

# Development and Validation of a Self-Reported Measure of Job Performance

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**Abstract** The current turbulent context in which we live in requires, more and more, that organisations focus on improving the workers' performance. Individual performance is more than just the execution of specific tasks and it involves an ample variety of organisational activities that have important implications for the understanding and measurement of job performance. Considering the fact that most individual performance measures are developed in order to be applied in particular job-related contexts or cultures, our goal is to develop a job performance measure that might be applicable across jobs and cultures. After an extensive literature review, and based on studies that were developed in different cultural and job-related contexts, two dimensions—task and contextual—and eight sub dimensions of job performance were found: job knowledge, organisational skills, efficiency, persistent effort, cooperation, organisational consciousness, personal characteristics and interpersonal and relational skills. Confirmatory factorial analysis was used in order to test their relevance. The dimensions 'personal characteristics' and 'persistent effort' were merged. The resulting 29 item scale presents appropriate psychometric properties.

**Keywords** Job performance · Behaviour · Measurement · Task performance · Contextual performance · Confirmatory factor analysis

## 1 Introduction

As organisations continue to adjust to a business world characterized by increasing competition, they need to leverage all their resources in an attempt to differentiate product offerings, offer outstanding quality and value, and deliver their promises of customer

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satisfaction (Hartline and Bejou 2004). The globalisation of markets, the competition and the fast pace of technological development (Boumarafi 2009) are factors that impact on organisations, that are forced to have the intellectual capital (Daud et al. 2010) and knowledge which enable them to obtain and maintain competitiveness (Almashari et al. 2002; Daud et al. 2010). In this sense, they are finding the human element to be critical in achieving financial success (Mohamed et al. 2006). Particularly, nowadays the focus is the optimization of performance (Heavey et al. 2011).

Brewer and Selden (2000) proposed a model to explain organisational performance, according to which there are two factors which characterize the concept: (1) factors relating to the organisation and (2) individual factors. The individual factors are characterized by several aspects, namely individual performance. The authors also note that the variables that have a major impact on organisational performance are those that require more involvement from the workers. So, while measuring and analysing organisational performance as a whole plays an important role in turning organisational goals into reality (Popova and Sharpanskykh 2010), measures of individual performance are particularly important in order to understand the effects of various interventions on occupational functioning (Pransky et al. 2006). In this sense, in order to understand organisational performance it is necessary to understand individual performance, since we must consider not only organisational factors, but also factors that are inherent to the workers or that affect them, individually.

Individual performance is more than just the execution of specific tasks and it involves a wide variety of organisational activities that have important implications for the understanding and measurement of job performance (Arvey and Murphy 1998). The concept is mainly treated as a dependent variable, which makes perfect sense from a practical point of view: individual performance is something organisations want to enhance and optimize (Sonnentag and Frese 2002). Due to the unavailability of objective measurements of work function and performance, various self-reported measures have been employed in a wide range of studies (Pransky et al. 2006).

Therefore, considering the particular importance that individual performance has for organisations nowadays, and the fact that there seems to be a lack of relevant performance measures available, our main goal is to develop a scale that may be applied across contexts and jobs. In order to accomplish this intent, we define the job performance concept. Then, we analyse several studies proposing different performance dimensions, from which we build our own set of dimensions. After, we describe the methodology used and the results.

## 2 Job Performance Definition

Job performance (JP) is characterised as a *dynamic* (e.g., Motowidlo et al. 1997; Sonnentag and Frese 2002), *multidimensional* (e.g., Campbell et al. 1990a, b; Motowidlo et al. 1997; Viswesvaran 2001; Sonnentag and Frese 2002; Cheng et al. 2007), *behavioural* (e.g., Campbell et al. 1990a, b; Motowidlo et al. 1997; Viswesvaran 2001), *episodic* (e.g., Motowidlo et al. 1997) and *evaluative* (e.g., Motowidlo et al. 1997) concept.

