

STUDIES AND RESEARCHES

Implicit and explicit personality assessment in the context of personnel selection

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Abstract

In this paper, we examine the role of Conscientiousness and Extraversion at implicit and explicit level, in the context of personnel selection. Personality was assessed using the NEO-FFI, for the explicit level (Costa & McCrae, 1992), and the Semantic Misattribution Procedure (Sava et al. 2012), for the implicit level, as part of the selection process in a multinational corporation. Twenty eight candidates were hired, and their in-role job performance was assessed by their supervisors six months later, based on a performance assessment scale (Williams & Anderson, 1991). Results suggest that explicit personality traits did not predict in-role job performance, whereas implicit Extraversion showed a positive association with the job performance assessed by the supervisor. The absence of correlations between implicit/explicit Conscientiousness and job performance could be explained by the subjective nature of the instrument used to measure in-role performance. Future research on the predictive role of implicit and explicit personality measures for job performance should consider objective indicators of job performance, as well as evaluations from peers and supervisors.

Keywords

job performance, personnel selection, implicit measures, explicit measures, conscientiousness, extraversion

Rezumat

În această lucrare, examinăm rolul Conștiinciozității și al Extraversiunii la nivel implicit și explicit, în contextul selecției de personal. Personalitatea a fost evaluată cu NEO-FFI, la nivel explicit (Costa & McCrae, 1992) și, la nivel implicit, prin Procedura Atribuirii Semantice (Sava et al. 2012), ca parte a procedurii de selecție într-o companie multinatională. Douăzeci și opt de candidați dintre cei testați au fost angajați iar performanța lor în muncă a fost evaluată șase luni mai târziu de către șeful direct, pe baza unei scale de evaluare a performanțelor (Williams & Anderson 1991). Rezultatele au relevat că trăsăturile de personalitate explicite nu au prezis performanța în sarcină, în timp ce Extraversiunea implicită s-a asociat pozitiv cu performanța în sarcină evaluată de supervisor. Absența corelației dintre Conștiinciozitate explicită/implicită și performanța în sarcină poate fi atribuită subiectivității instrumentului utilizat în evaluarea performanței în sarcină. Cercetările viitoare asupra valorii predictive a măsurilor implicite și explicite ale personalității în raport cu performanța în sarcină ar trebui să ia în considerare indicatori obiectivi ai performanței în muncă, alături de evaluări ale colegilor și șefilor.

Cuvinte cheie

performanța în muncă, selecția de personal, măsuri implicite, măsuri explicite, conștiinciozitate, extraversiune

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Résumé

Dans cet article, on examine le rôle de la diligence et de l'extraversion au niveau implicite et explicite, dans le contexte du processus de sélection du personnel. La personnalité a été évaluée en utilisant l'instrument NEO-FFI, pour le niveau explicite (Costa & McCrae, 1992), et la procédure Semantic Misattribution (Sava et al. 2012), pour le niveau implicite, dans le cadre du processus de sélection au sein d'une multinationale. Vingt-huit candidats ont été embauchés, et leur rendement au travail a été évalué six mois plus tard par leurs superviseurs, sur la base d'une échelle d'évaluation du rendement (Williams et Anderson, 1991). Les résultats suggèrent que les traits de personnalité explicites n'ont pas prédit le rendement au travail, alors que l'extraversion implicite a montré une association positive avec le rendement au travail évalué par le superviseur. L'absence de corrélations entre la diligence implicite/explicite et le rendement au travail peut s'expliquer par la nature subjective de l'instrument utilisé pour mesurer le rendement au travail. Les recherches futures sur le rôle prédictif des mesures de personnalité implicites et explicites du rendement au travail devraient envisager des indicateurs objectifs du rendement au travail, ainsi que des évaluations faites par des collègues et des superviseurs.

Mots-clés

rendement au travail, sélection du personnel, mesures implicites, mesures explicites, diligence, extraversion

Introduction

Personality traits are known to be good predictors of job performance (Salgado, 1997), therefore personality tests become a standard practice in the personnel selection process. Although most personality questionnaires used in personnel selection were self-report measures, they provided validity for observable personality traits (Funder, 1999). However, as previous research suggests, there are considerable arguments to revise the use of classic personality inventories in personnel selection, so that future research should analyze alternatives to self-report instruments for personality assessment (Morgeson et al., 2007). The first argument is related to the social desirability bias in responses to personality self-ratings. Initially, researchers had difficulties distinguishing self-deception tendencies from impression management tendencies. Although significant progress has been made in this direction (Paulhus, 1998), most work in the field is limited to being able to discriminate successfully between valid and invalid personality protocols, without identifying the real personality profile of individuals who alter their presentation for impression management purposes. The second argument for finding other forms of personality evaluation is based on the recent developments in social cognition. Researches in this area showed that information about the self is processed in two different ways: an explicit manner (specifically, controlled and conscious) and an implicit manner (namely, automatic and intuitive) (Greenwald &

