TPM®

EVIDENCE OF SYSTEMATIC COGNITIVE ERRORS IN JOB PERFORMANCE SELF-RATINGS

FRANCESCO TOMMASI
RICCARDO SARTORI
ANDREA CESCHI
EVIE MICHAILIDIS
UNIVERSITY OF VERONA, ITALY

STEPHAN DICKERT
QUEEN MARY UNIVERSITY OF LONDON, UK

The present study questions the indiscriminate use — or misuse — of job performance self-rating measures in work and organizational psychology. We provide evidence for systematic cognitive distortions in the traditional predictors (i.e., work engagement and work experience) of self-ratings of job performance. A cross-sectional study was conducted (N = 470) where employees were asked to fill in a questionnaire composed of self-report measures on job performance, work engagement, and systematic cognitive distortions. Findings suggest that highly engaged older (i.e., aging) employees tend to have optimistic judgments of their job performance which was reflected in higher levels of self-rated task performance. Likewise, adults with higher work experience (i.e., long-tenured) tend to adhere to social and organizational conventions in line with cognitive decision rules and systematic distortions which may lead to misjudgment of their contextual performance.

Keywords: Self-rating job performance; Work engagement; Work experience; Cognitive bias; Work and organizational psychology.

Correspondence concerning this article should be addressed to Francesco Tommasi, Department of Human Sciences, University of Verona, Lungadige Porta Vittoria 17, 37129 Verona (VR), Itlay. Email: francesco.tommasi@univr.it

Work engagement and work experience are two central concepts that have been identified as drivers of employees' job performance (Pilipiec et al., 2021). The empirical literature in the field of work and organizational psychology (WOP) has highlighted employees' personal factors as either negative or positive antecedents of work engagement, work experience, and ultimately, job performance (Zacher, 2015). However, job performance assessment has recently raised debates in the field by questioning what self-ratings of job performance really measure. The use of job performance assessments in WOP studies is problematic because of its intrinsic and unequivocal meaning (Bal, 2020; Bal & Dóci, 2018; Islam & Sanderson, 2022; Leicht-Deobald, 2020; Weber et al., 2020). This is because WOP studies often rely on comparative analyses of cross-sectional data to identify possible predictors of job performance (i.e., completion of their role and contextual tasks). However, both in-role and extra-role job performance are also used as measures of organizational productivity. Self-rating measures of job performance simply assess how employees judge themselves in terms of doing or not doing what the organization is asking, for example, higher job performance for higher organizational productivity (Bal, 2020; Islam & Sanderson, 2022; Weber et al., 2020).

The validity of self-rated job performance measures may be affected by employees' distortions of self-judgments (Bellé et al., 2017). Research in cognitive psychology has shown that people with optimistic

orientations and experience can be more susceptible to systematic cognitive distortions in judgment and decision-making (Del Missier et al., 2012; Hess et al., 2001).

In the workplace, employees exhibit diverse self-judgments which may include systematic cognitive distortions (Ceschi et al., 2017). For example, employees might consider their work procedures as the most effective due to their extensive experience in the same workplace. However, such a self-judgment might be distorted by overestimating their abilities at work. This, in turn, can lead to under/overestimations of their job performance due to employees' positive (or negative) perception of their work engagement (the extent to which employees feel involved in and enthusiastic about their jobs; Bakker & Demerouti, 2008) and work experience (work experience accumulated in the same workplace; Ceschi et al., 2017; Levy, 1994).

Drawing upon a cognitive psychological approach, the presence of these distortions can be seen as the precursor of self-serving bias (i.e., a distorted cognitive process due to the need to maintain a positive image of oneself and one's abilities; Forsyth, 2008). This is the case for positive framing effects and the application of decision rules. The former is the tendency to make optimistic self-judgments. The latter is the cognitive strategy of applying decision rules as a tendency to adhere to external rules rather than following rational and logical reasoning (Shepperd et al., 2008). These distortions can interact with employee's engagement and experience and lead to an over/underestimation of their (in-role) task performance or (extra-role) contextual performance. For example, employees who tend to feel highly engaged at work and exhibit optimistic self-judgments overestimate their job performance. Likewise, employees with higher experience who also adhere to organizational expectations (e.g., via using decision rules) exhibit an overestimation of their performance.

In this paper, we critically reflect upon the custom of using self-rating assessments of job performance and showcase the effects of cognitive errors in these ratings. In our study, we refer to WOP dimensions that are related to higher levels of task and contextual job performance (i.e., work engagement and work experience) and question whether specific judgment errors can affect employees' self-judgments and self-ratings of their job performance.

Literature Review

Antecedents of Higher Levels of Self-Ratings of Job Performance

In WOP literature, there is a broad consensus on the crucial roles of work engagement and work experience as drivers of self-ratings of job performance. Firstly, work engagement is an individual positive state that precedes higher levels of job performance independently of other demographic characteristics (e.g., age, gender). Engaged employees are often more open to opportunities at work, are more outgoing and helpful to others, and are more confident and optimistic (Cropanzano & Wright, 2001; Schaufeli & Van Rhenen, 2006). For example, despite the negative relationship between aging and job performance, employees' work engagement is deemed to be a potential moderator between their age and higher self-ratings in their role tasks (Bakker & Demerouti, 2008; Cooper & Leiter, 2017). Conversely, negative psychological states represent the opposite end of the energy continuum of work engagement, namely, exhaustion (Bakker & Demerouti, 2014; Demerouti & Bakker, 2008). Exhaustion is defined as a chronic state of physical and emotional depletion that results from excessive job demands and continuous hassles which, in turn, can lead to lower levels of self-rated job performance (Wright & Cropanzano, 1998).

WOP scholars have studied the positive and negative effects of employee work engagement and exhaustion by evaluating their mediating effects in the association between specific demographic factors

(e.g., age) and job performance. That is, in the study of aging employees, work engagement represents the means through which older employees may succeed in their role tasks and report having higher levels of job performance. Building on the Job Demands and Resources (JD-R) model, Douglas and Roberts (2020) recently argued that older employees may have higher work engagement as they have developed personal resources such as job competencies to manage job demands (Bakker & Demerouti, 2008). Accordingly, such competencies should lead aging employees to feel more motivated and satisfied with their work, both of which enhance their level of work engagement. Yet, older employees may experience negative effects of age, such as career plateauing and need for training and development, which in turn may challenge their work engagement. This may distress older employees and negatively influence their personal resources (e.g., task-specific knowledge, competence) reducing their job performance. Ultimately, we can assume the following hypothesis:

Hypothesis 1a: Work engagement significantly moderates the positive association between employees' aging and self-ratings of job performance.