The concept is considered to be *dynamic* because it is not constant over time. Variability in an individual's performance reflects (1) learning processes and other long-term changes and (2) temporary changes in performance (Sonnentag and Frese 2002). Individual differences in personality and cognitive abilities, in addition to learning experiences, lead to variability in knowledge, skills, work habits and traits, which mediate the effects of personality and cognitive ability on JP. An ability may be defined as a trait (innate or learned)

that allows a person to do something mentally or physically (Gibson et al. 1994). Cognitive ability refers, in particular, to mental qualification or capacity (Ree et al. 2001). So, the measurement of JP should be done considering one particular period and, preferably, one specific job. JP is *multidimensional*, since one attribute, one outcome or one factor cannot be referred to as JP (Campbell et al. 1990a, b). Thus, there are several manifestations of JP and the explanation of the construct requires the identification of the different dimensions it is composed of (Viswesvaran 2001). JP is *behavioural*, because it consists manifestations of performance (Viswesvaran 2001), behaviours (Campbell et al. 1990a, b; Motowidlo et al. 1997; Viswesvaran 2001) or activities that are considered important to achieve the organisational goals (Campbell et al. 1990a, b; Borman and Motowidlo 1997; Bergeron 2007). The concept is also considered to be *episodic*, since, during a work day, workers adopt several behaviours that neither help nor hinder the organisation accomplish its goals, so this kind of behaviours has no effect on their performance. Therefore, streams of work-related behaviour are characterized by occasions when people adopt behaviours that make a difference regarding the organisational goals (Table 1). JP is *evaluative* as well, that is, performance consists of behaviours that may positive or negative to the organisation or to the individual and it is possible to scale the extent to which they are desirable, with enough precision to distinguish between them (Motowidlo et al. 1997).

One problem related to the performance concept is the distinction between behaviours and outcomes. Performance includes both a behavioural and an outcome aspect (Sonnentag and Frese 2002), and the difference between the two concepts is not always clear (Viswesvaran 2001). Behaviour is what people do at work. Results are the course through which an individual's performance helps or hinders the achievement of organisational goals, and this is the reason why it is more tempting to focus on results (Motowidlo et al. 1997).

However, there are two motives why performance models should focus on behaviour. Firstly, states/conditions of things/people that are changed by JP are also influenced by

**Table 1** Job performance definitions

Authors	Definition
Campbell et al. (1990a, b)	The total population of behaviours and activities that are considered important to accomplish organisational goals. Each of the activities performed at work may require different knowledge and skills, which may be functions of different abilities
Borman and Motowidlo (1997)	There are two types of job performance: task and contextual
Motowidlo et al. (1997)	The aggregated value to the organisation of the discrete behavioural episodes that an individual performs over a standard period. There are two types of job performance: task and contextual activities Behaviour is what people do at work. Performance is behaviour with an evaluative component, that is, behaviour that can be evaluated as positive or negative for the individual or for the organisation
Viswesvaran (2001)	Performance consists of evaluable behaviours. There are several manifestations of individual job performance with the actual operational measures varying across contexts. In this sense, the explanation of the construct involves identifying the dimensions it is composed of
Bergeron (2007)	Behaviours needed to help the organisation reach its goals

Source: Own

other factors that are not under the worker's control. Without adjustments for these irrelevant factors, the perceptible results of an individual's performance do not authentically represent his/her own input to the achievement of organisational goals. Secondly, a behavioural focus is required in order to build up a psychological understanding of selection processes and apply the full range of psychological principles and tools to the problem of prediction more successfully (Motowidlo et al. 1997).

Based on the performance theory that posits the existence of two types of performance, we define task-related performance and contextual performance, two distinct types of behaviour that contribute independently to the effectiveness outcomes of organisations (Griffin et al. 2000). Task performance can be defined as (1) activities that transform raw materials into the goods and services that are the organisation's products (i.e., teaching, performing surgery, cashing checks) or (2) activities that service and maintain the technical core by replenishing the supply of raw materials, by distributing finished products or providing important planning, coordination, supervising or staff functions that enable the organisation to function effectively and efficiently. Thus, task performance is directly related to the organisation's technical core, either by carrying out its technical processes or by maintaining and servicing its technical requirements (Motowidlo et al. 1997).

The kinds of knowledge, skills, work habits and traits related to task performance differ from the ones related to contextual performance (Motowidlo et al. 1997). Contextual activities contribute to organisational efficiency in ways that shape the organisational, social, and psychological context that serves as the catalyst for task-related activities or processes. Contextual performance includes volunteering to perform activities that are not formally part of the job and helping or cooperating with others in order to get tasks accomplished (Borman and Motowidlo 1997). Thus, contextual performance accounts for a type of behaviour that is mainly under the motivational control of workers (Griffin et al. 2000), and it originated from three concepts previously studied: Prosocial organisational behaviours (POB), Effectiveness behaviours and Organisational citizenship behaviours (OCB).