Farnham, 2000; Asendorpf, Banse, & Mucke, 2002). The relationship between implicit and explicit measures of the same construct is neither redundant, nor straightforward. Perugini, Richetin, and Zogmaister (2010) describe several possible patterns of relationship between implicit and explicit measures of the same construct, which often brings an incremental validity when behavior is used as criterion. The bottom line is that supplementing explicit measures of personality traits that are predictive for job performance, with implicit measures of the same traits, might be a valuable tool in personnel selection, due to their incremental validity in predicting behavior (job performance). This is particularly important since impression management is a core issue in the selection process and implicit measures are more resistant to attempts of deception as compared to explicit measures (Cvencek, Greenwald, Brown, Gray, & Snowden, 2010).

Implicit and explicit personality assessment

When talking about the distinction between implicit and explicit, one can refer either to the processes involved, or to the instruments used to measure the concept. Implicit and explicit *processes* are explained by the dual process models, such as the Associative-Propositional Model (APE Model) developed by Gawronski and Bodenhausen (2006). This model encompasses two different systems of information processing and representation:

the associative and the propositional processes. Associative (implicit) processes are based on automatic affective reactions resulting from associations which are activated whenever a particular stimulus is encountered. A very important characteristic of associative processes is that they can be activated regardless of whether the individual considers them to be true or false. Propositional (explicit) processes are evaluations based on syllogistic inferences which assess the validity of the propositions. Hence, an important feature that distinguishes propositional processes from associative ones is their dependency on the truth value (Gawronski & Bodenhausen, 2006).

Considering the perspective of the APE Model, personality self-concept can be expressed in both associative (implicit) and propositional (explicit) representations. Associative or implicit representations of the personality self-concept would reflect an automatic or spontaneous tendency to associate the self with particular traits or behaviors. Propositional or explicit representations of the personality self-concept reflect propositions which emerge from a deliberative process, and are considered to be true by the individual. For example, an explicit representation of the self-concept of high conscientiousness would be: "I believe I am very organized".

The two types of processes are considered to be sources of evaluative tendencies (Gawronski & Bodenhausen, 2006). Therefore, specific characteristics of the instruments used for assessment are responsible for capturing either propositional / explicit, or associative / implicit aspects of the psychological concept. The typical personality inventories are designed to assess the propositional representations of the self-concept, and are considered explicit or *direct measures*. Nevertheless, measuring the associative processes is somewhat more difficult, because the instruments should require fast, automatic answers, in an indirect way. Several implicit or *indirect measures* were developed and validated in the past decade (Greenwald et al. 1998, Payne et al., 2005). These infer information about associative processes from specific decision

tasks, instead of directly asking participants what they believe is characteristic for them.

Indirect measures of personality self-concept, based on the Implicit Association Test (Greenwald et al., 1998), have been developed for traits like shyness (Asendorpf, Banse, & Mucke, 2002), anxiety (Schnabel, Banse, & Asendorpf, 2006), and the Big Five dimensions (Schmukle, Back, & Egloff, 2008; Back, Schmukle, & Egloff, 2009). Recent studies adapted the Semantic Misattribution Procedure - SMP (Sava et al., 2012) to measure the implicit level of conscientiousness, extraversion and neuroticism. The SMP is derived from the Affective Misattribution Procedure (Payne et al., 2005), an implicit measure of attitudes which relies on the mechanism of the misattribution of prime characteristics to a neutral symbol (Payne et al. 2005). In a SMP task, participants are shortly exposed to an adjective (prime), which is representative either for the low, or for the high level of the personality trait measured, followed by an abstract Chinese character (target). Participants have to decide whether or not they would like the abstract character to be printed on a personalized t-shirt (if the character fits them or not). Because the participants are only briefly exposed to the prime and the target, the semantic meaning of the prime is misattributed to the target, even if participants are warned not to let themselves affected by the meaning of the adjective. Across three studies, Sava et al. (2012) provided initial evidence for the convergent and criterion validity for the SMP, as it consistently correlated with explicit measures, and predicted behavior in the expected direction. Therefore, the SMP showed similar psychometric properties to the IAT (Back et al., 2009) and even better test-retest stability compared to the average value of the IAT reported in the meta-analysis of Hofmann et al. (2005). By reason of the psychometric properties of the SMP, we consider it to be a suitable instrument to capture implicit aspects of personality self-concept beyond the laboratory setting, in a natural context, such as the personnel selection process.

