The Relationship between Self-Report and Indirect Measures of Values: Is Social Desirability a Significant Moderator?

La Relation entre l'Autodéclaration et les Mesures Indirectes des Valeurs: La Désirabilité Sociale est-elle un Modérateur Important?

Abstract

Introduction. The measurement of personal values is still a great challenge in social psychology due to the complex nature of this concept. **Objective.** Based on Schwartz's theory of human values, this study aimed at analysing the relationship between the Values Implicit Association Test (VIAT), a relatively new indirect measure of values, and the Portrait Values Questionnaire (PVQ), a well-known direct measure of values. Also, it examined whether social desirability moderates this relationship. **Method.** Seventy-three participants (64.4% female; M age = 25.46, SD = 4.04) took part to the study in a standardized setting. **Results.** Results showed different value priorities depending on the measure used (i.e., indirect vs direct), and although social desirability was related to participants' responses on PVQ more than on VIAT, it did not moderate the association between direct and indirect measures for any of the examined values. **Conclusions.** Implications of the findings for value measurement and future developments are discussed.

Keywords: values, Values Implicit Association Test, self-report measures, indirect measures, social desirability.

Abstract

Introduction. La mesure des valeurs personnelles demeure un grand défi en psychologie sociale en raison de la nature complexe de ce concept. **Objectif.** Basée sur la théorie des valeurs humaines de Schwartz, cette étude visait à analyser la relation entre le test des associations implicites de valeurs (VIAT), une mesure indirecte relativement nouvelle des valeurs, et le Questionnaire des valeurs du portrait (PVQ), une mesure directe des valeurs connue. De plus, elle a examiné si la désirabilité sociale modère cette relation. **Méthode.** Soixante-treize participants (64,4 % de femmes ; âge moyen = 25,46, écart-type = 4,04) ont participé à l'étude dans un cadre standardisé. **Résultats.** Les résultats ont montré des priorités de valeur différentes en fonction de la mesure utilisée (c'est-à-dire indirecte ou directe) et, bien que la désirabilité sociale ait été davantage liée aux réponses des participants au PVQ qu'au VIAT, elle n'a pas atténué l'association entre les mesures directes et indirectes pour aucune des valeurs examinées. **Conclusions.** Les implications des résultats pour la mesure de la valeur et les développements futurs sont discutées.

Mots-clés : valeurs, test d'association implicite des valeurs, mesures d'auto-évaluation, mesures indirectes, désirabilité sociale.

1. Introduction

Values are desirable and trans-situational goals that serve as guiding principles in people's life (Schwartz, 1992). Schwartz (1992) theorized ten motivationally distinct value types (i.e., universalism, benevolence, conformity, tradition, security, power, achievement, hedonism, stimulation, and self-direction) located in a circular structure: values characterized by similar motivational goals appear next to each other, while those with different motivational goals are in opposite positions. Values are also organized along two bipolar dimensions. The first dimension contrasts openness to change (hedonism, stimulation and self-direction), characterized by emphasis on change and independence, and conservation (tradition, conformity and security), which is instead self-restraint, preserving traditional practices, and safeguarding stability. The second dimension contrasts self-enhancement (power and achievement), where people prioritize their personal interests at the expense of others, and self-transcendence (benevolence and universalism), where people transcend selfish concerns to promote the welfare of others.

Since values predict human behaviour in different life situations, how they are measured becomes extremely relevant. However, the topic of value assessment is an open issue in social psychology. Self-report measures are valid and reliable tools, able to represent subjective motivational goals, but they are lengthy (Roccas, Sagiv, & Navon, 2017), and possibly characterized by some specific features, such as for example self-presentation strategies and introspective limitations. Among these, we here focused on socially desirable responding, which reflects participants' tendency to respond in a way to gain approval from others or avoiding disapproval (Paulhus, 2002).

Indeed, responses on value scales may partially reflect the respondent's tendency to give answers that are considered as socially desirable and that make him/her looks good. Values are desirable goals (Schwartz, 1992), this likely making their assessment particularly vulnerable to social desirability. Social desirability should be intrinsic to values measurement (Schwartz, Verkasalo, Antonovsky, & Sagiv, 1997) and therefore according to some authors needs to be controlled for (e.g., Guerra, Gouveia, Sousa, Lima, & Freires, 2012).