The construct of POB is defined as acts such as helping, sharing, donating, cooperating and volunteering. They are defined as positive social acts performed to create and maintain the well-being and integrity of other individuals. They vary according to whether they are functional or dysfunctional for the organisation's effectiveness, prescribed or not prescribed as part of one's organisational role, and directed towards an individual or an organisational target (Brief and Motowidlo 1986).

Borman et al. (1987) sought to identify a set of criterion behaviours that would include elements of soldier effectiveness not directly related to task performance, but related to a broader conception of JP. The notion was that being a good soldier from the USA Army's perspective is more than just performing the job in a technically proficient manner. It also means performing a variety of other activities that contribute to a soldier's effectiveness in the unit and to his/her overall worth to the Army. The authors developed a model including the following concepts: Organisational commitment, organisational socialization and morale. Commitment and socialization combine to define allegiance, socialization and morale merge to define teamwork, and morale and commitment combine to define determination.

The concept of OCB has different origins: (1) in Barnard's (1938) proposal, according to which the workers' will to cooperate is indispensable for the organisation, (2) in Katz and Kahn's (1978) distinctions of behavioural typologies in organisations, (3) in Organ's (1977) essay, which states that people can adopt a cooperative behaviour in order to respond reciprocally to the work experiences that provide satisfaction, as opposed to the

behaviours inherent to the role, which depend on certain restrictions. Based on Organ's work (1977), Bateman and Organ (1983) measured this new kind of performance.

From then on, several definitions and dimensions were proposed for the concept (e.g., Graham 1991; Williams and Anderson 1991; Organ and Moorman 1993; Van Dyne et al. 1994; Konovsky and Organ 1996; Podsakoff et al. 2000). According to González and Garazo (2006), there are five dimensions of OCB that are more frequently used, which is in agreement with the OCB studies found: (1) *Altruism* (MacKenzie et al. 1993; Organ and Lingl 1995; Konovsky and Organ 1996; Podsakoff and MacKenzie 1997; Rego et al. 2010)—that is defined as 'helping behaviour' (Lo and Ramayah 2009); (2) *Civic Virtue* (MacKenzie et al. 1993; Organ and Lingl 1995; Konovsky and Organ 1996; Podsakoff and MacKenzie 1997; Rego et al. 2010)—the workers' responsibility to participate in the life of the organisation (Podsakoff et al. 2000); (3) *Sportsmanship* (MacKenzie et al. 1993; Organ and Lingl 1995; Konovsky and Organ 1996; Podsakoff and MacKenzie 1997; Rego et al. 2010)—behaviour of warmly tolerating unavoidable irritations (Podsakoff and MacKenzie 1997); (4) *Conscientiousness* (MacKenzie et al. 1993; Rego et al. 2010)—based on how organised, hardworking and responsible the worker is (Lo and Ramayah 2009); and (5) *Courtesy* (Organ and Lingl 1995; Konovsky and Organ 1996; Rego et al. 2010)—related to the prevention of problems at the workplace (Lo and Ramayah 2009).

Borman and Motowidlo (1997) argue that contextual performance is importantly different from task performance in, at least, three ways. Firstly, task activities vary considerably across jobs whereas contextual activities tend to be more similar across jobs. Secondly, task activities are more likely to be role-prescribed than contextual activities. Thirdly, antecedents of task performance are more likely to involve cognitive ability, whereas antecedents of contextual performance are more likely to involve personality variables. This perspective is in agreement with other studies (e.g., Borman et al. 1997; Motowidlo et al. 1997). Ackerman and Heggstad (1997) concluded that abilities, interests and personality develop in tandem, such that ability level and personality dispositions determine the likelihood of success in a particular task, and interests determine the motivation to execute the task.

Borman and Motowidlo (1997) propose five dimensions of contextual performance: (1) *Persisting with enthusiasm and extra effort as necessary to complete own task activities successfully* (perseverance and conscientiousness; extra effort on the job), (2) *Volunteering to carry out task activities that are not formally part of own job* (suggesting organisational improvements, initiative and taking on extra responsibility; making constructive suggestions; developing oneself); (3) *Helping and cooperating with others* (assisting/helping coworkers; assisting/helping customers; organisational courtesy; sportsmanship; altruism; helping coworkers), (4) *Following organisational rules and procedures* (following orders and regulations; complying with organisational values and policies; conscientiousness; meeting deadlines; civic virtue), and (5) *Endorsing, supporting, and defending organisational objectives* (organisational loyalty; concern for unit objectives; staying with the organisation during hard times and representing the organisation favourably to outsiders; protecting the organisation). Later, other authors revised the proposed taxonomy (e.g., Coleman and Borman 1999; Borman et al. 2001).