Thus far, explicit measures of personality have been widely used in the personnel

selection processes, since different personality traits, like conscientiousness, have proven to be good predictors of job performance (Salgado, 1997). Nevertheless there are reasons to reconsider the use of the classic personality inventories in contexts like personnel selection, where participants are highly motivated to present themselves in a positive way (Morgeson et al., 2007). Several studies proved that personality inventories can be easily faked, according to a review presented by Morgeson et al. (2007). The same authors, highlight that future research should focus on finding alternatives to self-report personality measures. Taking this into consideration, implicit measures like the Semantic Misattribution Procedure (Sava et al., 2012) could be useful in personnel selection. In regard to faking the results, the SMP showed weak associations to social desirability levels in previous studies (Sava et al., 2012), still the possibility of intentionally faking the SMP has not been experimentally tested yet. The specific mechanism underlying the SMP is not as intuitive as in the case of personality inventories, which strengthens the assumption that in a selection process, the SMP would be more difficult to fake than the explicit inventories.

Even though at this point implicit measures are not ready to be used as a standard for important selection decisions, they could offer valuable insight about how people present themselves in the context of selection. Moreover, analyzing implicit and explicit personality self-concept in a natural high-stake environment might provide useful information for optimizing the existent implicit instruments.

The present study

We aim to explore the explicit and implicit level of personality in the context of personnel selection in a multinational corporation in Romania. In this study, we focus on the role of conscientiousness and extraversion. Several meta-analyses acknowledge the role of conscientiousness in the prediction of job performance, with high conscientious employees having better in-role job performance (Barrick & Mount, 1991; Salgado, 1997). With regard to Extraversion,

studies showed that it is a reliable predictor of job performance for specific occupations involving social interactions (Barrick & Mount, 1991). Previous research on extraversion (Barrick & Mount, 1993) also showed that, when supervisor ratings of job performance are employed, extraversion and conscientiousness are significantly associated to performance. Accordingly, conscientiousness and extraversion are often assessed in personnel selection processes, and seem to be relevant traits to be explored at implicit level during a process of employee selection. Moreover, both extraversion and conscientiousness have been successfully measured by the Semantic Misattribution Procedure by Sava et al. (2012).

In addition, since several possible behavioral predictive patterns are often found between explicit and implicit measures of the same construct (see Perugini et al., 2010 for a complete description), we will test two concurrent models that may validate the added value of including implicit measures of personality along with explicit ones in the personnel selection context. Namely, we will focus on the additive model and the interactive model. The former considers that implicit measures have a behavioral predictive value over and above what has already been explained by the explicit measures of the same construct. In statistical terms, this means that implicit measures predict behavior even if we control for the predictive effect of an explicit measure on behavior, in this case, the job performance behavior. The interactive model suggest that the congruence (i.e. a person with high scores both on explicit and on implicit conscientiousness) facilitates the expected behavior (i.e. an increased job performance), while the discrepancy between measures of the same construct (i.e. a high level of explicit conscientiousness, and a low level of implicit conscientiousness) might cancel each other, thus reducing or eliminating the predictive power of personality traits on relevant behaviors. In statistical terms, the interactive model proposes that the relationship between explicit measures and relevant behaviors is moderated by the scores on implicit measures.

The additive and the interactive patterns are not mutually exclusive. Thus, if any or both patterns are supported by the data, it would suggest that implicit measures of personality can be a valuable tool in the context of personnel selection by enhancing the association (predictive value) between personality and job performance.

Method

Participants

The participants were 28 candidates in the selection process for several jobs in a multinational corporation in the IT&C industry, who voluntarily participated in the study. All of them were employed following the selection process. The mean age of the participants was 21, ranging from 19 to 27 years, and 52% of the candidates were male.