Hypothesis 1b: Exhaustion significantly moderates the negative association between aging and self-ratings of job performance.

Likewise, empirical evidence suggests that work experience obtained through long organizational tenure is a potential factor for higher self-rated job performance among employees independently of the negative effects of aging (Ng & Feldman, 2009). While chronological age refers to all the psychological and physical changes during the lifespan of individuals (e.g., emotions, needs; Ng & Feldman, 2008) which may affect employees' job performance, work experience refers to (1) a specific job (i.e., occupational/job-related work experience accumulated in the same job sector) and/or (2) workplace experience (i.e., work experience accumulated through organizational tenure; Kooij & Van de Voorde, 2015; Kooij et al., 2020; Kunze et al., 2015; Quiñones et al., 1995). In contrast to occupation/job-related work experience, work experience related to the workplace is deemed to be an individual aspect that influences working outcomes. It does so by moderating the negative association of job performance with aging (Ng & Feldman, 2009; Tesluk & Jacobs, 1998). Indeed, occupation/job-related work experience may cover a series of different aspects of the same job which may not reflect the adherence to the organizational requirements.

Conversely, work experience (conceptualized as the number of years in the same organization) can foster employee's adherence to organizational norms and requirements. Work experience represents a personal resource that employees may refer to when dealing with organizational requirements (Bakker & Demerouti, 2008). Empirical evidence has demonstrated that employees with higher levels of work experience report higher job performance (Kooij & Van de Voorde, 2015; Kooij et al., 2020; Ng & Feldman, 2009). Due to the experience employees obtain through organizational tenure, they feel more capable of succeeding in their work independently of possible detrimental effects due to their age. Accordingly, work experience can also act as a personal resource in situations that lead to exhaustion.

Independently of the individuals' psychological exhaustion and aging, work experience can affect the individual level of self-rated job performance. Experienced employees should feel more capable of succeeding at work because they adhere to organizational rules (Demerouti et al., 2010; Morris & Cunningham, 2013; Tentori et al., 2001). Accordingly, we propose the following hypotheses:

Hypothesis 2a: Work experience significantly moderates the negative association between aging and self-rated job performance.

Hypothesis 2b: Work experience moderates the effect of exhaustion between aging and self-rated job performance.

The Influence of Systematic Cognitive Distortions on Self-Ratings

Taken together, the effects of higher levels of both work engagement and work experience on job performance may reflect employees' optimistic self-judgments (Bellé et al., 2017). The processes underlying individuals' judgments can involve specific and systematic cognitive distortions that facilitate quick and positive self-judgments (Dale, 2015). However, these distortions can lead to faulty conclusions as they represent systematic deviations from norms or rationality, and objectivity in self-judgment. In this vein, employees with higher levels of work engagement may tend to have a generally optimistic self-evaluation when rating their task performance. Likewise, employees with higher levels of work experience may exhibit a general overestimation of their self-ratings of contextual job performance.

Viewed through a cognitive psychological approach, engaged and experienced employees may be more susceptible to the so-called (a) positive framing effect and (b) the application of decision rules, respectively. On the one hand, positive framing refers to the effect that occurs when two "logically equivalent (but not transparently equivalent) statements of a problem lead decision-makers to choose options" (Rabin, 1998, p. 36) that serve to confirm individuals' personal view. At the workplace, when an employee is asked to rate their personal choices or views, positive framing could act as a cognitive bias supporting positive and optimistic evaluations and motivations (i.e., work engagement). That is, highly engaged individuals with a positive framing bias may tend to be optimistic about their role and therefore feel more performative than they actually are. Faced with working memory constraints, less effective inhibition of distractions, and a compromised ability to recollect information, older adults are more likely to exhibit cognitive distortions than younger adults, in particular positive framing (Olsen, 2015). Specifically, highly engaged employees may have more positive and optimistic self-judgment when asked to report their adherence to their role tasks.

Hypothesis 3a: Positive framing moderates the association between work engagement and self-ratings of job performance.

Furthermore, work-experienced employees may adhere to the contextual rules to a greater extent. This strategy is in line with the tendency to apply similar decision strategies to a variety of complex situations, information, and conditions. As such, individuals who apply these decision rules may overestimate their performance. The effectiveness of these decision strategies has been the object of prior research on people's overall judgment and decision-making and their impact on proactive behaviors and positive self-perception (Del Missier et al., 2012). According to Hess and colleagues (2001), as people accumulate work experience, they develop the tendency to conserve mental energy, which may produce cognitive distortions unless they are explicitly motivated to use detailed processing.

Hypothesis 3b: The use of decision rules moderates the association between work experience and self-ratings of job performance.

Hypothesis 3c: The use of decision rules moderates the association between work experience and the effect of exhaustion on self-ratings of job performance.

Method

Participants and Procedure

We used a questionnaire to assess self-reported job performance, systematic cognitive distortions, and several other variables. Of the 550 paper-and-pencil questionnaires that we sent to five Italian companies operating in the private service sector (e.g., administrative office sector, general service assistance, company

support services), a total of 470 employees (females 48.93%, *n* = 230, age-range 18-61, *M* = 35, *SD* = 9.92) filled and returned the questionnaire (response rate 85,5%). The majority of the sample reported having a high school diploma (61.3 %, *n* = 288), 4.4 % (*n* = 21) a bachelor's degree, and 20.2 % (*n* = 95) a master's degree, while the rest of the participants reported having other specializations such a second level master's degree (8.1%, *n* = 38), research doctorate (5.7%, *n* = 27); only one participant did not report their level of education. Concerning work experience, we asked participants to report their organizational tenure (i.e., years of service in the same workplace), which ranged between 0 and 37 years, *M* = 12, *SD* = 8.41. This study was approved by the Ethical Review Committee at a mid-sized Italian university. Participants had to provide informed consent before filling in the questionnaire.