Based on the literature review, we define JP as evaluative and episodic behaviours that an individual adopts towards her/his work and job, as a result of the dynamics between cognitive abilities, personality and learning experiences, that aggregate value to the organisation.

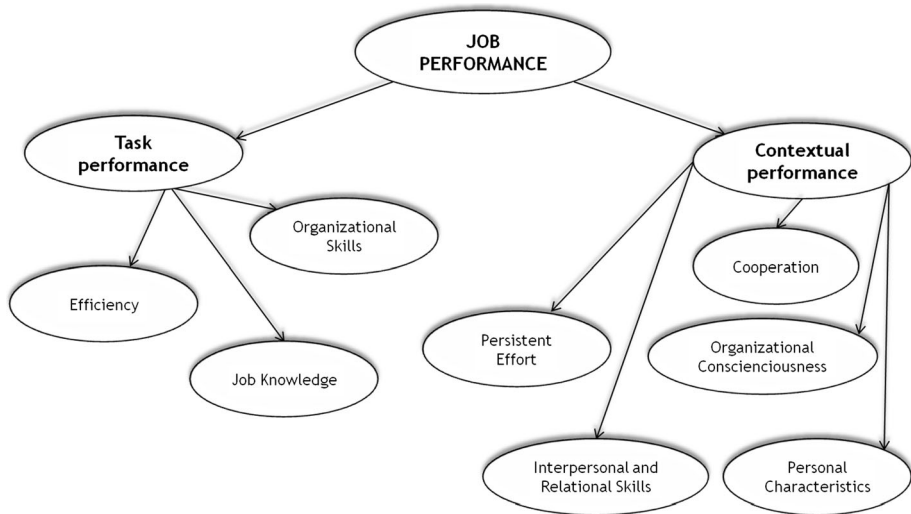
### 3 Job Performance Dimensions and Measurement

The measurement of JP has long been recognized as one of the significant challenges faced by managers and researchers (Murphy 2008). Methods used to evaluate individual performance can be broadly classified into (1) organisational records, and (2) subjective evaluations—based on criteria referenced judgments, where an individual is evaluated without reference to other individuals (i.e. ratings), or on norm-referenced judgments, where an individual is evaluated in comparison to other individuals (i.e. rankings). In what concerns subjective evaluations, the question of who should rate arises. Typically, the rating evaluation is done by the supervisor (Viswesvaran 2001). However, ratings of JP are viewed as poor measures of performance (Murphy 2008). Although self-ratings may give a biased view of reality (Van Woerkom and de Reuver 2009), many authors have measured performance through self-reported measures (e.g., Tyagi 1985; Coleman and Borman 1999) and, in our particular case, the fact that we are creating a self-reported measure is not expected to bias the results because the data collected is for research purposes.

After an extensive review of literature, it was possible to verify that, although many studies identify performance dimensions, most of them do not specify the items or the scale used to evaluate these dimensions. On the other hand, usually, self-reported performance measures are adapted or built in order to be applied to specific contexts: Sales (e.g., Conte and Gintoft 2005; Miao and Evans 2007), Healthcare (e.g., Greenslade and Jimmieson 2007), Higher Education (Molefe 2010). So, apparently, there is the need to develop an instrument that can be applied across jobs and cultures and this is one of our main goals. Many factors can affect the validity of a measure used in different cultures. Cultural beliefs, political structures, languages, economies, technologies and acceptability of and familiarity with measures may influence their effectiveness. Thus, it is important to cross-validate measures (Aguinis et al. 2001). The development of the instrument was based on performance dimensions previously proposed in different cultures, so that the application of the instrument to all types of cultures can be possible. Also, it was developed in English in order to facilitate blind back translation in different cultures.