Differently, an indirect measure of values could be a useful tool to integrate the results from self-report measures considering the influence of socially desirable responding. Indirect measures aim at inferring participants' implicit preferences considering their performance on an experimental paradigm (Gawronski, 2009). Indirect measures are computer-based tasks that rely on participants' reaction times (RT) to specific stimuli rather than on their self-reported answers, thus reducing their possibility to use their self-presentation strategies.

The Implicit Association Test (IAT) (Greenwald, McGhee, & Schwartz, 1998) is a well-known indirect measure used to assess several psychological constructs (e.g., prejudice, self-esteem). It is a computer-based task that assesses the strength of association in memory between a target concept (e.g., White and Black persons) and an attribute dimension (e.g., positive and negative), by asking participants to categorize a stimulus (e.g., Black face) as quickly and accurately as possible into one of two target categories or two attributes. The stimuli appear one by one and may only belong to one out of four target categories. In a first combined block, the two target categories (e.g., Black and White persons) and the two attributes (e.g., positive and negative) are associated in a specific way (e.g., White-positive vs. Black-negative), whereas in a second combined block, the pattern is

switched (e.g., White-negative vs. Black-positive). The implicit association of the respondent can be obtained by computing the difference between the mean latencies of the first and the second combined block. In this case, shorter reaction times (RT) and less errors in the first combined block compared to the second combined block are considered as a preference for White people over Black.

Scholars believe indirect measures to provide information which is not directly available by using direct measures or may be partially different. However, in a variety of domains, direct and indirect measures show diverse patterns of relations: they range from being highly correlated (e.g., Banse, Seise, & Zerbes, 2001) to be completely unrelated, supporting instead the view that implicit and explicit attitudes are independent (e.g., Karpinski & Hilton, 2001). Recently, it has been largely theoretically (e.g., Gawronski & Bodenhausen, 2006) and empirically (e.g., Dentale, Vecchione, Gebauer, & Barbaranelli, 2017; Nosek & Smyth, 2007) claimed that direct and indirect (self-report) measures assess distinct, but related constructs. Indeed, their joint use can be extremely informative as they allow researchers to tap a slightly different aspect of reality (Nosek, Hawkins, & Frazier, 2011). Meta-analyses have shown that the average degree of convergence between the IAT and self-report measures is around r = .21 (Greenwald, Poehlman, Uhlmann, & Banaji, 2009) and r = .24 (Hofmann, Gawronski, Gschwendner, & Schmitt, 2005). Differences between measures may be partially explained by social desirability bias (e.g., Anderson, 2017).

So far, few studies have tried to use the IAT to measure values (Dentale et al., 2017; Souchon, Maio, Hanel, & Bardin, 2017). The IAT was used according to Schwartz's theory (1992) to measure the relative importance of a value (e.g., power) compared to the one showing opposite motivational connotation (e.g., universalism);

the importance (importance vs. unimportance) dimension replaces here the evaluative one (positive vs. negative). Indeed, it is the relative importance the respondent assigns to each value that needs to be measured. In this case, shorter RT and less errors in the block where power is associated to importance compared to the block where power is associated to unimportance show the respondents' greater association to this value to importance compared to universalism.

Research dealing with implicit personal values highlighted interesting results; first of all, Dentale and colleagues (2017) showed a different value hierarchy depending on the instrument used. When using self-reports, respondents rated benevolence, universalism, self-direction, and stimulation as more important than achievement, power, security and tradition. When using indirect measures, results showed greater importance ascribed to power and achievement compared to universalism and benevolence; the value hierarchy was therefore somehow different based on the measure used. In contrast, Souchon and colleagues (2017) found in their study an implicit importance associated to universalism over power (Study 5). Second, Dentale and colleagues (2017) also found low to moderate correlations between indirect and direct measures of values. This study was moreover the only one addressing the role of social desirability, and this was done by instructing participants to appear as good as possible when re-answering the direct value measure. Authors (Dentale et al., 2017) found correlations between implicit values and actual behaviours expressing benevolence values in a lab setting (measured in terms of fictitious money distribution to share between the participant him/herself and an alternative recipient by using a modified version of the Dictator Game); indeed, the indirect measure was related to the actual behaviour and not to self-reports of behaviours. The direct measure was related instead to the self-reported

behaviour and not to the actual one, and when controlling for social desirability the correlations between the self-report measures decreased.