Instruments

We assessed work engagement (WE) by the use of the Italian short version of the Utrecht Work Engagement Scale (UWES; Schaufeli & Van Rhenen, 2006). The measure comprises nine items, three of which refer to the vigor component (e.g., "At work, I feel bursting with energy"), three to the absorption component (e.g., "I am immersed in my work"), and three to the dedication component (e.g., "I am enthusiastic about my job"). In our study,we limited to use the two scales assessing vigor (three items) and dedication (three items) to assess the core dimensions of engagement (Hakanen et al., 2006; Salanova & Schaufeli, 2008; Schaufeli et al., 2009). Responses were scored on a 7-point rating scale measuring the extent to which the three components were experienced by the employees (1 = *never*, 7 = *always*; Cronbach's α = .88). Exhaustion was assessed by the use of three items of the Oldenburg Burnout Inventory (e.g., "There are days when I feel tired before I arrive at work"; Bakker & Demerouti, 2008) on a 4-point rating scale of agreement (1 = *totally disagree*, 4 = *totally agree*; α = .77).

Participants' systematic cognitive distortions were assessed by using the Italian version of two subcomponents of the Adult-Decision Making Competence (A-DMC; Del Missier et al., 2012), namely "resistance to framing" and "applying decision rules." The A-DMC battery is a tool for assessing individual differences in decision-making competencies, and more specifically predicting the quality of a real-life decision by its processes. Resistance to framing and applying decision rules are two of the seven sub-components of the A-DMC battery assesses (Bruine de Bruin et al., 2012). All in all, the A-DMC component tasks are treated as reflective indicators of latent constructs and show good internal consistency and sufficient external validity when compared with real-world decision outcomes (Bruine de Bruin et al., 2012).

Firstly, the resistance to framing subcomponent assesses whether individuals make choices affected by framed information. Positive framing measures the consistency of responding across 14 equivalent but opposite-framed item pairs. Some of the items are framed as gains while the others are framed as losses. Then, respondents were asked to rate their choice preference among either a risky or riskless option in the choice-framing task or on an attribute, such as program effectiveness for attribute-framing items: "Imagine that recent evidence has shown that a pesticide is threatening the lives of 1,200 endangered animals. Two response options have been suggested. If Option A is used, 600 animals will be saved for sure. If Option B is used, there is a 75% chance that 800 animals will be saved and a 25% chance that no animals will be saved. Which option do you recommend to use?" Choices were made on a 6-point rating scale (1 = *definitely prefer Option A*, 6 = *definitely prefer Option B*; α = .68). Then, positive framing was determined by the mean absolute difference in responses across different frames of the same task. Scores are inverted such that greater positive values are related to greater resistance to framing.

Secondly, the application of decision rules was measured by the 10-item A-DMC subcomponent of applying decision rules. This assesses the ability to follow a set of rules to make an accurate selection from

five options in a multiattribute matrix. Participants were asked to select a DVD system that matched a hypothetical buyer's search criteria (e.g., "Paolo wants to buy the DVD player with the most attribute ratings that were above average"; α = .65). For each scenario, participants chose from a different set of five equally priced DVD players with varying ratings of picture quality, sound quality, programming options, and brand reliability (1 = *very low*, 5 = *very high*). The performance was measured by the number of total correct scores.

To assess individual job performance, we used two dimensions of the Individual Work Performance Questionnaire (IWPQ; Koopmans et al., 2013): the 5-item task performance (α = .88) and the 7-item contextual performance (α = .87) scales. Responses were made on a 5-point rating scale (0 = *never*, 4 = *very often*). A task performance example item is: "I managed to plan my work so that it was done on time," whereas a contextual performance one is: "I actively participated in a work meeting."

Data Analytic Plan

We used the path analysis for testing three exploratory models comprising the interactions between employees' dimensions of work engagement, work experience, and employees' judgment style (i.e., positive framing and decision rules) while controlling for the association between aging and job performance. Three models were tested. Model 1 comprises all the pathways from age to task and contextual performance, namely, age, work engagement, exhaustion, work experience, positive framing, and decision rules. In addition, we included the predicted interactions of age × work engagement, age × positive framing, and age × work engagement × positive framing. Likewise, Model 2 covers all the pathways from age to task and contextual performance in addition to the interaction of work experience × decision rules × exhaustion. Finally, Model 3 is the interconnected model including all the paths and interactions (see Figure 1). Data were analyzed by conducting a path analysis via SPSS Version 21, and Amos.

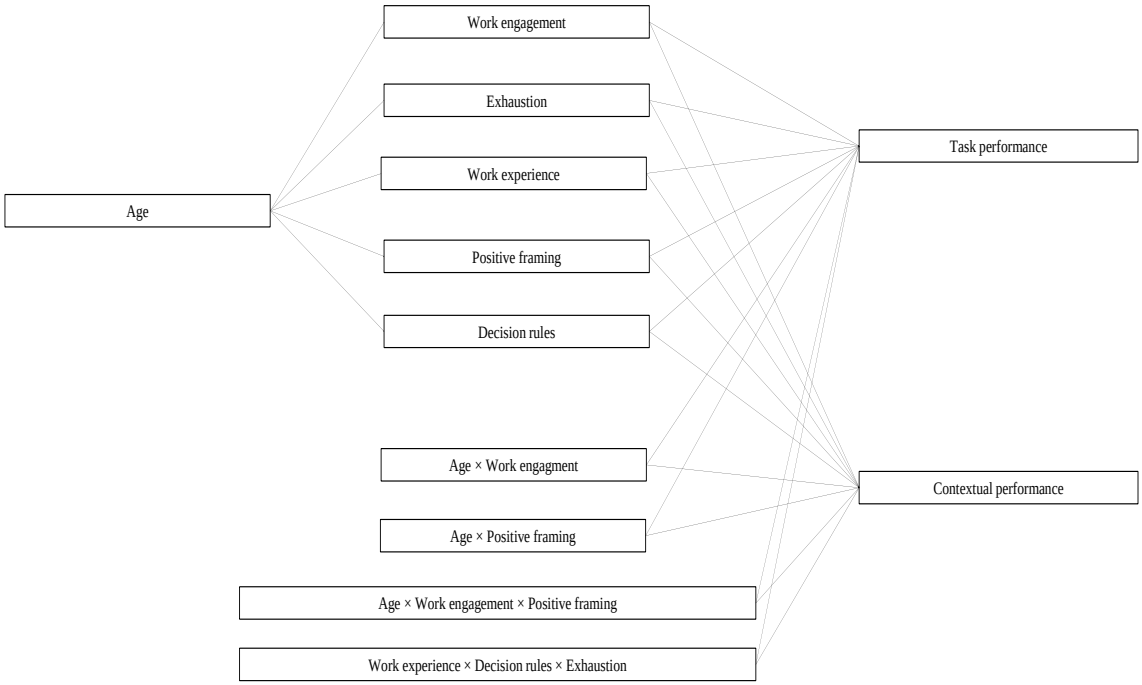

FIGURE 1
Graphic depiction of the interconnected model including all the paths and interactions

