

Linking Trait-Emotional Intelligence And Citizenship Performance In A High-Complexity Job: Examining Its Predictive Validity And The Mediating Effect Of Job Satisfaction

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Abstract

In light of recent research developments supporting the usefulness of emotional intelligence (EI) in predicting individual job performance, this study aims to contribute to enhancing the understanding of its impact on citizenship performance in the scope of a high-complexity job of software engineering. Specifically, it examines the criterion-related validity of trait-EI and its facets in respect to this key performance criterion. Furthermore, it also tests whether job satisfaction represents a route through which trait emotional intelligence (trait-EI) and its facets affect this performance dimension at this level of job complexity. Relying on a predictive design, results from a sample of 141 software engineers from a multi-national firm showed that job satisfaction constitutes a significant mediator of the relationship of trait-EI and supervisor ratings of citizenship performance. The major implications of these findings for establishing trait-EI validity and identifying the mechanisms through which it translates into enhanced citizenship performance at work are discussed.

Keywords: emotional intelligence, organizational citizenship behaviours, job attitudes, mediation.

Relação entre Traço-Inteligência Emocional e Desempenho de Cidadania em um Trabalho de Alta Complexidade: Examinando sua Validade Preditiva e o Efeito Mediador da Satisfação no Trabalho

Resumo

Esse estudo pretende contribuir para melhorar a compreensão do impacto da inteligência emocional (IE) no desempenho da cidadania no contexto de um trabalho de engenharia de software de alta complexidade. Especificamente, ele examina a validade relacionada ao critério do traço IE e suas facetas em relação a esse critério-chave de desempenho. Além disso, também testa se a satisfação no trabalho representa uma maneira pela qual o traço inteligência emocional (traço-IE) e suas facetas afetam essa dimensão de desempenho nesse nível de complexidade do trabalho. Com base em um design preditivo, os resultados de uma amostra de 141 engenheiros de software de uma empresa multinacional mostraram que a satisfação no trabalho constitui um mediador significativo da relação entre o traço IE e as classificações de desempenho de cidadania avaliadas pelo respectivo supervisor. São discutidas as principais implicações desses achados para estabelecer a validade do traço de IE e identificar os mecanismos pelos quais ele se traduz em melhor desempenho de cidadania no trabalho.

Palavras-chave: inteligência emocional, comportamentos de cidadania organizacional, atitudes no trabalho, mediação.

Relación entre Rasgo-Inteligencia Emocional y Desempeño Ciudadano en un Trabajo de Alta Complejidad: Examinando su Validez Predictiva y el Efecto Mediador de la Satisfacción Laboral

Resumen

Este estudio pretende contribuir para mejorar la comprensión del impacto de la inteligencia emocional (IE) en el desempeño ciudadano en el contexto de un trabajo de ingeniería de software de alta complejidad. Específicamente, examina la validez relacionada con el criterio del rasgo IE y sus facetas en relación con este criterio clave de desempeño. Además de eso, también prueba si la satisfacción laboral representa una forma en que el rasgo de inteligencia emocional (Rasgo-IE) y sus facetas afectan esta dimensión del desempeño en este nivel de complejidad laboral. Con base en un diseño predictivo, los resultados de una muestra de 141 ingenieros de software de una empresa multinacional mostraron que la satisfacción laboral constituye un mediador significativo de la relación entre el rasgo IE y las clasificaciones de desempeño de la ciudadanía por evaluación del respectivo supervisor. Se discuten las principales implicaciones de estos hallazgos para establecer la validez del rasgo de IE e identificar los mecanismos por los cuales se traduce en un mejor desempeño ciudadano en el trabajo.

Palabras clave: inteligencia emocional, comportamientos de ciudadanía organizacional, actitudes laborales, mediación.

Emotional intelligence (EI) has received a great deal of attention in the literature about psychology of individual differences, particularly over the last two decades (Sackett et al., 2017). Broadly consisting of dealing effectively with emotions and emotional knowledge, EI rapidly gained strong business popularity and become widely applied in human resources management practices (Ashkanasy, Humphrey, & Huy, 2017; Miao, Humphrey, & Qian, 2020).

After the initial scientific controversy regarding the theoretical and applied value of EI for organizations, a number of meta-analyses have shown that it represents an important antecedent of key work outcomes, such as job performance (Joseph & Newman, 2010; O'Boyle, Humphrey, Pollack, Hawver, & Story, 2011) and its encompassed dimensions of task, citizenship performance and counterproductivity (Miao, Humphrey, & Qian, 2017a; Miao et al., 2020). Prior empirical evidence has also revealed that EI stands as a valid and meaningful predictor of these performance criteria, even when the effects of other relevant individual predictors, such personality factors and cognitive ability, are also accounted for (O'Boyle et al., 2011; Miao et al., 2017a).

These research developments have been noteworthy in empirically mapping the contribution of EI to advancing and optimizing predictive models of performance based on constructs of individual differences, which are essential in improving the accuracy of related personnel selection and performance management decisions (Salgado, 2017a for a review). Nonetheless, there still are relevant research questions concerning EI-job performance links that deserve further attention in the literature. Specifically, despite substantial evidence supporting the relevant and non-redundant role of EI for predicting performance at work (Joseph & Newman, 2010; O'Boyle et al., 2011), the literature is relatively uninformative regarding its validity to predict performance at specific levels of job complexity. This aspect is pertinent in face of extant evidence supporting that criterion-related validity of individual characteristics, i.e., cognitive abilities and dispositions, is conditional on the level of job complexity under consideration (Salgado, 2017a, 2017b; Wilmot & Ones, 2021).