According to Campbell and Lee (1988), self-appraisal may complement evaluative supervisory ratings and it may also be used to help employees improve their JP, so we intend to create an instrument that complements objective measures. Also, since measurement can provide accurate and relevant information that leads to informed decision-making (Aguinis et al. 2001), the instrument may support decision-making on organisations. On the other hand, it may be useful to researchers, since it may be utilized to investigate the relationships between performance and other variables relevant to organisations in a multitude of contexts.

Based on the perspective proposed by Borman and Motowidlo (1997), according to which there are two types of JP (task and contextual), and considering the most mentioned dimensions in the reviewed studies (see Appendix 1), we propose eight job performance dimensions: job knowledge, organisational skills, efficiency, persistent effort, cooperation, organisational consciousness, personal characteristics and interpersonal and relational skills (see Fig. 1). We found that task performance includes three dimensions: job knowledge, organisational skills and efficiency (see Appendix 2). Based on the literature review, we propose five dimensions of contextual performance: persistent effort, cooperation, organisational conscientiousness, personal characteristics and interpersonal and relational skills (see Appendix 3).



**Fig. 1** A suggested conceptualization of job performance. *Source:* Own

#### 4 Methods

Given the lack of relevant measures, a new scale was developed following Churchill's (1979), Aguinis, Henle and Ostroff's (2001) and Viswesvaran's (2001) guidance.

In order to build the instrument, the following steps were followed:

1. Synthesis of the JP dimensions previously proposed and grouping of these dimensions into broader dimensions.
2. Creation of items to each JP dimension proposed.
3. Revision of the instrument by experts.
4. Pre-test.
5. Scale administration.
6. Confirmatory factor analysis (CFA) to determine whether the items are grouped correctly.

As mentioned, we based our instrument on the distinction between task and contextual performance. A total of 31 studies were reviewed with the aim of extracting JP dimensions. Although our aim is to develop a self-reported measure, we also considered studies that used supervisor performance ratings. Also, we considered studies that do not distinguish between task and contextual performance (see Appendix 1). Since our goal is to build a questionnaire that can be applied across jobs and contexts, it was necessary to adopt the following steps:

1. Dimensions that are too specific to a job were not considered (task-related dimensions);
2. Dimensions that were likely to be role-prescribed in specific jobs (e.g., Leadership and supervision in management positions) but that are included in contextual performance according to the perspective proposed by Borman and Motowidlo (1997), were included in the broad dimension 'contextual performance'. For example, one of the behaviours managers must adopt in order to accomplish their tasks is persuasiveness, but this type of behaviour is typically included in contextual performance, so we considered this type of behaviours as contextual performance.



Based on two dimensions (task and contextual performance) and on eight JP sub dimensions (job knowledge, organisational skills, efficiency, persistent effort, cooperation, organisational consciousness, personal characteristics and interpersonal and relational skills), a pool of items was developed. This initial pool of 57 individual items was sent to 12 experts in the area of JP, 14 journal editors and 18 academics in the following areas: human resource management, psychology, work/organisational psychology and/or organisational behaviour, along with a detailed explanation of the scope of the study, of what the instrument attempted to measure and a request to evaluate each item according to their expert opinion as to whether each item was measuring what it intended to measure (content validity). 3 revisions were received. This process resulted in a slightly modified pool of items: 2 items were dropped and 11 were rephrased according to the experts' suggestions.

The target population of the instrument includes workers employed in organisations with 4 or more workers, since the questionnaire includes some items that inquire the worker about interpersonal and relational skills. To answer the questionnaire, one has to work in a given organisation for, at least, 6 months, since performance is a dynamic concept, so the respondent must have a clear idea of how he/she performs his/her work in a particular organisation. We chose to use a 7-point Likert scale, which allows a broader understanding of the concept in study.

A pre-test was applied to 40 individuals in several different jobs, in order to verify that there were no doubts in what concerns the language used in the instrument. The sample is composed by Lecturing staff of Higher Education Institutions (HEI). The contacts of European HEI were gathered online, based on a list created by Bonaccorsi et al. (2010). First, the general e-mails (information, communication, international relations or rectory contacts) were gathered. In the case of countries with more than 150 HEI, 90 HEI were chosen randomly. In the case of European countries that do not belong to the European Union, 20 HEI were chosen randomly, since searching for the contacts of all the HEI would create some time constraints. Then, in a second phase, the program Atomic E-mail Hunter, version 3.51, was used to gather the e-mails contained in the Web sites of the chosen HEI. In what concerns the countries outside the EU, the contact gathering was based on *Scimago Institutions Rankings—SIR world report 2012: Global Ranking*, so we used the program to extract e-mails from the HEI listed in the ranking. In many cases, the extraction was not possible, and whenever the program extracted e-mails from a Web site, some e-mails that clearly did not belong to the Lecturing staff were deleted. Initially, we intended to extract emails from other North and South American countries. However, due to time constraints, we only gathered contacts of HEI in Brazil and in the USA.