RESULTS

Measurement Model and Descriptive Statistics

To test the factorial validity of our measures, we conducted a confirmatory factor analysis using Amos 22.0. To report our findings, we followed established recommendations (Hu & Bentler, 1999). The hypothesized 3-factor model supported the discriminant validity for work engagement and exhaustion, $\chi^2(20) = 177.45$, $p < .001$; CFI = .92; TLI = .90; RMSEA = .03; a 2-factor model supported the discriminant validity for in-role and extra-role performance, $\chi^2(8) = 43.73$, $p < .001$; CFI = .97; TLI = .93; RMSEA = .07; and a 2-factor model for the discriminant validity of positive framing and decision rules, $\chi^2(22) = 179.32$, $p < .001$; CFI = .95; TLI = .91; RMSEA = .07.

We controlled for the effects of an unmeasured latent method factor to verify whether a common method bias existed. After adding the common method factor to the 3-factor model of work engagement and exhaustion, the fitting index of the model was not substantially improved. The resulting RMSEA was .08, the RMSEA reduction was not more than .05, and the resulting CFI = .93 and TLI = .92 were not increased more than .1, indicating that the fit of the model with the method factor did not result in significant improvement. Likewise, common method bias analysis for job performance measures (i.e., 2-factor model plus a common method factor) reported an RMSEA = .08, a CFI = .92, and a TLI = .91. While adding a common factor model to the 2-factor model of positive framing and decision rules resulted in an RMSEA of .09 with CFI and TLI .91 and .89, respectively. Although a common method bias may exist, it had little impact on the study.

Table 1 shows the means, standard deviations, and correlations for the variables of interest in this study. Older adults reported having higher levels of work experience and work engagement. Both positive framing and decision rules measures were negatively correlated with age, with older participants performing worse on these tasks. Moreover, the systematic cognitive distortion measures showed some significant but weak correlations with the work variables of interest. We found that positive framing was associated with task performance, whilst applying decision rules was positively associated with contextual performance. These results suggest relative independence between systematic cognitive distortions measures and the work variables, allaying any potential multicollinearity with analyses involving interactions.

TABLE 1
Means, standard deviations, and correlation matrix of the variables considered in the study

		M (*SD*)	1	2	3	4	5	6	7	8
1.	Age	34.61 (9.92)								
2.	Gender	1.51 (0.50)	−.126*							
3.	Positive framing (PF)	0.19 (0.85)	−.139**	−.051						
4.	Decision rules (DR)	0.48 (0.27)	−.242**	.145**	.067					
5.	Work engagement (WE)	4.09 (0.97)	.160**	−.137**	.027	−.052				
6.	Exhaustion (Ext)	2.51 (0.60)	.003	−.070	.010	.017	−.288**			
7.	Task performance (TP)	3.39 (0.79)	−.162**	−.099*	.133**	.000	.309**	−.219**		
8.	Contextual performance (CP)	2.82 (0.89)	−.256**	.061	.082	.124*	.344**	−.131**	.446**	

Note. Gender: 0 = woman, 1 = men; length of service: tenure expressed in years; employees managed: 1 = up to two supervised co-workers, 2 = three to five supervised co-workers, 3 = six to 10 supervised co-workers, 4 = 11 to 25 supervised co-workers, 5 = more than 25 supervised co-workers.
*$p < .05$; ** $p < .01$.

Path Analysis

Prior to model testing, all variables were standardized. All variables including the moderation terms of the first hypotheses have been patterned as latent factors with a single indicator. All latent factors were adjusted for random measurement error by establishing the random error variance of each construct corresponding to the product of its variance and the quantity minus its original internal consistency. Variables that considered moderator effects were constrained in accordance with Cortina and colleagues (2001) and standardized to estimate the reliability of the interaction terms. Such a procedure is based on the original reliability of both variables used to form a product term and the correlation amongst the two latent variables as a value for the path from the latent interaction factor to its indicator. As for all model variables, the error variance of the indicator of the latent interaction factor was set equal to the product of its variance minus its reliability. Finally, for the variables, the path from the latent variables to their corresponding observed variable was equal to the square root of the reliability of the observed score.

In testing the hypothetical models, Model 1 fit indices suggested an acceptable model — χ^2(33.76, *df* = 20, *p* = .03); NFI = .94; RMSEA = .037; CFI = .97 (Table 2). Consistent with our hypotheses, we found the moderation effect of positive framing on work engagement on task performance. The second model was also acceptable in terms of fit — χ^2(33.60, *df* = 23, *p* = .07); NFI = .92; RMSEA = .030; CFI = .97 — with the moderation effect of age, decision rules, and exhaustion. Because some moderation variables were not significant, we trimmed the model by retaining all the main relationships and the only significant moderations (Model 3, i.e., the interconnected model including all the paths and interactions). Notably, we included only the significant moderations (i.e., work engagement × positive framing × age; exhaustion × decision rules × experience) found in Model 1 and Model 2 testing. Except for the CFI, Model 3 showed an increment in all the fit indexes — χ^2(62.30, *df* = 30, *p* = .11); NFI = .98; RMSEA = .022; CFI = .91.