Furthermore, more research is needed regarding EI relationships with critical non-task dimensions of individual performance, like citizenship performance, since the great majority of the previous research has been focused on task performance (O'Boyle et al., 2011; Miao et al., 2020; Pekaar, Bakker, Born, van der Linden, 2019). Adopting an expanded focus, through the inclusion of citizenship performance as a criterion, holds immediate relevancy given the critical role of such discretionary behaviours, like supporting others and showing loyalty to the organization, in positively shaping the social and psychological context in which tasks and technical processes develop (Organ, 2018; Podsakoff, MacKenzie, & Podsakoff, 2018).

Moreover, corresponding EI-performance relationships have been predominantly studied for global EI, leaving the impact of its specific facets on performance outcomes relatively underdeveloped (Bozionelos & Singh, 2017; Pekaar et al., 2019; Pekaar, van der Linden, Bakker, & Born, 2017). Yet developing such more fine-grained knowledge provides important applied implications for EI assessment in the scope of human resources management decision-making. Particularly, it will allow conclusions to be drawn on whether personnel assessment should be focused upon the global EI factor or on its facets to maximize individual performance prediction and improvement.

The present study aims to contribute to advance these

research questions by examining the validity of EI and its facets to predict citizenship performance in the context of a high-complexity job, i.e., software engineering. By following this purpose, it also answers previous research calls for more samples covering individual performance dimensions in jobs pertaining to the technology industry (Harari, Reaves, & Viswesvaran, 2016).

In addition to establishing these links and revealing the utility of EI and its facets to predict job performance behaviours, related theory advancement requires the identification of the psychological processes and mechanisms through which such distal individual predictors improve job performance (Miao et al., 2020; Pekaar, van der Linden, Bakker, & Born, 2020). These aspects have been receiving growing attention in recent literature, with initial evidence suggesting that core work attitudes like job satisfaction may constitute key mediating processes through which EI drives performance at work, particularly citizenship performance (Greenidge, Devonish, & Alleyne, 2014; Li, Pérez-Díaz, Mao, & Petrides, 2018; Miao et al., 2020). In parallel, meta-analyses have also shown that EI promotes job satisfaction across tenure levels and employees' age and gender (Miao, Humphrey, & Qian, 2017b; Miao, Humphrey, & Qian, 2017c).

Yet, the literature remains scarce about whether and to what extent such attitudinal mechanisms, enabled by EI, improve performance at specific levels of job complexity. Addressing this question is conceptually pertinent considering previous evidence which shows that the level of job complexity moderates the links between individual predictors and performance (Salgado, 2017a, 2017b; Wilmot & Ones, 2021). Moreover, this job characteristic also represents an important factor in influencing the degree to which job satisfaction effectively translates into enhanced performance at work (Bowling, Khazon, Meyer, & Burros, 2015; Judge, Thoresen, Bono, & Patton, 2001). As further explained, more complex jobs grant higher autonomy, control and latitude in decision-making to their incumbents (Salgado, 2017b). Thereby, highly complex jobs encompass work situations that increase incumbents' levels of flexibility to behaviourally express their dispositions and warrant them higher freedom to engage in performance behaviours which are more consistent with their job attitudes (Bowling et al., 2015; Judge et al., 2001). Moreover, according to the assumptions of social exchange theory, more satisfied incumbents tend to reciprocate to the organization by exhibiting enhanced performance, especially by means of actions in which they have greater discretion, like citizenship performance behaviours (Organ, 2018; Organ & Ryan, 1995).

Therefore, by sampling a high-complexity job of software engineering (see Salgado 2017b, for a classification of job complexity), the intention of the current study is also to contribute to expanding knowledge about the specific work situational conditions in which EI has the potential to enhance citizenship performance, through the intervening effects of job satisfaction. As highlighted by Judge, Weiss, Kammeyer-Mueller, & Hulin (2017), notwithstanding the impressive volume of studies about the antecedents and outcomes of job satisfaction, a key direction to move forward related knowledge consists of uncovering situational variables that can facilitate or constrain the impact of job satisfaction on performance.

Likewise, this paper moves towards this end by empirically testing the mediating effect of job satisfaction in the links between EI, its facets and citizenship performance in a high-complexity job. To fulfil this aim, it intentionally examines a work context in which individuals are organized in software project semi-autonomous teams, in order to sample a job setting where the full behavioural breadth of citizenship performance

is particularly salient and instrumental in goal accomplishment (Lai, Lam, & Lam, 2013; Organ, 2018). This behavioural span of citizenship criteria ranges from actions targeted at helping and motivating co-workers to supporting the organization and showing conscientious initiative (Borman, Brantley, & Hanson, 2014).