Social desirability is however a construct characterized by a long research tradition, which supports its multidimensional nature. Paulhus (2002) emphasized the existence of two distinct dimensions of socially desirable responding, which are self-deceptive enhancement (SDE) and impression management (IM) (Bobbio & Manganelli, 2011). SDE is the participants' unconscious tendency to provide honest but positively biased responses to protect self-esteem, whereas IM is a conscious representation of a positive public image.

2. The Present Study

The principle aim of this study was to analyse the role of socially desirable responding, i.e., SDE and IM, in explicit and implicit values. Specifically, the aim was twofold:

1) Analysing the pattern of means of the Values IATs (VIATs) (one measuring Power vs. Universalism and one Achievement vs. Benevolence) and of the self-report values and the correlations between them. Based on the available literature, we expected a different value hierarchy depending on the measure used (H1), with universalism and benevolence values rated as more important than power and achievement when using self-reports compared to when using indirect measures, and the association between the two measures to be far from perfect (H2).

2) Analysing the association between the VIATs and social desirability and exploring its role in shaping the link between direct and indirect measures. We expected the IAT to be associated to social desirability to a lesser extent (H3) compared to self-report values, which were expected to be more deeply influenced by this bias (H4). Social desirability (both SDE and IM) was expected to moderate

the association between measures. At high levels of social desirability, the degree of correspondence between measures was expected to be lower since this may influence the self-report measure to a greater extent than the indirect one (H5). Although the literature on the moderating role of social desirability on the relationship between indirect and direct measures in not fully consistent (see for example Anderson, 2017; Egloff & Schmukle, 2003), the main hypothesis is that the implicit-explicit relations may be weaker at high levels of socially desirable responding.

2.1. Method

2.1.1. Participants and Procedure

Seventy-three (64.4% female) participants aged between 20 and 41 years (M = 25.46, SD = 4.04) were involved in the present study. Regarding participants' education level, 37.5% had completed secondary school. 22.2% of participants had completed an undergraduate degree, whereas 27.8% had a master's degree; 12.5% had a Ph.D. or a second-level professional master. Most participants were students (67.2%), while others were part time (4.1%) or full time (16.4%) workers. A small percentage was looking for employment (2.7 %), while some rated "other" (9.6%) as a response.

Participants were recruited on a voluntary basis and individually completed the study in a standardized setting, at the presence of a research team member. We presented a task on a MacBook laptop computer with a 12 inches' screen and participants seated approximately 40 centimetres from the monitor. At the beginning of the experimental session, we asked participants to sign an informed consent and we told them the study aimed at investigating their opinion on different issues and to participate in different computer tasks. The procedure lasted approximately 30 minutes; the indirect measures always preceded the self-report questionnaire, based

both on Bosson and colleagues' (2000) claiming that "preceding the implicit measures with the explicit ones brings implicit tasks under greater conscious control" (p. 641) and on Hoffman and colleagues (2005) who showed that the order of implicit and explicit measurement does not produce a significant effect on implicit-explicit correlation. The presentation order of the VIATs and of the combined pairing (see the Measures section) was counterbalanced. For the IATs, Inquisit 5 Lab software was used. After completing all the tasks, participants were individually debriefed about the real aim of the study.

The research was approved by [masked for review] and followed the APA ethical guidelines for research. The main investigator of this study had previously completed the National Institute for Health training course "Protecting Human Research Participants" (Certification Number: masked for review).

2.1.2. Measures

Implicit Values. We used the adapted version of the Values Implicit Association Tests (VIAT) proposed by Souchon and colleagues (2017), composed of two tests: the Power vs. Universalism IAT (PU IAT) and the Achievement vs. Benevolence IAT (AB IAT). The IAT was composed of 7 blocks. The stimuli of the VIATs aimed at assessing the relative importance of power over universalism and of achievement over benevolence were translated into Italian from the French original instrument (see Souchon et al., 2017). The D score for the two VIATs was calculated according to the improved score algorithm (Greenwald, Nosek, & Banaji, 2003). The final D score was computed by calculating the difference between the mean latencies of the two combined blocks, divided by the inclusive standard deviations of response latencies of the two combined blocks. IATs scores range from -2 (importance and universalism/benevolence as strongly associated in memory) to +2 (importance and

power/achievement as strongly associated in memory). A score of zero indicates instead that the respondent is equally fast at classifying the stimuli words in the first (e.g., power or important vs. universalism or unimportant) and in the second (e.g., power or unimportant vs. universalism or important) combined blocks. In sum, to make the correlation results clearer, with an IAT positive score, importance was associated to power (or achievement), whereas an IAT negative score implied that importance was associated to universalism (or benevolence).