Simple Slope Analysis

Simple slope analyses were performed to explore the 3-way interactions that emerged in the Path Analysis. We first considered the interaction belonging to Model 1 (work engagement × positive framing × age → task performance) and we used the PROCESS procedure suggested by Hayes (2001) by standardizing variables and controlling for heteroscedasticity. The simple slope analysis revealed that for older employees (chronological age) and for higher levels of PF, a higher level of work engagement has a stronger positive influence on the perceived task performance — both age and PF +1 *SD* above the mean: β = .438, *t*(461) = 5.748, *p* < .001. This effect is also present, though lower in strength, when PF is low — age +1 *SD* above the mean and PF –1 *SD* under the mean: β = .285, *t*(461) = 4.755, *p* < .001. The effect is significantly preserved, but with less strength, even when the age level is equal to the mean across all PF values. Finally, the effect decreases for younger employees, but it reverses its trend. That is, for younger employees and low levels of PF, a higher level of work engagement has a stronger positive influence on the perceived task performance — both age and PF –1 *SD* below the mean: β = .287, *t*(461) = 2.710, *p* < .01 —, whereas for younger employees and high levels of PF, the effect on high work engagement-task performance becomes nonsignificant — age –1 *SD* above the mean and PF +1 *SD* under the mean: β = .139, *t*(461) = 1.441 *p* = .13. See Figure 2 for a graphic representation of the first model-interaction.

TABLE 2
Path analyses model summaries

	Model 1					Model 2					Model 3				
Predictors toward moderators	DR	Ext	Exp	PF	WE	DR	Ext	Exp	PF	WE	DR	Ext	Exp	PF	WE
Age	−.006*** (.001)	.001 (.003)	.28*** (.039)	.011 (.004)	.017*** (.005)	−.007*** (.001)	.001 (.003)	.28*** (.039)	.034 (.044)	.018*** (.005)	−.007*** (.001)	.001 (.003)	.28*** (.039)	.034 (.044)	.018*** (.005)
Predictors toward independent variables	Task performance (TP)			Contextual performance (CP)		Task performance (TP)			Contextual performance (CP)		Task performance (TP)			Contextual performance (CP)	
Age	−.025***(.004)			−.031***(.005)		−.030***(.005)			−.034***(.005)		−.025***(.004)			−.031***(.005)	
Decision rules (DR)	−.131(.138)			−.286(.152)		−.179(.177)			−.272(.171)		−.134(.139)			−.263(.) (.152)	
Exhaustion (Ext)	−.200**(.061)			−.044(.067)		−.224*(.078)			−.039(.075)		−.202***(.061)			−.048(.067)	
Experience (Exp)	−.017***(.004)			−.008(.005)		−.022***(.006)			−.007(.005)		−.017***(.004)			−.006(.005)	
Positive framing (PF)	−.001(.043)			−.023(.048)		−.009(.054)			−.027(.052)		−.001(.043)			−.026(.047)	
Work engagement (WE)	−.227***(.041)			−.387***(.045)		−.298***(.049)			−.393***(.047)		−.226***(.041)			−.37***(.045)	
Age×PF	−.003(.038)			−.022(.041)							−.003(.038)			−.027(.041)	
Age×WE	−.077*(.033)			−.002(.036)							−.077*(.033)			−.002(.036)	
WE×PF	−.024(.046)			−.033(.050)							−.024(.046)			−.024(.050)	
Age×WE×PF	−.070*(.034)			−.062(.037)							−.070*(.034)			−.059(.037)	
Ext×DR						−.032(.052)			−.068(.050)					−.058(.042)	
Exp×DR						−.047(.050)			−.080(.048)					−.080*(.040)	
Exp×Ext						−.082(.046)			−.032(.044)					−.003(.037)	
Exp×DR×Ext						−.014(.049)			−.095*(.047)					−.078*(.039)	

(table 2 continues)

Table 2 (continued)

	Model 1	Model 2	Model 3
χ^2	.33.757	.33.597	.62.298
df	.20	.23	.50
p	.028	.071	.114
NFI	.944	.924	.978
CFI	.974	.971	.910
RMSEA	.037	.030	.022

Note. Prior to analyses all variables were standardized. The number in parentheses is the standard error for the standardized regression coefficient. *df* = degrees of freedom; NFI = normed fit index; CFI = comparative fit index; RMSEA = root-mean-square error of approximation.
* $p < .05$; ** $p < .01$; *** $p < .001$.

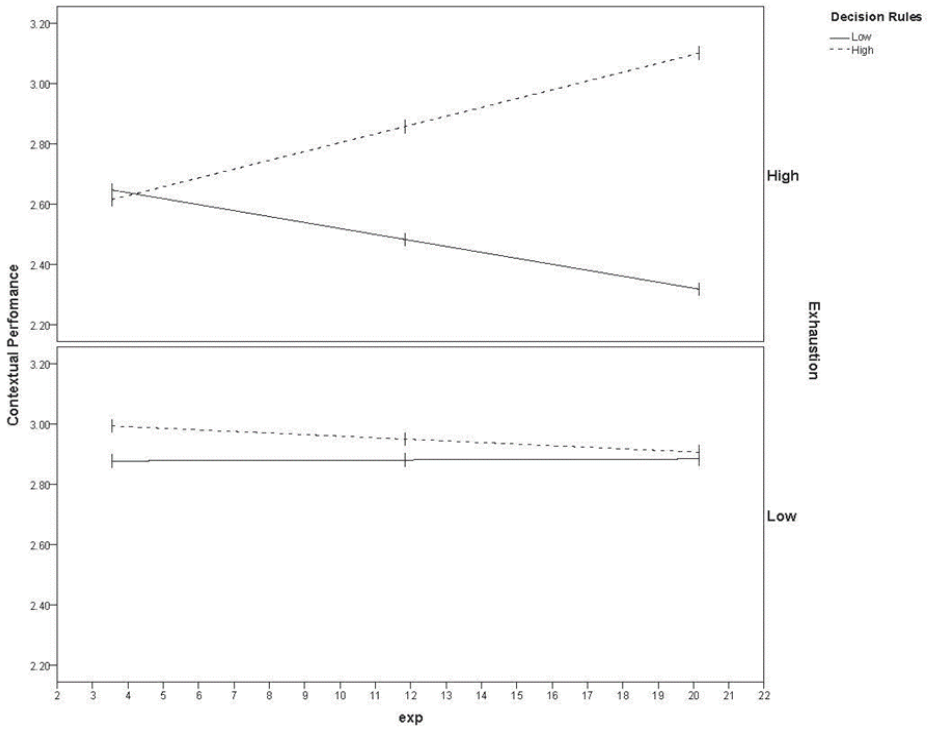

FIGURE 2
Graphic representation of the simple slope analysis on moderation effects of work engagement on task performance