Considering that EI research has been evolving through multiple research streams, comprising non-equivalent underlying theoretical frameworks and measurement operationalizations, it should be noted that this study is developed upon the trait-EI conceptualization. As such, it conceives EI as “a constellation of behavioral dispositions and self-perceptions concerning one’s ability to recognize, process, and utilize emotion-laden information” (Petrides, Frederickson, & Furnham, 2004, p. 278), which is commonly measured through questionnaires and rating scales. Specifically, it focuses on the four trait-EI facets studied by Wong, Law and colleagues (e.g., Law, Wong, & Song, 2004; Wong & Law, 2002), including self-emotions appraisal (SEA), others-emotions appraisal (OEA), use of emotion (UOE) and regulation of emotion (ROE). Unlike the ability-EI approach, which maps this construct as an intelligence type, trait-EI conceives it as the individual perception about one’s own abilities to perceive, understand, regulate and use emotions to adapt to environments and enhance well-being (Petrides et al., 2016).

Emotional Intelligence and Citizenship Performance

The construct of citizenship performance, akin to organizational citizenship behaviours (Organ, 2018), is recognized as a distinct and ubiquitous dimension of performance at work (Borman et al., 2014; Harari et al., 2016). It comprises a wide range of actions that are key to facilitating technical processes and enhancing psychological and social context, such as motivating and helping co-workers, persisting with extra effort and supporting the organization’s mission and objectives. Previous research has found that citizenship performance positively impacts on both individual outcomes like reward allocation decisions, and organizational level outcomes, such as customer satisfaction (Podsakoff et al., 2018).

Given these benefits of citizenship performance for employees and the organization, stimulating research efforts have been devoted to identifying its main determinants (Organ, 2018; Podsakoff et al., 2018). In this regard, trait-EI and its facets of emotional appraisal and understanding (SEA and OEA), use of emotion (UOE) and emotion regulation (ROE) have been theorized to constitute meaningful antecedents of this performance dimension (Greenidge et al., 2014; Miao et al., 2017a). According to several authors, high-EI individuals tend to achieve stronger levels of performance at work especially due to their higher effectiveness in channelling and regulating their emotions to facilitate the accomplishment of job demands (Joseph & Newman, 2010; Wong & Law 2002). Such higher competence in effectively regulating emotions (ROE) to cope with stressful and challenging work demands and use them constructively (UOE) to facilitate performance is likely to positively impact on their citizenship performance as well (Greenidge et al., 2014; Law et al., 2004; Li et al., 2018). By optimizing these emotional processes along with their increased effectiveness in appraising and comprehending their own (SEA) and their co-workers’ emotions effectively (OEA), high-EI individuals are posited to be more capable of accurately perceiving the need for help from their co-workers and exhibiting emphatic responses and personal support behaviours, contributing to establishing and maintaining positive social interactions with them, ultimately enhancing their

own citizenship performance levels (Greenidge et al., 2014; Miao et al., 2017a).

Cumulative empirical evidence has provided support for these propositions. A relatively recent meta-analysis conducted by Miao et al. (2017a) showed that EI measures are valid and meaningful predictors of this performance dimension across jobs and organizations. Furthermore, unlike ability-EI tests, trait-EI measures showed incremental validity when relevant predictors, including personality factors, cognitive ability, general self-efficacy and self-rated performance, were also taken into account. Regarding trait-EI facets, meta-analytic evidence is not yet available due the paucity of research at this level. Nevertheless, preliminary evidence (i.e., Bozionelos & Singh, 2017; Greenidge et al., 2014) is aligned with the aspects discussed above, by supporting that trait-EI facets are positively linked with citizenship performance.

Despite remaining scarcely addressed in previous research, the beneficial impact of trait-EI upon citizenship performance is also expected to occur in more complex jobs. This encompasses higher demands in terms of solving complex and non-standardized tasks, decision-making and the need to establish positive social interactions with several work counterparts, especially when such jobs are organized in teamwork structures (Salgado, 2017b; Wilmot & Ones, 2021). Conversely, in low-complexity jobs, most task procedures are standardized, which limits the expression of individual dispositions by constraining related behaviours to adhere to such prescribed procedures (Meyer et al., 2009). Thus, higher-complexity jobs ascribe substantially higher autonomy and discretion to their incumbents to express their traits in making decisions, interacting and accomplishing more ambiguous and complex work duties (Bowling et al., 2015; Meyer et al., 2009). Hence, it is plausible to expect that more complex jobs will promote the expression of trait-EI as well, fostering its positive effects on citizenship performance. In face of these challenging demands and the implied need to establish and maintain positive social interactions, employees with higher trait-EI will be better equipped to provide valuable support to co-workers and the whole organization in accomplishing work goals (Greenidge et al., 2014; et al., 2004; Miao et al., 2017a).

Taking all these aspects into consideration, we contend that EI and its facets will emerge as a meaningful predictors of citizenship performance in the context of the high-complexity software engineering job under study. Therefore, we hypothesize that:

Hypothesis 1a. Trait-EI is positively related to citizenship performance.

Hypothesis 1b. Trait-EI facets are positively related to citizenship performance.

The Mediating Role of Job Satisfaction on the Links Between Trait-EI, its Facets and Citizenship Performance

Job satisfaction constitutes one the most studied variables in the organizational behaviour literature, interesting both scholars and practitioners for decades (Judge et al., 2001; Judge et al., 2017). Commonly defined as “a pleasure or positive emotional state resulting from the appraisal of one’s job or job experiences” (Locke, 1976, p.1304), it involves an attitudinal response to several aspects of the job, encompassing cognitive and affective components.

