richardson, & Mason, 2010; Banse et al., 2015 Studies 2, 3 and 4), some studies found surprisingly high correlations between the two measures (e.g., 0.48 for a subsample of volleyball players in Study 1, Banse et al., 2015). Similarly, equivocal findings were observed in the relationship between the IAT-A and aggressive behavior. On the one hand, some studies showed that the IAT-A predicted different types of aggressive behavior at least at the level of self-report measures of aggressiveness and reported incremental validity over explicit measures (Banse et al., 2015 Studies 1, 2 and 3; Grumm et al., 2011). On the other hand, Banse et al. (2015) found no significant correlation between the IAT-A and observable aggressive behavior, captured with coach aggressiveness ratings, in a subsample of volleyball players (Study 1). Additionally, Richetin et al. (2010) showed that IAT-A scores predicted aggressive behavior only when the participants were provoked.

In addition to the mentioned psychometric properties, an important remaining issue is the relationship between IAT-A scores and socially desirable responding (SDR). Considering that the IAT-A is supposed to be an implicit aggressiveness measure, it should mostly reflect automatic processes and not be susceptible to SDR. Until now, the relationship between the IAT-A and SDR was examined only by testing the relationship between IAT-A scores and SDR scale scores. Again, the findings did not reveal a clear pattern of relations between implicit aggressiveness as measured with the IAT-A and desirable responding as captured with SDR scales. In the study by Banse et al. (2015), IAT-A scores were correlated significantly with SDR scores in Study 1 ( $-0.36$ ; subsample of volleyball players) and Study 2 ( $-0.38$ ; both  $p < 0.01$ ) but were below the  $p < 0.05$  threshold in Study 1 (subsample of ice-hockey players) and Study 3.

In all, current findings with the IAT-A are inconsistent and indicate that more research on the IAT-A's psychometric properties is needed before we can draw reliable conclusions about its usefulness.

### 1.2. Our study

In our study, we aimed to test the relationship of the IAT-A with self-reported aggressiveness and aggressive behavior using several aggression-related criteria with samples that were large enough to obtain stable effects (i.e.,  $N$  over 100). Based on earlier findings and the theory behind the IAT, we expected that *the IAT-A will have little to no association with self-report measures of aggressiveness (H1) and that the IAT-A scores will provide incremental validity in predicting aggression-related behaviors over and above self-report measures of aggressiveness (H2).*

Additionally, in our study, we wanted to test the interaction between the IAT-A scores and self-reported aggressiveness in predicting aggressive behavior. Recent research that used the conditional reasoning paradigm (James & LeBreton, 2012) for implicit aggressiveness measurement showed that implicit and explicit aggressiveness interact in explaining aggressive behavior, with participants who are high on both measures showing the highest levels of aggressive behavior (Bing et al., 2007). We expected to replicate the findings using the IAT paradigm for implicit aggressiveness measurement and demonstrate that *the interaction between the IAT-A scores and self-reported aggressiveness will provide incremental validity in predicting aggressive behavior (H3).*

Finally, in our research, we wanted to test the relationship between the IAT-A scores and desirable responding. An inconclusive relationship between IAT-A scores and SDR scores from the study by Banse et al. (2015) could be attributed to the use of a set of different SDR measures that were treated as measures of the same construct. Recent developments in SDR conceptualization and measurement (Paulhus, 2002) reveal that the construct has a complex structure whose components can be classified according to the content of presentation into egoistic and moralistic bias. Since moralistic bias refers to denying socially deviant impulses, such as a tendency to behave aggressively, only the moralistic component of socially desirable responding (M-SDR) should theoretically be related to aggressiveness. Therefore, in our study, we explored the relationship between IAT-A scores and a measure of M-SDR. Additionally, in order to test the relationship between the IAT-A and desirable responding, we tested its susceptibility to deliberate SDR (i.e., faking). So far, several studies have dealt with the problem of resistance to faking on self-concept IAT (e.g., Egloff & Schmukle, 2002; Stieger, Göritz, Hergovich, & Voracek, 2011). The results showed that the IAT is much less fakable than self-report measures; it is only slightly fakable under explicit self-presentation instructions (e.g., “try not to appear anxious”, Stieger et al., 2011). However, to the best of our knowledge, none of the studies tested susceptibility of IAT-A to faking. In accordance with the described studies, we expected that *the IAT-A scores should neither be related to SDR scores (H4a) nor susceptible to deliberate response distortion when participants are instructed to fake their responses in order to make a good impression (H4b).*

To test our hypotheses, we conducted three interrelated studies. In Studies 1 and 2, we tested the relationships among IAT-A scores and self-reported aggressiveness, aggressive behavior and SDR scores using large student samples. In Study 1, a sample of psychology students completed the IAT-A, self-reported aggressiveness and an SDR scale, provided peer ratings of their aggressive behavior, and participated in a game that measured their antisocial behavior. In Study 2, we tried to replicate Study 1 findings by correlating IAT-A scores with self-reported aggressiveness, aggression-related behavior in sports and SDR scores, using a sample of kinesiology students. Finally, in Study 3, we examined the IAT-A's susceptibility to deliberate response distortion by comparing the IAT-A and self-reported aggressiveness between situations of honest responding and a simulated personnel selection.

## 2. Study 1

The aim of Study 1 was to test the validity of IAT-A by correlating it with an established explicit measure of aggressiveness, a measure of M-SDR and two aggression-related criteria - ratings of aggressive behavior and antisocial behavior in a laboratory situation.

We used other-ratings of behavioral aggressiveness as an indicator of aggressive behavior. Although they are not actual behavioral observations, they can be used as a proxy of aggressive behavior in the natural social context because they reflect participants' observable aggressive behavior across multiple situations (Banse et al., 2015). Finally, as an indicator of antisocial behavior we used allocated resources in the dictator game (DG), which has already been used in previous research as an objective measure of antisocial behavior (e.g., Millet & Dewitte, 2009).

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