Next, we considered the interaction found in Model 3 (exhaustion × decision rules × experience → contextual performance). The simple slope analysis revealed that for high levels of experience, exhaustion has a stronger negative influence on the contextual performance but only when participants exhibit a low level of decision rule application — experience +1 *SD* above the mean and DR –1 *SD* below the mean: β = –.471, *t*(461) = – 3.825, *p* < .001 —, whereas the effect becomes nonsignificant for high levels of DR — both experience and DR +1 *SD* above the mean: β = .161, *t*(461) = 1.02, *p* = .31. The same pattern is present, but lower in terms of strength, for average levels of experience, whereas the effect overall decreases for low levels of experience and it reverses its trend. To wit, when experience is low but DR high, exhaustion has still a negative influence on the contextual performance — experience –1 *SD* above the mean and DR +1 *SD* below the mean: β = –.315, *t*(461) = –1.988, *p* < .05 —, whereas when both experience and DR are low the effect on the exhaustion-contextual performance relationship becomes nonsignificant — both experience and DR –1 *SD* below the mean: β = –.192, *t*(461) = –1.119, *p* = .26. See Figure 3 for a graphic representation of the second model interaction.

DISCUSSION

In this paper, we question WOP researchers' tendency to use self-ratings of job performance to assess employees' participation in organizational productivity (Lefkowitz, 2008; Van de Voorde et al., 2012). We argue that specific judgment errors (i.e., systematic cognitive distortions) moderate the associations

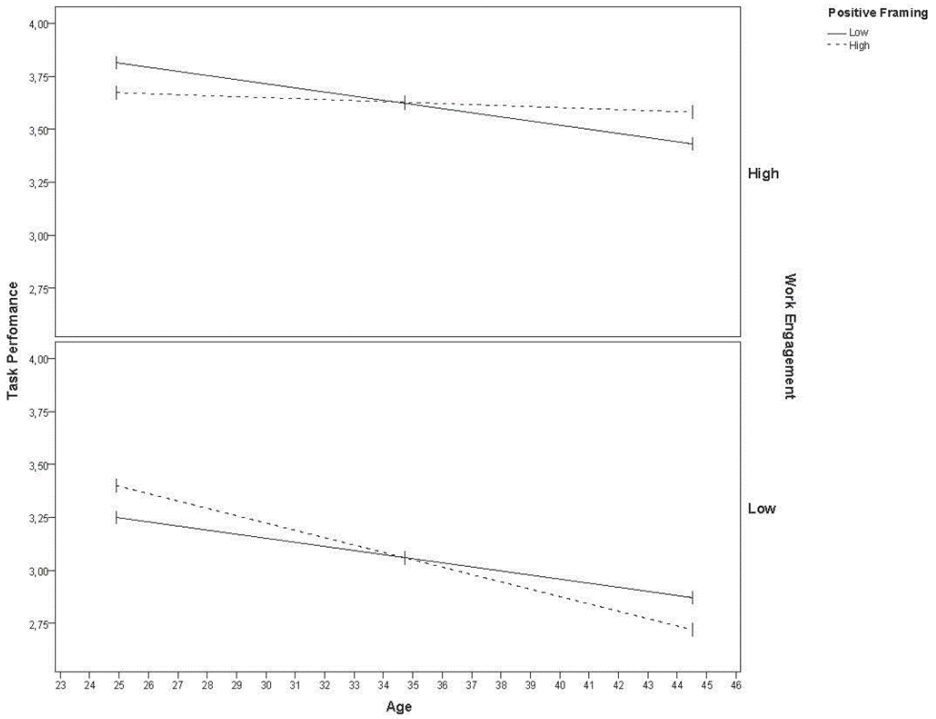

FIGURE 3
Graphic representation of the simple slope analysis on moderation effects of exhaustion on contextual performance

between self-rated job performance and commonly-used variables in empirical WOP studies (i.e., work experience and work engagement; Bellé et al., 2017). Our results indicate that positive framing and application of decision rules can have a substantive effect on associations between work engagement, work experience, and self-rated job performance. When employees are asked to rate their personal task and contextual performance, errors in cognitive judgments occur in the form of self-serving biases (Forsyth, 2008; Shepperd et al., 2008).

The findings of our cross-sectional study are a first step in understanding the effects of systematic cognitive distortions on self-ratings of job performance. First, positive framing has a different effect on self-rated task performance depending on age and level of engagement. For older engaged employees, positive framing leads to a higher self-rated task performance whereas for older less engaged employees, positive framing leads to lower self-rated task performance (see Figure 2), which is in line with previous research (Cropanzano & Wright, 2001; Schaufeli & Van Rhenen, 2006).

Additionally, older and more work-experienced employees develop more pro-active behaviors and use decision rules which affect the way they judge their contextual performance (Ng & Feldman 2009). Also, we found evidence of the role of exhaustion on decision rules. At low levels of exhaustion, a greater propensity to use decision rules improves self-ratings of contextual performance in less-experienced workers. As experience at the same workplace develops, judgment skills appear to be important to preserve individual resources among exhausted employees. In contrast, for those who reported lower work experience, a lower propensity to use decision rules coupled with higher levels of exhaustion leads to even greater self-reported decrements.

With less work experience, exhausted individuals will follow fewer rules and rational thinking. This, in turn, is related to lower self-rated performance (Morris & Cunningham, 2013). Additionally, more exhausted and work-experienced individuals follow decision rules which increases the perception of performing better from the contextual point of view. For less exhausted individuals, no significant differences were found in self-ratings of job performance. However, when individuals are more exhausted, they report following fewer social requirements (i.e., decision rules) which is more evident the more they age. In this case, they don't perceive differences in contextual performance. By contrast, less exhausted individuals tend to adhere to social requirements, and the more they age the less they underestimate their performance. Accordingly, work-experienced employees may refer to their workplace experience as a personal resource to leverage their exhaustion by showing adherence to the organizational requirements.