In spite of the extensive research on job satisfaction, the identification of its main dispositional and situational determinants, along with the understanding of how they may interplay to impact job performance, still remain stimulating

research questions (Bowling et al., 2015; Judge et al., 2017). In this regard, we draw upon previous research developments showing a positive and meaningful link between EI and job satisfaction (Miao et al., 2017b, 2017c), as well as upon social exchange theory (Blau, 1964) to propose that job satisfaction will emerge as a significant mechanism through which trait-EI affects citizenship performance at a high job-complexity level. In accordance with the theoretical propositions of affective events theory (Weiss & Cropanzano, 1996), individual enduring dispositions, such as trait-EI, contribute to shape individuals' affective and attitudinal responses at work, i.e. job satisfaction, which in turn impact on their work behavioural patterns, including their performance. Related research efforts further advocate that high-EI individuals will experience enhanced levels of job satisfaction because they tend to be more successful in emotional appraisal and regulation (Greenidge et al., 2014; Miao et al., 2017b, 2017c). This enables them to cope better with stressful and negative work events, to display positive moods more often, and to foster the quality of the interactions with supervisor and co-workers, thereby leading to higher levels of job satisfaction (Gong et al., 2020; Li et al., 2018). The meta-analytic work conducted by Miao et al. (2017b, 2017c) provided consistent support for the positive influence of EI on job satisfaction, showing meaningful links between trait-EI measures and this core work attitude.

Empirical research on this matter is, again, particularly underdeveloped at the EI-facets level. Still, as some authors have postulated, whereas regulation of emotion (ROE) affects job satisfaction and performance by improving the quality of social work interactions, accurate appraisal and awareness of emotions (SEA and OEA), along with the use of emotions to facilitate constructive activities (UOE), constitute intrapersonal mechanisms through which trait-EI facets might play a role in mitigating the impact of negative and stressful work situations, fostering increased job satisfaction (Gong et al., 2020; Kafetsios & Zampetakis, 2008; Wong & Law, 2002).

Building upon these aspects and adopting a multidimensional view of job performance, we argue that the positive effect of trait-EI and its facets on job satisfaction will translate into higher levels of citizen performance, specifically at a high job complexity level where incumbents have greater autonomy and behavioural flexibility.

According to social exchange theory (Blau, 1964), individuals seek to maintain what they give and receive in balance in the context of their social exchanges and tend to reciprocate to the other counterparts when receiving benefits from them. Based on this theoretical framework, Organ and Ryan (1995) theorized that employees who benefit from more positive job attitudes, i.e. job satisfaction, will seek to positively reciprocate to the organization by showing enhanced performance, especially through behaviours in which they have more discretion, such as citizenship behaviours. Indeed, these behavioural forms are arguably more spontaneous and voluntary, mainly in comparison with task performance behaviours which are formally prescribed and explicitly linked to the fulfilment of job technical duties. As highlighted by Organ (2018), such behaviours represent "informal modes of cooperation and contributions that participants render as a function of job satisfaction and perceived fairness" (p. 297).

Current meta-analytic evidence is consistent with this rationale, supporting a positive link between trait-EI and job satisfaction (Miao et al., 2017a), but also a positive effect of job satisfaction on citizenship performance (Ilies, Fulmer, Spitzmuller, & Johnson, 2009; Organ & Ryan, 1995). Additionally, primary research, albeit limited, has reported positive links between trait-EI facets and job satisfaction (Greenidge et al.,

2014; Kafetsios & Zampetakis, 2008; Wong & Law, 2002). Consistently, preliminary research suggests that job satisfaction seems to represent a critical process through which trait-EI and its facets enhance citizenship performance (Greenidge et al., 2014; Li et al., 2018). By taking these aspects into consideration, this paper aims to contribute to extending current understanding about psychological processes through which trait EI enhances citizenship performance, by testing this attitudinal mechanism at a high level of job complexity. As previously noted, complex jobs grant greater autonomy and latitude for decision-making to their incumbents, since inherent operating procedures (e.g., defining strategies, setting goals, solving non-repetitive problems, interacting and coordinating with others) are more complex, integrative and ambiguous, and thereby impossible to be entirely prescribed (Meyer & Dalal, 2009; Salgado, 2017b). Unlike low-complexity jobs in which many procedures are standardized, more complex jobs place less behavioural/decisional constraints on incumbents, allowing them to perform in a way which is more consistent with their job attitudes (Meyer & Dalal, 2009). As emphasized by Judge et al. (2001), "when there are fewer situational constraints and demands on behaviour, correlations between individual characteristics and attitudes (e.g., job satisfaction) have a stronger potential to affect behaviors (e.g., job performance) (...) incumbents in complex jobs are relatively free of such situational constraints on behaviors" (p. 389).

Previous meta-analysis regarding the links between job satisfaction and job performance supports such a proposition, showing that the influence of job satisfaction on individual performance is effectively stronger in high-complexity jobs (Bowling et al., 2015; Judge et al., 2001). Integrating these aspects with the premises of social exchange theory discussed, we posit that the effect of trait-EI and its facets in enhancing citizenship performance, through job satisfaction, is more likely to occur with greater strength in more complex jobs. As discussed, these jobs comprise work situations which are more conducive to fostering the positive impact of EI on job satisfaction and letting social exchange and reciprocity processes, enabled by this attitude, drive citizenship performance. Thereby, in the frame of the high-complexity job of software engineering, we hypothesize that:

Hypothesis 2a. Job satisfaction mediates the relationship between trait-EI and citizenship performance.