Instruments

Implicit Conscientiousness and Extraversion were assessed using the Semantic

Misattribution Procedure (SMP), identical to the one presented in Study 3 by Sava et al. (2012). The task consisted in 32 trials, divided evenly, in order to get 16 trials for each trait (e.g., eight descriptors for high level of conscientiousness and another eight descriptors for the low end of conscientiousness). Every adjective was briefly presented in the center of the screen (200 ms), followed by a blank screen (125 ms) and the abstract Chinese character (200 ms), as shown in Figure 1. After the presentation of the stimuli, a mask was presented and remained on the screen until the participant answered. Participants were instructed to use two keys (C or N) to judge whether they would like each Japanese character to be printed on a personalized T-shirt by responding "Fits me" or "Does not fit me". The scoring procedure suggested by Sava et al. (2012) was used, with higher scores showing high levels of Conscientiousness and Extraversion.

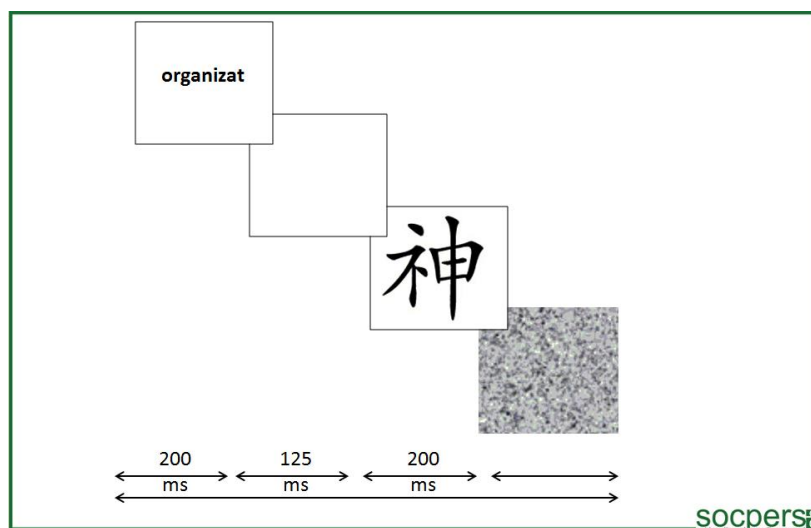


Figure 1. Sample of a SMP trial for Conscientiousness, using the adjective organized

Explicit Conscientiousness and Extraversion were assessed using NEO-FFI (Costa & McCrae, 1992). Each of the two dimensions was assessed with 12 items. Participants expressed their level of agreement with the items by rating them on a five-point Likert scale. In the present study, we used the NEO-

FFI version which was adapted on Romanian population by Iliescu, Minulescu, Ispas, and Nedelcea (2009), and showed good internal consistency ($\alpha = .75$ for Extraversion, and $\alpha = .82$ for Conscientiousness). A sample item is: "I keep my belongings neat and clean".

Social desirability was measured by the Marlowe-Crowne scale (Crowne & Marlowe, 1960). This inventory consists of 33 dichotomous items (true / false). A sample item is: "It is sometimes hard for me to go on with my work if I am not encouraged". The scale's internal reliability was $\alpha = .81$.

In-role job performance was assessed by a 7-item scale developed by Williams and Anderson (1991). Each item is evaluated on a five-point Likert scale, according to the level of agreement with the content of the item. Two of the items are reversed, and a high score on the scale is an indicator of a better job performance. The direct supervisors filled in the scale for each participant under their supervision (for each of the 28 candidates which were employed). A sample item is: "This employee fulfills all the responsibilities specified in his/her job description". In our sample, the scale showed good internal consistency $\alpha = .71$.

Procedure

Job candidates for two departments in a multinational corporation from Timisoara were tested in the selection process, using implicit and explicit measures of personality traits. The formal procedure of the company includes psychological assessment, which consists of assessment of cognitive abilities and personality traits, as a standard operation in the selection process. For the purpose of the present research, in this step of the selection process we included the SMP for the assessment of implicit conscientiousness and extraversion, and NEO-FFI for the assessment of explicit conscientiousness and extraversion. Additionally, candidates also filled in the Marlowe-Crowne scale, in order to identify the candidates' level of social desirability. The entire evaluation was performed individually for each candidate. We tested all candidates in last but one step of selection process, before interview with direct supervisor. We tested 45 candidates to reach 28 new employees. It means the selection rate was 1.60 for this step of selection.

Six months after the participants were hired we contacted the direct supervisors of each employee included in the initial assessment of the selection process. The direct supervisors filled in a performance evaluation scale for each employee included in our study.