The internal consistency of the two VIATs was calculated with the Spearman-Brown corrected split-half reliability coefficient, based on two partial D scores calculated on blocks 3-6 and 4-7 respectively (Schnabel, Asendorpf, & Greenwald, 2008). Both IATs showed good levels of reliability: .91 for Power vs. Universalism IAT, .81 for Achievement vs. Benevolence IAT.

Self-report Values. We used the short version of the Portrait Values Questionnaire (PVQ-21; Schwartz, 2003) composed of 21 verbal portraits of a person and his/her objectives or aspirations, which reflect the importance of a value. For example, “It is important to him/her to be rich. He/she wants to have a lot of money and expensive things” describes a person for whom power is important. Respondents' values were inferred from their self-reported similarity (from 1 = not like me at all to 6 = very much like me) to people described. The four dimensions considered showed different levels of internal consistency (power: α =.59; universalism: α=.52; achievement: α =.79; benevolence: α =.70)[1].

Social desirability: We used the short version of the Paulhus’ Balanced Inventory of Desirable Responding (BIDR 6) validated in Italian by Bobbio and

[1] The low internal consistency of the self-report measures of values may be linked to the version of the scale used, the PVQ-21 (Schwartz, 2003). According to Schwartz (2003), the items were selected to cover the different conceptual components of the value (e.g., the power items tap both wealth and authority). Additionally, each of these indexes is based on only two to three items.

Manganelli (2011). The scale is a 16-item measure that assesses Self-deceptive Enhancement (SDE; positively biased responses that respondents believe to be true. Item example: "My first impressions of people usually turn out to be right") and Impression Management (IM; conscious dissimulation of test responses designed to create a favourable impression in some audience. Item example: "I always obey laws, even if I'm unlikely to get caught"). Good internal consistency was found for both dimensions, SDE: α=.75, IM: α=.67.

2.2. Data analysis

Direct-indirect measure relationships. Bivariate Pearson correlations between direct and indirect measures were calculated.

The moderating role of social desirability. To examine whether and the extent to which social desirability, conceptualized as SDE and IM, moderated the relationships between implicit and explicit measures of values, we conducted hierarchical regression analysis with implicit values, social desirability and their interaction as predictors and explicit values as criterion. Specifically, we tested four regression models (both for PU IAT and for AB IAT) separately considering SDE and IM.

3. Results

Three Value IATs completed by the respondents (one PU IAT and two AB IATs) were excluded from the analyses because of too many errors done by the participants when completing the task (more than 20% of errors; see Souchon et al., 2017).

Table 1 shows the implicit values D scores, the explicit values assessed through PVQ and the correlation between the variables. Based on values of the D score, respondents did not show a stronger association to one value over the other; a

score around 0 indicates the absence of an association between categories (e.g., power and importance). For the PVQ, each respondents' value ratings were centred around his/her mean to control for individual bias in the use of response scale (Schwartz, 1992, 2003). Benevolence showed the highest score, followed by universalism and then by achievement. Power was at the bottom of the value hierarchy.

Table 1 about here

Direct-Indirect Measures Relationships. We found a positive correlation between the PU IAT and self-report power values and a negative correlation between the PU IAT and universalism. The AB IAT was related to self-report achievement values, but the association between this IAT and self-report benevolence was not statistically significant. It is also worth noting that a statistically significant correlation between the AB IAT respectively in positive and negative direction with power and universalism values was found.

The Role of Social Desirability. Respondents showed a medium level in both dimensions of socially desirable responding. In Table 2 means, standard deviations, and ranges for social desirability and Pearson correlations with self-report values and VIATs are presented.

Table 2 about here

No statistically significant correlation was found between indirect measures of values and social desirability, whereas several significant statistical correlations

were found with direct measures, but only regarding IM. Specifically, IM was positively related to universalism and benevolence, whereas it was negatively related to power and achievement.