Hypothesis 2b. Job satisfaction mediates the relationship between trait-EI facets and citizenship performance.

Method

Participants

This study was conducted with a convenience sample of software engineers, from a multinational information-technology firm. Job incumbents performed their duties in small semi-autonomous teams, including software coding, testing, quality assurance and project management. As mentioned above, only incumbents pertaining to this software engineering job were considered eligible to participate in the study, to ensure that a high level of complexity job was sampled.

Instruments

Emotional Intelligence was measured by using Wong and Law's 16-item self-report Emotional Intelligence Scale (WLEIS). This instrument was especially conceived for management studies and assesses the four dimensions of EI (SEA, OEA,

UOE and ROE). Each dimension is evaluated with four items including “I really understand what I feel” for SEA; “I am sensitive to the feelings and emotions of others” for OEA; “I would always encourage myself to try my best” for UOE; and “I have good control of my own emotions” for ROE. All items were provided with a 5-point Likert response scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The total score of the scale is purported to represent an underlying, high-order trait-EI construct which reflects its four facets (Wong & Law, 2002). Previous research has provided cumulative support for this high-order measurement model (Bozionelos & Singh, 2017; Kafetsios & Zampetakis, 2008; Law et al., 2004). Cronbach’s alphas obtained were .86 for SEA, .78 for OEA, .72 for UOE, .90 for ROE and .81 for trait-EI. Respective items’ scores were summed to indicate the EI constructs under study.

Job satisfaction was measured using the 5-item version from Brayfield and Rothe’s (1951) overall job satisfaction scale. This instrument is commonly used in related research, with evidence supporting the adequacy of its psychometric properties (Judge & Klinger, 2008). An item example is “I feel fairly satisfied with my present job”. Responses were obtained using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree. Cronbach’s alpha was .79.

Citizenship Performance was assessed through supervisor ratings on the 6-item unifactorial citizenship performance scale developed by Propat and Jones (2009). Supervisors were asked to assess to what extent each item accurately described the performance of the respective employee over the last six months, using a 5-point Likert scale ranging from 1=not at all accurately to 5=very accurately. A sample item includes “Cooperates fully with others by willingly sacrificing own personal interests for the good of the team”. Cronbach’s alpha was .82.

Data Collection Procedures and Ethical Considerations

Following a predictive design, multisource data from the employees and respective supervisors were collected in two distinct phases. During the first phase, all 192 software engineers were invited to answer an on-line survey during regular working hours, including EI and job satisfaction measures. In the first section of the survey, the main research goals were briefly explained and participants were asked for their informed consent, emphasizing that their participation was voluntary and that all answers would be kept confidential. Participants were also briefed about the possibility of withdrawal at any time, as well as the fact that collected data would be analysed at the global level and used exclusively for research purposes.

After six months, during the second phase of data collection, their citizenship performance was rated by the correspondent direct supervisor ($N = 74$) in the context of the company’s formal performance appraisal system. Supervisors were made aware of the goals of the current study and that ratings provided regarding the citizenship performance of their subordinates would be kept strictly confidential and used for research purposes only. In total, matched data from 141 employee-supervisor dyads were obtained, constituting this study’s final sample, representing a response rate of 73%. Most participants were male (92%), with an average of 30.22 years ($SD=4.31$). Their average organizational tenure was 3.22 years ($SD=1.70$).

Data Analysis Procedures

Prior to the test of the proposed hypotheses, the construct validity of all scales used to measure the variables under study was

assessed. Since the use of confirmatory factor analysis was not possible due to sample size constraints, exploratory factor analysis was alternatively employed (Pituch & Stevens, 2016). Using principal-axis factoring with oblimin rotation, the expected six-factor solution emerged accounting for 64.87% of total variance (i.e. four factors corresponding to trait-EI facets, plus two other factors of job satisfaction and citizenship performance), with all items displaying clean and appropriate loadings on the respective factor (see Appendix A). These results support the scales’ adequate convergent and discriminant validity.

Results

As displayed in Table 1, while trait-EI and the facets of SEA and UOE were positively and significantly correlated with citizenship performance, weak and non-significant relationships were obtained for OEA and ROE. Consistent with our expectations, job satisfaction was positively linked with supervisor ratings of citizenship performance.

In order to test the research hypotheses and since our data structure was partially nested (74 supervisors rated an average of 1.91 individuals on citizenship performance, $SD=1.16$), hierarchical linear modelling (HLM) computed on R software (multilevel package) was used to account for possible non-independence of supervisor ratings. The intraclass coefficient ($ICC_{(1)} = .37$) indicated that supervisors account for about 37% of the variability in individuals’ citizenship performance ratings, supporting the appropriateness of multilevel modelling. The examination of the intercept variability by estimating an unconditional means model (or null model) also supported the use of multilevel analyses. The -2 Log likelihood (-2LL) value (272.84) of the model with a random intercept is smaller than the -2LL value (286.88) of a model without a random intercept, and the difference is statistically significant (14.04, $p < .001$). Thus, a random intercept model was required to adequately account for the nested nature of our data concerning citizenship performance ratings (Bliese, 2016).