These results provide initial insights into the role of judgment errors in employees rating their job performance, yet there are some limitations that must be acknowledged. First, studies on the impact of both aging and work experience on self-ratings of job performance are typically best measured via a longitudinal study. In this case, it is also possible to ascertain that employees with higher levels of work experience are retained by organizations for their level of job performance. This limitation is important as it would have allowed a clearer measure of employees' development of systematic cognitive distortions. However, acknowledging Spector's (2019) proposition, a cross-sectional design can represent a first step when the purpose is to investigate the role of dimensions with retrospective questions against current trends of investigations. As such, it can provide evidence that dimensions have long-lasting effects and that such effects are worthy further investigation. Our study was inspired by different research fields, such as gerontology, work and organizational psychology, and provides meaningful information on the pattern of relations between these variables. Therefore, the models tested were designed to explicitly provide initial insights on the substantive role of judgment errors in the investigation of self-ratings of job performance. Future research may try to include more detailed relationships on the moral and pragmatic concerns of aging. We suggest that future research test the degree to which systematic cognitive distortions can predict different kinds of work outcomes (e.g., organizational citizenship behavior), and compare self- and other-ratings of performance (e.g., supervisor- or peer-ratings). Likewise, employees' job performance evaluations could consider the use of cognitive assessment tools to verify their influence on employees' self-ratings.

Conclusion

With this study, we adopt a critical perspective of work and organizational psychology (Bal, 2020; Islam & Sanderson, 2022; Leicht-Deobald, 2020; Weber et al., 2020) to examine the (mis)use of self-reports of job performance. Accordingly, we provided evidence that self-ratings in work contexts can be biased and may be a reliable but not necessarily accurate depiction of an employee's job performance. We invite future researchers in the area of WOP to be cautious with the use of self-ratings by taking into account the role of these cognitive distortions.

References

Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career Development International*, *13*(3), 209-223. https://doi.org/10.1108/13620430810870476

Bakker, A. B., & Demerouti, E. (2014). Job demands-resources theory. In P. Y. Chen & C. L. Cooper (Eds.), *Work and wellbeing: A complete reference guide* (Vol. III, pp. 1-28). Wiley Blackwell. https://doi.org/10.1002/9781118539415.wbwell019

Bal, P. M. (2020). Why we should stop measuring performance and well-being. *Zeitschrift für Arbeits und Organisationspsychologie*, *64*(3), 196-200. https://doi.org/10.1026/0932-4089/a000333

Bal, P. M., & Dóci, E. (2018). Neoliberal ideology in work and organizational psychology. *European Journal of Work and Organizational Psychology*, *27*(5), 536-548. https://doi.org/10.1080/1359432X.2018.1449108

Bellé, N., Cantarelli, P., & Belardinelli, P. (2017). Cognitive biases in performance appraisal: Experimental evidence on anchoring and halo effects with public sector managers and employees. *Review of Public Personnel Administration*, *37*(3), 275-294. https://doi.org/10.1177/0734371X17704891

Bruine de Bruin, W., Parker, A. M., & Fischhoff, B. (2012). Explaining adult age differences in decision-making competence. *Journal of Behavioral Decision Making*, *25*(4), 352-360. https://doi.org/10.1002/bdm.712

Ceschi, A., Demerouti, E., Sartori, R., & Weller, J. (2017). Decision-making processes in the workplace: How exhaustion, lack of resources and job demands impair them and affect performance. *Frontiers in Psychology*, *8*. https://doi.org/10.3389/fpsyg.2017.00313

Cooper, C. L., & Leiter, M. P. (Eds.). (2017). *The Routledge companion to well-being at work*. Taylor & Francis.

Cortina, J. M., Chen, G., & Dunlap, W. P. (2001). Testing interaction effects in LISREL: Examination and illustration of available procedures. *Organizational Research Methods*, *4*(4), 324-360. https://doi.org/10.1177/109442810144002

Cropanzano, R., & Wright, T. A. (2001). When a "happy" worker is really a "productive" worker: A review and further refinement of the happy-productive worker thesis. *Consulting Psychology Journal: Practice and Research*, *53*(3), 182-199. https://doi.org/10.1037/1061-4087.53.3.182

Dale, S. (2015). Heuristics and biases: The science of decision-making. *Business Information Review*, *32*(2), 93-99. https://doi.org/10.1177/0266382115592536

Del Missier, F., Mäntylä, T., & Bruine de Bruin, W. (2012). Decision-making competence, executive functioning, and general cognitive abilities. *Journal of Behavioral Decision Making*, *25*(4), 331-351. https://doi.org/10.1002/bdm.731

Demerouti, E., & Bakker, A. B. (2008). The Oldenburg Burnout Inventory: A good alternative to measure burnout and engagement. In J. R. B. Halbesleben (Ed.), *Handbook of stress and burnout in health care* (pp. 65-78). Nova Science.

Demerouti, E., Cropanzano, R., Bakker, A., & Leiter, M. (2010). From thought to action: Employee work engagement and job performance. In R. Bakker & M. Leiter (Eds.), *Work engagement: A handbook of essential theory and research* (pp. 147-163). Routledge.

Douglas, S., & Roberts, R. (2020). Employee age and the impact on work engagement. *Strategic HR Review*, *19*(5), 209-213. https://doi.org/10.1108/SHR-05-2020-0049

Forsyth, D. R. (2008). Self-serving bias. In W. A. Darity (Ed.), *International encyclopedia of the social sciences* (2nd ed., p. 429). Macmillan.

Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of School Psychology*, *43*(6), 495-513. https://doi.org/10.1016/j.jsp.2005.11.001

Hayes, N. (2001). Boundless and bounded interactions in the knowledge work process: The role of groupware technologies. *Information and Organization*, *11*(2), 79-101. https://doi.org/10.1016/s1471-7727(00)00002-6

Hess, T. M., Rosenberg, D. C., & Waters, S. J. (2001). Motivation and representational processes in adulthood: The effects of social accountability and information relevance. *Psychology and Aging*, *16*(4), 629-642. https://doi.org/10.1037/0882-7974.16.4.629

Hu, L. & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1-55, https://doi.org/10.1080/10705519909540118

Islam, G., & Sanderson, Z. (2022). Critical positions: Situating critical perspectives in work and organizational psychology. *Organizational Psychology Review*, *12*(1), 3-34. https://doi.org/10.1177/20413866211038044

Kooij, D. T., Nijssen, H., Bal, P. M., & van der Kruijssen, D. T. (2020). Crafting an interesting job: Stimulating an active role of older workers in enhancing their daily work engagement and job performance. *Work, Aging and Retirement*, *6*(3), 165-174. https://doi.org/10.1093/workar/waaa001

Kooij, D. T., & Van de Voorde, K. (2015). Strategic HRM for older workers. In P. M. Bal, D. T. A. M. Kooij, & D. M. Rousseau (Eds.), *Aging workers and the employee-employer relationship* (pp. 57-72). Springer.

Koopmans, L., Bernaards, C., Hildebrandt, V., van Buuren, S., Van der Beek, A. J., & de Vet, H. C. (2013). Development of an individual work performance questionnaire. *International Journal of Productivity and Performance Management*, *62*(1), 6-28. https://doi.org/10.1108/17410401311285273

Kunze, F., Raes, A. M., & Bruch, H. (2015). It matters how old you feel: Antecedents and performance consequences of average relative subjective age in organizations. *Journal of Applied Psychology*, *100*(5), 1511-1526. https://doi.org/10.1037/a0038909

Lefkowitz, J. (2008). To prosper, organizational psychology should… expand the values of organizational psychology to match the quality of its ethics. *Journal of Organizational Behavior*, *29*(4), 439-453. https://doi.org/10.1002/job.527

Leicht-Deobald, U. (2020). Recognizing people at work in their full humanity — A commentary on Bal. *Zeitschrift für Arbeits-und Organisationspsychologie*, *64*(3), 200-202. https://doi.org/10.1026/0932-4089/a000335

Levy, R. (1994). Aging-associated cognitive decline. *International Psychogeriatrics*, *6*(1), 63-68. https://doi.org/10.1017/S1041610294001626

Morris, J., & Cunningham, G. (2013). An exploration of intuition among senior leaders. *The Exchange*, *2*(2), 51-63.

Ng, T. W., & Feldman, D. C. (2008). The relationship of age to ten dimensions of job performance. *Journal of Applied Psychology*, *93*(2), 392-423. https://doi.org/10.1037/0021-9010.93.2.392

Ng, T. W., & Feldman, D. C. (2009). Age, work experience, and the psychological contract. *Journal of Organizational Behavior*, *30*(8), 1053-1075. https://doi.org/10.1002/job.599

Olsen, A. L. (2015). Citizen (dis)satisfaction: An experimental equivalence framing study. *Public Administration Review*, *75*(3), 469-478. https://doi.org/10.1111/puar.12337

Pilipiec, P., Groot, W., & Pavlova, M. (2021). The effect of an increase of the retirement age on the health, well-being, and labor force participation of older workers: A systematic literature review. *Population Ageing*, *14*, 271-315. https://doi.org/10.1007/s12062-020-09280-9

Quiñones, M. A., Ford, J. K., & Teachout, M. S. (1995). The relationship between work experience and job performance: A conceptual and meta-analytic review. *Personnel Psychology*, *48*(4), 887-910. https://doi.org/10.1111/j.1744-6570.1995.tb01785.x

Rabin, M. (1998). Psychology and economics. *Journal of Economic Literature*, *36*(1), 11-46.

Salanova, M., & Schaufeli, W. B. (2008). A cross-national study of work engagement as a mediator between job resources and proactive behaviour. *International Journal of Human Resources Management*, *19*(1), 116-131. https://doi.org/10.1080/09585190701763982

Schaufeli, W. B., Bakker, A. B., & Van Rhenen, W. (2009). How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational Behavior*, *30*(7), 893-917. https://doi.org/10.1002/job.595

Schaufeli, W. B., & Van Rhenen, W. (2006). Over de rol van positieve en negatieve emoties bij het welbevinden van managers: Een studie met de Job-related Affective Well-being Scale (JAWS) [About the role of positive and negative emotions in managers' well-being: A study using the Job-related Affective Well-being Scale (JAWS)]. *Gedrag & Organisatie*, *19*(4), 323-344. https://doi.org/10.5117/2006.019.004.002

Shepperd, J., Malone, W., & Sweeny, K. (2008). Exploring causes of the self-serving bias. *Social and Personality Psychology Compass*, *2*(2), 895-908. https://doi.org/10.1111/j.1751-9004.2008.00078.x

Spector, P. E. (2019). Do not cross me: Optimizing the use of cross-sectional designs. *Journal of Business and Psychology*, *34*(2), 125-137. https://doi.org/10.1007/s10869-018-09613-8

Tentori, K., Osherson, D., Hasher, L., & May, C. (2001). Wisdom and aging: Irrational preferences in college students but not older adults. *Cognition*, *81*(3), B87-B96. https://doi.org/10.1016/s0010-0277(01)00137-8

Tesluk, P. E., & Jacobs, R. R. (1998). Toward an integrated model of work experience. *Personnel Psychology*, *51*(2), 321-355. https://doi.org/10.1111/j.1744-6570.1998.tb00728.x

Van de Voorde, K., Paauwe, J., & Van Veldhoven, M. (2012). Employee well-being and the HRM-organizational performance relationship: A review of quantitative studies. *International Journal of Management Reviews*, *14*(4), 391-407. https://doi.org/10.1111/j.1468-2370.2011.00322.x

Weber, W. G., Höge, T., & Hornung, S. (2020). Past, present, and future of critical perspectives in work and organizational psychology. A commentary on Bal (2020). *Zeitschrift für Arbeits-und Organisations Psychologie*, *64*(3), 207-215. https://doi.org/10.1026/0932-4089/a000341

Wright, T. A., & Cropanzano, R. (1998). Emotional exhaustion as a predictor of job performance and voluntary turnover. *The Journal of Applied Psychology*, *83*(3), 486-493. https://doi.org/10.1037/0021-9010.83.3.486

Zacher, H. (2015). Successful aging at work. *Work, Aging and Retirement*, *1*(1), 4-25. https://doi.org/10.1093/workar/wau006