Finally, we carried out the moderation analysis, whose results are presented in Table 3 (considering PU IAT) and in Table 4 (considering AB IAT). No moderation effect of SDE nor IM on the relation between indirect and direct measures of values was found.

Table 3 and Table 4 about here

4. Discussion and Conclusions

The main aim of this study was to investigate the relations between a direct and indirect measure of values, and to examine whether and the extent to which social desirability, conceptualized as self-deceptive enhancement (SDE) and impression management (IM), moderates these relations. Indeed, it has been widely recognized that the joint use of direct and indirect measures of the same construct may be extremely informative (see Nosek et al., 2011). This is highly relevant since direct measures of values may be extensively affected by social desirability (Egloff & Schmukle, 2003).

Researchers interested in values assessment highlighted the possibility to use indirect measures of values (Dentale et al., 2017; Souchon et al., 2017), and all chose, among different indirect measures, the Implicit Association Test (IAT; Greenwald et al., 1998). In line with these works, we used two Values IATs adapted to assess the importance ascribed to the values of power vs. universalism (PU IAT) and of achievement vs. benevolence (AB IAT). Specifically, we considered their

relations with self-report measure (PVQ) aimed at assessing the same construct and the potential role of social desirability in moderating these relationships.

From our results, the PU IAT and the AB IAT were found to be significantly correlated in positive direction. This is interesting from a theoretical point of view, since it is consistent with Schwartz's (1992) circular model; indeed, power and achievement values are adjacent in the motivational circle and share similar motivational content, this also in line with Dentale and colleagues' (2017) results.

When self-reporting their values respondents rated benevolence as the most important guiding principle in their lives, whereas this was not found using the VIATs. This result was in contrast with the value hierarchy found trough self-report measures, where benevolence was the most important value and power was the least important one. This result is in line with our first hypothesis (H1) and with previous studies on this topic (e.g., Dentale et al., 2017), according to which it is possible to find different values hierarchies depending on the method of assessment used (self-report vs. indirect measures). This degree of implicit-explicit dissociation suggests two important considerations. First, responding biases can influence more one kind of measure and less the other. Second, self-report and indirect measures tap different but related constructs (Nosek et al., 2011).

To better understand the existing relation between direct and indirect measures the available literature on the topic mainly relies on correlational analyses (Hofmann et al., 2005). In line with this, we found a significant, although moderate correlation between the PU IAT and power and universalism assessed trough the self-report measure. When the AB IAT was instead considered, the correlation was significant only between importance associated to achievement at implicit and explicit achievement. The existing positive and negative correlations between AB

IAT and power and universalism reflect the motivational similarity among the values which belong to the self-transcendence domain (universalism and benevolence) on the one hand, and those which pertain instead to self-enhancement (power and achievement). Indeed, an automatic importance associated to achievement appears to be related to a coherent - in terms of motivational content- self-reported value, that is power. The same applies - in a negative direction - for self-reported universalism.

The literature dealing with the direct-indirect measures association emphasizes the possibility of different patterns of relations and the interpretation of these relationships is still far from being fully understood (Hofmann et al., 2005). This variety of patterns of relations may be due to different reasons, among which, biases such as social desirability, introspection, or motivation to control the responses, that tend to influence self-report measures (and less direct ones). According to the APE model (associative – propositional evaluative model; Gawronski & Bodenhausen, 2006), the automatic evaluation is outside awareness and, at the explicit level, other components (of which social desirability is only one) may be relevant to consider. Also, method-related factors can influence the correlation between the two measures; the degree of correspondence in terms of similarity between the two measures can increase the size of their correlation (Hofmann et al., 2005). More interestingly, direct and indirect measures have been also considered as measuring independent representations; low correlations between measures may be considered as a proof of implicit-explicit dissociation, suggesting again that indirect and direct measures assess distinct, but related constructs (e.g., Nosek et al., 2011). Some authors claim that the correlation between direct and indirect measures (in our case, of values) may be considered as an ambiguous piece of information (Perugini, 2005); indeed, we carried out a more complex model to

study the relation among measures. However, based on the scarce available literature dealing with indirect measures of values, we can share Dentale and colleagues' (2017) point of view, who claim that an IAT used to measure values allow researchers to capture something which is unique.