Table 2 summarizes the main results from multilevel analyses. Consistent with H1, trait-EI emerged as significant predictor of citizenship performance, after controlling for employee tenure (Model 3). However, trait-EI predictive contribution turns non-significant when job satisfaction effects are also considered (Model 4), which suggests, as postulated by H2a, a mediating role of this job attitude on the relationship of trait-EI with citizenship performance. To test this hypothesis, required multilevel mediation analysis was performed using the product of coefficients method ($P=z\alpha \cdot z\beta$) of MacKinnon et al. (2002). Main results were the following, trait-EI was shown to have a significant relationship with job satisfaction ($\alpha=0.60$, $SE=0.13$, $p < .001$); job satisfaction has a significant relationship with citizenship performance after controlling for trait-EI ($\beta=0.42$, $SE=0.08$, $p < .001$); and the estimated mediated effect ($\alpha\beta = 0.25$) was statistically significant ($P=z\alpha \cdot z\beta=24.26$, $p < .01$). Since the direct effect of trait-EI on citizenship performance was not significant ($\tau=0.05$, $SE=0.13$, n.s.), job satisfaction fully mediates this relationship, supporting H2a.

Next, a second multilevel analysis was conducted to test the mediating effects of job satisfaction on the relationships between EI-facets and citizenship performance, as postulated by H2b. Yet, previously, to examine which facets are significantly related with the mediator, i.e. job satisfaction, it was regressed on the four independent variables, i.e. EI-facets, using ordinary least square regression. The resulting model was significant and accounts for 15% of job satisfaction variance ($F(4,136)=5.88$, $p < .001$), yet only

Table 1
Descriptive statistics and inter-correlations

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1. Sex ^a	1.09	.28	--									
2. Age	30.22	4.31	-.08	--								
3. Tenure	3.22	1.70	.00	.29***	--							
4. Trait-EI	61.15	6.38	.01	.03	.15	--						
5. SEA	16.19	2.46	-.06	.05	.15	.72***	--					
6. OEA	14.78	2.26	.14	.02	.15	.59***	.39***	--				
7. UOE	15.35	2.45	.01	.06	.14	.61***	.22**	.18*	--			
8. ROE	14.83	2.81	-.06	-.05	-.03	.63***	.25**	.05	.18*	--		
9. SAT	18.62	3.22	.04	-.05	.05	.37***	.29***	.20*	.28**	.19*	--	
10. CIT	21.72	3.97	.03	.00	.24**	.22**	.17*	.13	.18*	.08	.45***	--

Notes. *N*=141. ^aMales were coded as 1.**p* < .05,***p* < .01,****p* < .001.

Table 2
HLM results for job satisfaction as mediator of the EI-trait – citizenship performance link (model 3) and of the SEA and UOE facets – citizenship performance links (model 4)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Fixed Effects	Coefficient(SE)	Coefficient(SE)	Coefficient(SE)	Coefficient(SE)	Coefficient(SE)
Intercept	3.61(0.07)***	3.39(0.12)***	2.14 (0.49)***	1.66(0.45)***	
Tenure		0.07(0.03)*	0.05 (0.03)	0.05(0.03)	
EI-trait			0.34 (0.13)*	0.05(0.13)	
Job satisfaction				0.42(0.08)***	
Intercept					1.63(0.40)***
Tenure					0.05(0.03)
SEA					0.01(0.08)
UOE					0.06(0.08)
Job satisfaction					0.42(0.08)***
Random part					
τ_{00}	0.16	0.14	0.14	0.13	0.13
σ^2	0.27	0.28	0.26	0.21	0.21
(-2LL)	272.84	273.20	268,62	243.98	247.72

Notes. Individual-level sample size=141 (nested in 74 supervisors). Unstandardized coefficients are reported with standard errors in parenthesis.***significant at the .001 value;**significant at the .01 level;*significant at the .05 level. τ_{00} = between-group or intercept variance; σ^2 =within-group or residual variance.

SEA and UOE yield a significant and independent contribution for predicting job satisfaction (SEA, $\beta=.19$, $p=.038$; OEA, $\beta=.09$, $p=.320$; UOE, $\beta=.21$, $p=.014$; ROE, $\beta=.10$, $p=.243$). Therefore, the mediating effects of job satisfaction were tested only for these two facets. Organizational tenure effects were also controlled.

The main results of respective mediation multilevel analysis are summarized in model 5 (Table 2). Concerning SEA, the application of MacKinnon et al.'s (2002) method showed that the estimated mediated effect ($\alpha\beta=0.11$) is statistically significant ($P=z\alpha\cdot z\beta=14.59$, $p<.01$) ($\alpha=0.25$, $SE=0.09$, $p=.004$ and $\beta=0.42$, $SE=0.08$, $p<.001$). Regarding UOE, the corresponding mediated effect ($\alpha\beta=0.10$) is also statistically significant ($P=z\alpha\cdot z\beta=14.02$, $p<.01$) ($\alpha=0.24$, $SE=0.09$, $p=.009$ and $\beta=0.42$, $SE=0.08$, $p<.001$). As the direct effects of SEA and UOE on citizenship performance were not significant ($\tau=0.01$, $SE=0.08$, n.s. and $\tau=0.06$, $SE=0.08$, n.s., respectively), the effects of both facets are fully mediated by job satisfaction. Hence, the effect of trait-EI on this performance dimension is totally indirect, through job satisfaction, and seem to operate specifically owing to these two facets. Thus, H2b is partially supported by these findings.