Results

Our exploratory objective was to analyze the role of implicit and explicit personality self-concept in the context of personnel selection. Table 1 shows the correlation matrix between in-role job performance, social desirability and personality dimensions, at both implicit and explicit level.

Contrary to our expectations, job performance was not significantly associated to either explicit or implicit conscientiousness. Explicit extraversion was also not correlated with job performance, but implicit extraversion showed significant positive association to job performance $r(26) = .43, p < .05$. Candidates who had higher levels of extraversion also received more positive evaluation of job performance from the direct supervisor, 6 months after employment.

Considering the context of the present research, a real personnel selection process, participants might be interested in presenting themselves in a more positive light, in order to increase their chances of being employed. Both explicit conscientiousness and extraversion showed significant positive associations to social desirability. On the other hand, neither implicit extraversion, nor implicit conscientiousness presented associations to social desirability. This suggests that even in the context of personnel selection, social desirability levels will not be associated with the implicit assessment of personality.

The associations between the implicit and explicit levels of personality are positive for both conscientiousness $r(26) = .33, p = .04$ (one-tailed test), and extraversion $r(26) = .56, p = .001$ (one-tailed test), showing good implicit-explicit consistency.

Table 1. Correlation matrix between performance, social desirability and personality

Variables	1	2	3	4	5	6
1. Performance	--					
2. Social desirability	.17	--				
3. Explicit Conscientiousness	.07	.52**	--			
4. Explicit Extraversion	.19	.35*	.53**	--		
5. Implicit Conscientiousness	.15	.22	.33	.42*	--	
6. Implicit Extraversion	.43*	.16	.25	.56**	.70**	--
<i>M</i>	31.65	23.76	39.15	31.91	25.13	25.00
<i>SD</i>	2.39	5.18	4.20	4.47	5.13	4.88

Note. *significant at $p < .05$, two-tailed; **significant at $p < .01$, two-tailed

Implicit and explicit personality as predictors of in-role job performance

To examine the validity of the two patterns of prediction, we estimated the parameters of

regression analyses predicting job performance from the explicit measures, implicit measures and their interaction, for conscientiousness (Table 2) and extraversion (Table 3).

Table 2. Implicit and explicit conscientiousness as predictors of in-role job performance

Variables	Job performance		
	Step 1 β	Step 2 β	Step3 β
Explicit Conscientiousness	.01	-.04	-.02
Implicit Conscientiousness		.16	.18
Interaction			.05
R^2	.00	.02	.03
F	.01	.31	.22
ΔR^2	.00	.02	.01
ΔF	.01	.63	.06

Note. * $p < .05$; ** $p < .01$

Table 3. Implicit and explicit extraversion as predictors of in-role job performance

Variables	Job performance		
	Step 1 β	Step 2 β	Step3 β
Explicit Extraversion	.21	-.04	.04
Implicit Extraversion		.45*	.42
Interaction			.21
R^2	.05	.18	.22
F	1.28	2.88	2.36
ΔR^2	.05	.14	.04
ΔF	1.28	4.31*	1.27

Note. * $p < .05$; ** $p < .01$

The additive pattern of behavioral prediction is not supported for conscientiousness, since neither the explicit, nor the implicit measure predicted job performance after 6 months of activity. Furthermore, the interaction between

implicit and explicit conscientiousness does not improve the prediction of job performance, hence the interactive pattern of behavioral prediction is also not supported.

Concerning extraversion (Table 3), the data shows some support for the additive pattern of behavioral prediction. The implicit measure of extraversion predicted job performance over and above the explicit measure, with high levels of implicit extraversion leading to better in-role job performance after 6 months of activity at a new job. The interactive pattern of behavioral prediction was not supported, as the interaction between implicit and explicit extraversion was not significant in predicting job performance.

Discussion

The exploratory objective of our study was to provide preliminary insight into the role of implicit, as well as explicit conscientiousness and extraversion in the context of personnel selection in a multi-national corporation.

While both the additive and the interactive models were tested, neither received the proper support from data. Apparently, the additive pattern of behavioral prediction has received some support in case of extraversion, where implicit measures added a significant predictive value for self-reported job performance. However, contrary to our expectation, the explicit extraversion did not predict the job performance, as initially was assumed. This violates the main idea for a classical additive pattern which implies that each predictor adds some value in predicting the criterion. However, result was not replicated when testing the additive pattern for the case of conscientiousness. Likewise, the interactive pattern of behavioral prediction did not receive any support, since the interaction between implicit and explicit personality traits did not predict job performance over and above their individual contributions. Hence, the congruence (incongruence) between implicit and explicit measures of personality does not seem to be relevant for the prediction of in-role job performance.