The role of social desirability in its multidimensional aspects in shaping values responding and the relationship between direct and indirect measures of values were investigated in this study. In line with our third (H3) and fourth (H4) hypothesis, social desirability was related to a greater extent to self-report measures compared to the indirect ones. Only IM was related to values, being negatively related to power and achievement and positively to universalism and benevolence, that are those values on the top of the value hierarchy found trough self-reports. In order to be viewed more favourably, respondents rated as important those values characterized by a focus on others (universalism and benevolence) and not those by a personal focus (power and achievement).

More interestingly, no relation was found between social desirability and the indirect measures of values. It would be interesting to find out whether these measures are not only less associated to social desirability bias, but are, in general, more immune to faking; some authors, based on their empirical findings, claim in fact some limits of indirect measures in terms of invulnerability to faking (e.g., Steffens, 2004).

The present study also aimed at considering participants' social desirability as a possible moderator in influencing the relation between direct and indirect measures of values. However, contrary to our hypothesis (H5) we found no moderation effect, neither of SDE nor of IM. The moderating role of social desirability between direct and indirect measures of the same construct has been

often theoretically claimed but seldom empirically investigated. Other researchers dealing with this issue did not find any effect (Egloff & Schmukle, 2003); Anderson (2017) instead recently found that at high level of IM the correspondence between implicit and explicit attitude towards asylum seeker in Australia become weaker, this being in line with the most common assumptions on the direct-indirect measures relations.

Based on our results and on the above-mentioned literature, we could claim that social desirability is not "enough": it could be a complex interplay of cognitive and motivational factors that cannot be reduced to the social desirability bias what really moderates this relation. Consistently, Gawronski and colleagues (2007) emphasized how social desirability by itself may be too general, since it does not allow a firm prediction about the direction of the distortion. Other dimensions together with social desirability should be taken into consideration: It is likely that the overt motivation to control one's own responses could be one of these factors.

This study is not without limitations. First, the sample is small, and the lack of a significant moderation effect may also be due to this. Second, caution is needed when interpreting the results linked to the values dimensions which showed low reliability (e.g., self-report power and universalism). Third, the indirect measure assesses the relative importance of a value (e.g., power) compared to the one showing opposite motivational connotation (e.g., universalism), whereas the direct measure by independently assessing the importance of each value finally creates a ranking among the different values. The different nature of the two measures might influence their association, thus the association between measures can be reconducted to specific methodological issues associated with the measurement of the constructs. Fourth, given the complexity of the VIAT task as compared to

traditional IAT the study was conducted in laboratory. However, adopting an online-based approach to administer the instruments could allow researchers to investigate whether and the extent to which the "context of administration" influences the levels of socially desirable responding and its role as moderator.

Despite of these limitations, the present work, together with the recent works on this topic (i.e., Dentale et al., 2017; Souchon et al., 2017) proposes an alternative method of measurement of human values, this being an important step towards a full comprehension of value assessment. Researchers interested in a method of measurement of values less likely to be influenced by social desirability may consider the possibility of using the VIAT.

There are several research fields where this method can be applied. A development of this present research may lay in the study of value transmission across generations, which plays a relevant role in the development of the individual and in the functioning of the wider society (Barni, Alfieri, Marta, & Rosnati, 2013; Barni, Ranieri, Ferrari, Danioni, & Rosnati, 2016). Research on this topic has highlighted that parent-child value similarity, which is considered the outcome of intergenerational transmission of values, may be partly influenced by the predominant value climate experienced by both generations because belonging to the same society. Parent-child value similarity needs to be more finely distinguished into stereotype-based (or cultural) similarity, which might partly depend on respondents' socially desirable responding, and unique dyadic similarity (Barni, Ranieri, & Scabini, 2012). Research focusing on controlling for stereotypes tends to use an *a posteriori* approach, purifying the data from this effect, whereas indirect measures may help in reducing *a priori* that part of the cultural stereotype which is linked to socially desirable responding.

In addition to this, Vecchione and colleagues (2014) used an Implicit Association Test aimed at measuring respondents' implicit personality traits in organizations as a part of personnel assessment. The perception and feeling of being evaluated showed consequently a response distortion in self-report measures, but not in indirect ones. Similarly, respondents might over or underestimate the importance they associate to values based on their perception of what is relevant in a work context. However, a discrepancy between personal and work environment values may cause, among others, dissatisfaction; the use of an indirect measure of values may reduce the possibility of response distortion in this direction.