Discussion

The present study was carried out with two relevant and interconnected aims. Firstly, it aimed to contribute for the literature regarding the validity of EI and its facets to predict key behavioural dimensions of job performance beyond task

performance (Bozionelos & Singh, 2017; Miao et al., 2020; O'Boyle et al., 2011), by focusing upon citizenship performance. Moreover, the current paper also intended to make this contribution more specific and informative by providing evidence concerning the link between EI and citizenship performance in a high-complexity job of software engineering. As mentioned, job complexity stands as an important factor impacting on the criterion-related validity of core individual cognitive abilities and trait dispositions (see Salgado, 2017a, 2017b; Wilmot & Ones, 2021). Yet, the examination of its potential effect upon trait EI-job performance links remains unaddressed in extant literature. The present results show that overall trait-EI, as well as SEA and UOE facets, emerge as valid predictors of citizenship performance in the frame of such a high-complexity job.

Thereby, they suggest that these trait-EI constructs play a role in facilitating this key performance dimension, even when core job duties are more complex, ambiguous and performed in a team-oriented setting. These work situations tend to require incumbents to provide higher levels of personal and organizational support, i.e., helping and emotionally supporting co-workers and remaining loyal to the organization despite work hardships (Borman et al., 2014) to solve non-standardized, integrative, and long-term demands (Lai et al., 2013; Organ, 2018). Thus, our results are consistent with recent meta-analytic findings supporting that trait-EI represents a valid predictor of citizenship performance at work (Miao et al., 2017a), but also complement available evidence by referring to a high-complexity

job of software engineering. Moreover, unlike the majority of empirical research on the link EI-citizenship performance, which mostly relies upon self-reports of citizenship performance (see Miao et al., 2017a), our findings support this positive link using supervisors' ratings, as recommended by Joseph and Newman (2010).

The second intention of this study was also to extend the relatively scarce research devoted to establishing the psychological mechanisms underlying EI-job performance links, especially concerning core performance dimensions (Li et al., 2018; Miao et al., 2020; Pekaar et al., 2020). Specifically, it tested the mediating role of job satisfaction in the relationship between trait-EI and citizenship performance relationship in the frame of a complex job. The results obtained revealed that this key job attitude represents a mechanism by which trait-EI translates into enhanced citizenship performance and specifically suggest that this process is particularly likely to occur in more complex jobs. Hence, they are consistent with Organ & Ryan's (1995) theorization upon the principles of social exchange theory (Blau, 1964), according to which employees who benefit from higher satisfaction tend to reciprocate the organization, through actions they hold more discretion over, like citizenship performance behaviours.

Furthermore, the results are also aligned with previous assertions and meta-analytic evidence supporting that, in such higher-complexity jobs, incumbents can choose from a broader span of behavioural alternatives when performing their jobs, granting them more discretion to engage in behaviours that are more consistent with their job attitudes (Bowling et al., 2015; Judge et al. 2001; Meyer & Dalal, 2009). These aspects have relevant theoretical implications and warrant credit to the previous rationale built by some authors that EI may improve job performance, in part, by facilitating social exchanges and enabling reciprocity at work (e.g., Greenidge et al., 2014; Law et al., 2004; Miao et al., 2020). More importantly, they further suggest that citizenship performance stands as a critical behavioural outcome that incumbents in more complex jobs tend to rely on to reciprocate the organization for experienced benefits of higher job satisfaction, particularly in terms of subjective well-being at work (see Judge & Klinger, 2008; Judge et al., 2017).

Depicting these effects on a facet level, our findings are in accordance with theoretical propositions that the perceived accuracy with which individuals appraise their work-related emotions and feelings (SEA), as well as the effectiveness to which they channel emotions to facilitate performance (UOE), are two important facets through which trait-EI enables higher satisfaction levels and consequently leads to stronger levels of citizenship performance (Kafetsios & Zampetakis, 2008; Miao et al., 2017b). Hence, concerning the impact of emotion perception on job satisfaction, it seems that self-emotions appraisal might be more important than others-emotions appraisal, arguably because self-emotions are the ingredients of the emotional state or affective part that makes up or builds individual job satisfaction (Judge et al., 2017). Contrary to our expectations, the results do not support the indirect effect of ROE, via job satisfaction, on citizenship performance. These results can be arguably explained by the level of emotional labour demands of the job. As Joseph and Newman's (2010) meta-analysis has shown, the extent to which employees must regulate emotions to perform emotional labour, i.e. "alter their emotional expressions in order to meet the display rules of the organization" (O'Boyle et al., 2011, p.793), is a positive and important moderator of the validity of EI to predict job performance behaviours. Although the job of software engineering sampled in this study demands regular interpersonal

interaction for teamwork activities, it does not qualify as typically high-emotional labour due to its infrequent customer interaction, which can contribute to explaining this absence of ROE effects, a question that deserves further attention in future research.

Besides these contributions, our results have related practical implications. Specifically, they suggest that building a workforce with higher levels of EI can bring important benefits for organizations in terms of enhanced levels of job satisfaction, which will in turn promote stronger citizenship performance. While our findings indicate that job satisfaction is a mechanism which links trait-EI and citizenship performance and further suggest the likelihood of it occurring in more complex jobs, future research is needed to understand whether and to what extent this indirect effect holds in moderate and low levels of job complexity.