At explicit level, neither conscientiousness, nor extraversion was associated with job performance. As for the implicit level of personality, only extraversion, and not conscientiousness, was positively associated with in-role job

performance. These results are inconsistent with other well-know studies, which show that, out of all personality dimensions, conscientiousness is the best predictor of job performance (Barrick & Mount, 1991; Dudley, Orvis, Lebiecki, & Cortina, 2006). In this situation, one possible explanation may come from the instrument used to measure job performance in our study. We used a standardized scale of job performance (Williams & Anderson, 1991), adapted to be filled out by supervisors, and the instrument was not adapted to the specific jobs of the organization. Even though there is considerable evidence showing that subjective measures of performance are reliable (Hoffman, Nathan, & Holden, 1991; Wall et al., 2004), objective measures might highlight different aspects of job performance. This argument is supported by the results of Barrick and Mount (1991), who showed that both conscientiousness and extraversion (at explicit level) were more strongly associated to subjective, than objective measures of job performance. Another possible explanation for the lack of association between conscientiousness and job performance relies on the range restrictions in the case of conscientiousness (only candidates with a mean or high level of conscientiousness were employed). In this case, it possible that the differences between moderate and high conscientious employees would not be reflected in their in-role job performance, as assessed by the supervisor. A third possible explanation for the lack of association between the explicit measures and job performance might consists in the high level of bias present when measuring the two explicit personality traits, since both variables correlates moderately to intensely with social desirability score, given the context of the assessment.

Regarding the implicit-explicit correlations, in our sample, both Extraversion and Conscientiousness showed consistency. The results are similar to those reported by Sava et al. (2012) in the validation studies of the Semantic Misattribution Procedure. While explicit and implicit measures of the same trait correlate with each other in the expected direction, they also possess discriminative features, since implicit measures, unlike the

explicit ones, do not correlate with social desirability. Likewise, at least in case of extraversion, the implicit measure is associated with job performance while the explicit measure of the same trait is not a significant predictor.

These results are consistent with the dual-systems perspective of information processing, which suggests that implicit traits can predict behavior above and beyond the explicit ones (Perugini, et al., 2010). Also, Nosek & Smyth (2007) conclude that implicit and explicit measures assess related, but different constructs. This could explain why, even though the implicit and explicit evaluations are consistent, only the implicit level of Extraversion predicts in-role job performance.

Personality assessment in the context of personnel selection might be affected by participants' intention to present themselves in a favorable light (Morgeson et al., 2007). In our study, social desirability was associated with both personality traits assessed at the explicit level, confirming the vulnerability of explicit measures when it comes to social desirability bias. This reflects a tendency of participants with high social desirability to present themselves as more extraverted and more conscientious, when assessed by a classic personality inventory, as compared to participants with low social desirability. Furthermore, the implicit measures of conscientiousness and extraversion were not associated with social desirability. This suggests that even in the context of personnel selection, social desirability levels are not associated with the implicit assessment of personality. Although the current research did not directly address the possibility of faking the SMP, these results support the resistance of implicit measures to social desirability bias, as shown in previous research (Cvencek et al., 2010).

The results of our study are somewhat unexpected, since explicit personality did not predict job performance. Yet, these preliminary findings open the door for the study of implicit measures of personality traits in the selection processes, in different organizational contexts.

Limitation and future research directions

One limitation of this study regards the limited number of the candidates who were employed at the end of the selection process, and therefore the low number of participants assessed by their supervisor, which resulted in reduced statistical power for detecting potential effects. Moreover, the candidates applied and were employed in several different positions in the multinational corporation. The heterogeneity of the job positions might also affect the supervisor evaluations because of (a) differences in the length of the adjustment time needed for a new job, (b) different job specifications which might engage different levels of extraversion. Therefore, future studies could benefit from enlarging the sample of employees, controlling for different types of job positions, and following the employees over a longer period of time. In addition, more information about how implicit personality measured in the context of the selection process is related to job performance could be obtained by using objective indicators of performance.

The preliminary results of this study provide insight into the dynamic of implicit and explicit personality in the context of personnel selection. Using implicit measures in research projects in selection processes might lead to a better understanding of how people present themselves (at a reflective and impulsive level) in high stake situations. This can lead to improvements of personnel selection processes and instruments, and thus contribute to avoiding common decision biases.

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