Indirect measures of values may be used for predicting behaviour. Automatic associative processes (measured via indirect measures) need to be taken into consideration for understanding of behaviour; indeed, these can be extremely informative of spontaneous, undeliberate behaviours (e.g., Perugini, 2005). The relationship between the instrument proposed and behavioural outcomes is even more interesting considering the clear link between values and behaviours (e.g., Roccas et al., 2017; Dentale et al., 2017). It becomes of great importance to test whether and the extent to which indirect measures of values proposed are useful tools in predicting a behavioural outcome over and above self-reports.

464 **Conflict of Interest**: None.

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Table 1.

Descriptive statistics and Pearson correlation (r) between the two Value IATs and the four PVQ values.

	1	2	3	4	5	6
1. PU IAT	1	.486***	.292*	-.265*	.215	-.148
2. AB IAT		1	.275*	-.316*	.259*	-.196
3. Power			1	-.609***	.491***	-.389**
4. Universalism				1	-.428***	.335**
5. Achievement					1	-.320**
6. Benevolence						1
Mean	.006	.011	-1.08	.56	.02	1.13
Standard Deviation	.558	.523	1.05	.85	1.21	.74
Range	-1.13-1.29	-.96 - 1.12	-3.67-1.76	-1.10 - 2.33	-2.64-2.05	-.76 - 2.52

Note. ***p <.001, **p < .01, *p < .05. PU IAT = Power vs. Universalism IAT, AB IAT = Achievement vs. Benevolence IAT

Table 2.

Descriptive statistics for Pearson correlations (r) between VIATs, self-report values and social desirability.

	Self-Deceptive Enhancement	Impression Management
PU IAT	-.04	-.09
AB IAT	-.02	-.11
Power	.185	-.357**
Universalism	-.052	.276*
Achievement	-.011	-.280*
Benevolence	-.039	.258*
Mean	3.40	3.65
Standard Deviation	.74	.82
Range	1.75-5.38	1.63-5.13

Note. **p < .01, *p < .05. PU IAT = Power vs. Universalism IAT, AB IAT = Achievement vs. Benevolence IAT

Table 3.

Multiple regression models: Moderation of social desirability on implicit (PU IAT) - explicit values links.

Predictor	B	p	CI
		Power PVQ (R^2/Δ R^2= .123/.001)	
PU IAT	.546	.010	.137; .954
SDE	.265	.089	-.041; .572
PU IAT x SDE	-.077	.808	-.704; .550
		Universalism PVQ (R^2/Δ R^2= .073/.003)	
PU IAT	-.405	.024	-.756; -.054
SDE	-.066	.618	-.329; .197
PU IAT x SDE	-.118	.662	-.656; .419
		Power PVQ (R^2/Δ R^2= .211/.001)	
PU IAT	.469	.019	.080; .858
IM	-.438	.001	-.701; -.175
PU IAT x IM	.062	.771	-.358; .481
		Universalism PVQ (R^2/Δ R^2= .137 /.027)	
PU IAT	-.364	.036	-.703; -.024
IM	.267	.023	.038; .497
PU IAT x IM	-.270	.139	-.630; .090

Note. PU IAT = Power vs. Universalism IAT.

Table 4.

Multiple linear regressions: Moderation of social desirability on implicit (AB IAT) - explicit values links.

Predictor	B	p	CI
		Achievement PVQ (R^2/Δ R^2= .067/.001)	
AB IAT	.595	.030	.058; 1.132
SDE	.012	.950	-.364; .388
AB IAT x SDE	.078	.840	-.695; .851
		Benevolence PVQ (R^2/ΔR^2= .041/.002)	
AB IAT	-.272	.102	-.599; .056
SDE	-.050	.713	-.279; .179
AB IAT x SDE	.079	.738	-.392; .550
		Achievement PVQ (R^2/ΔR^2= .111/.002)	
AB IAT	.541	.044	.015; 1.068
IM	-.321	.070	-.669; .027
AB IAT x IM	-.112	.727	-.748; .525
		Benevolence PVQ (R^2/ΔR^2= .075/.032)	
AB IAT	-.241	.141	-.565; .082
IM	.176	.105	-.038; .389
AB IAT x IM	.300	.123	-.084; .684

Note. AB IAT = Achievement vs. Benevolence IAT.