Whereas prior meta-analytic findings suggest that the effect of EI on job satisfaction seems to be independent of employee gender, age and organizational tenure (e.g., Miao et al., 2017b, 2017c), the literature remains completely uninformative on whether lower levels of complexity may suppress the positive effects of job satisfaction, particularly the part driven by EI, on performance behaviours. Considering that lower-complexity jobs are posited to constrain the expression of behaviours due to standardization of procedures and implied reduced autonomy (Bowling et al., 2015; Meyer & Dalal, 2009), it is uncertain whether job satisfaction constitutes a ubiquitous route through which EI benefits citizenship performance across job complexity levels. This is an interesting question to address in future research.

Despite such contributions, this study has some limitations. In spite of previous evidence suggesting the non-redundancy of trait-EI, as operationalized in this study, with personality variables for predicting job satisfaction and citizenship performance (Greenidge et al., 2014; Miao et al., 2017a), testing our hypotheses with their inclusion will be more informative. Moreover, our results concern trait-EI only, operationalized with the WLEIS and with respect to a predominantly male sample from a single job of software engineering. While reducing the likelihood of our results being affected by different EI conceptualizations, job and industry type contextual variables, these specificities inevitably constrain the generalizability of our findings. More research with other EI-operationalizations, satisfaction and citizenship performance measures (i.e. facet-level measures) with different job characteristics (i.e. complexity level) is needed to better understand the potential boundary conditions of the EI impact on citizenship performance, via job satisfaction. Likewise, further and concomitant examination of other relevant attitudinal variables (e.g. organizational commitment, interpersonal trust) and their mediating effects on EI-specific performance dimensions will also be important to map how these attitudinal mechanisms build up together and potentially influence performance behaviours at work.

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Appendix A
Factor loadings from exploratory factor analysis of variables under study, using oblimin rotation

Scale and items	F1	F2	F3	F4	F5	F6
Job satisfaction						
4. I find real enjoyment in my work.	.790	.008	-.069	-.084	-.111	.167
5. I consider my job to be rather unpleasant.	.648	-.050	-.025	.002	.042	-.054
3. Each day at work seems like it will never end.	.599	.066	-.012	.043	.209	-.054
2. Most days I am enthusiastic about my work.	.565	-.140	-.132	.022	.082	-.014
1. I feel fairly satisfied with my present job.	.501	.000	.115	.229	.065	.051
WLEIS – Regulation of emotion						
16. I have good control of my own emotions.	.003	-.917	.047	.016	-.038	.024
14. I am quite capable of controlling my own emotions.	.028	-.873	.045	-.042	-.010	.030
13. I am able to control my temper so that I can handle difficulties rationally.	.040	-.830	.050	.004	-.008	.084
15. I can always calm down quickly when I am very angry.	-.034	-.689	-.114	.092	.020	-.035
WLEIS – Others-emotions Appraisal						
6. I am a good observer of others' emotions.	-.122	-.055	-.842	-.072	.020	.083
8. I have good understanding of the emotions of people around me.	-.029	-.058	-.710	.018	.089	.030
5. I always know my friends' emotions from their behavior.	.196	.067	-.701	-.089	-.112	.123
7. I am sensitive to the feelings and emotions of others.	.061	.051	-.468	.143	.030	-.042
WLEIS – Use of emotion						
10. I always tell myself I am a competent person.	-.195	.018	.010	.711	-.005	-.088
11. I am a self-motivating person.	.129	-.165	.078	.653	.063	.078
12. I would always encourage myself to try my best.	.228	-.048	-.096	.638	.000	.066
9. I always set goals for myself and then try my best to achieve them.	.111	-.008	-.101	.436	.016	.081
Citizenship performance						
1. Cooperates fully with others by willingly sacrificing own personal interests for the good of the team.	.047	.158	.045	.066	.709	.079
6. Looks for opportunities to learn new knowledge and skills from others at work and from new and challenging job assignments.	-.056	-.003	-.205	-.007	.694	-.050
5. Goes out of his or her way to congratulate others for their achievements.	.062	.107	.000	.065	.684	.155
2. Knows and follows both the letter and the spirit of organizational rules and procedures, even when the rules seem personally inconvenient.	.121	-.130	.019	-.191	.678	.013
3. Consistently takes the initiative to pitch in and do anything that might be necessary to help accomplish team or organizational objectives, even if such actions are not normally part of own duties.	-.088	-.076	.005	.108	.609	-.032
4. Avoids performing any tasks that are not normally a part of own duties by arguing that they are somebody else's responsibility	.250	-.031	.102	-.094	.491	-.014
WLEIS – Self-emotions appraisal						
2. I have good understanding of my own emotions.	-.112	-.038	.051	-.088	.081	.942
3. I really understand what I feel.	-.019	-.027	-.109	-.078	.013	.812
1. I have a good sense of why I have certain feelings most of the time.	.095	-.118	-.025	.033	.005	.698
4. I always know whether or not I am happy.	.032	.062	-.075	.264	-.029	.614
Eigen value	6.13	3.20	2.86	2.07	1.72	1.53
Explained variance	22.72	11.86	10.59	7.65	6.36	5.68

Notes. N = 141. Pattern matrix values are displayed. Scores of items 1 and 3 from the job satisfaction scale and of item 4 from the citizenship performance scale were previously inverted.

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