The questionnaire was made available online in English. In addition to the questions regarding the variables under study, the respondents had to provide personal data. Anonymity and confidentiality were assured and the participation was voluntary. 1,357 European HEI, 104 USA HEI and 62 Brazilian HEI were requested, via e-mail, to invite the Lecturing Staff to participate in this study. Then, a total of 175,646 individual e-mails inviting Lecturing Staff to collaborate in the research were sent. Of the 1,523 e-mails sent to HEI, a total of 66 were returned and 33 HEI refused to divulge the request to the Lecturing Staff, based on motives such as the institution policy, the vacation period or not wanting to overload their workers. Of 175,646 individual requests sent, 17,046 were returned and 341 people refused to collaborate. Their motives included the fact that the questionnaire was too long, the lack of time, the disagreement with/lack of interest in the area of research, the difficulty in answering due to the technical language used or the inability to understand English. Also, some people were not part of the Lecturing Staff (researchers, PhD. students, Emeritus Professors or other staff), which was a requirement



to answer the questionnaire. A total of 1,135 responses were gathered. However, 25 responses were deleted because we suspected that they do not belong to the Lecturing Staff, and 3 responses were deleted because the individuals did not specify their country, so the sample is composed of 1,107 individuals, from 41 European countries, the USA and Brazil.

To analyse the data we used the statistical package *SPSS* and *AMOS*, versions 19.0. The method used was Structural equation modelling (SEM), which allows consideration of simultaneous equations with many endogenous variables (Bollen and Long 1993). To analyse the data, we performed Confirmatory Factor Analysis (CFA), which is used to test the adequacy of a well-defined model (Bowen and Guo 2011). The model is composed of 55 reflective indicators (see Appendix 4), since they are theoretically parallel, (i.e., equivalent in their measurement of the underlying construct), and no a priori emphasis is given to a particular indicator included in the set (Chin et al. 2003).

## 5 Results

### 5.1 Sample Profile

See Table 2.

### 5.2 Analysis of the Model

Considering we had multicollinearity problems, we applied the Generalized least squares (GLS) method, which can be used to estimate the parameters of a factor model (Kaplan 2000), we estimated a JP first order recursive measurement model, based on 10 associated latent variables, i.e., unobserved variables implied by the covariances among two or more indicators (Hoyle 1995). 2 latent variables represent the dimensions (task and contextual) and 8 latent variables represent the sub dimensions. Regarding the sub dimensions, 3 latent variables correspond to task performance, with 22 items as reflective indicators, and 5 latent variables correspond to contextual performance, with 33 items as reflective indicators. Then, we added 12 constraints, a current practice when using Structural Equation Modeling (SEM).

Since we had problems concerning negative variance in the measurement error corresponding to one of the exogenous variables, we performed the collinearity diagnosis to identify which indicators were creating multicollinearity, and we deleted those indicators. During this process, we verified that there still were multicollinearity problems in the contextual performance dimension, so we carefully read the items again. We concluded that the items included in the dimension 'personal characteristics', in fact, reflected behaviours that relate to effort, such as initiative, motivation to perform, to learn (information seeking) and to work hard, creativity, adaptability and stress tolerance. Therefore, we merged the dimensions 'persistent effort' and 'personal characteristics'. Then, we deleted, one by one, the items with higher Modification indices (MI). MI reflects an approximation of how much the overall model Chi square would decrease if the fixed or constrained parameter was freely estimated (Brown 2006). The errors of items 8 and 9 were correlated. This can be explained by the fact that both items concern the time needed to perform tasks. In total, 26 items were deleted. Then, the second order model was specified. Estimation of the model produced a good fit, although Chi square value is considered tolerable. However, we must stress that the Chi square test, when applied to SEM, has several limitations, in addition to problems related to sample size sensitivity and lack of a defined power function (Bentler and Bonett 1980; Fornell and Larcker

**Table 2** Sample characterization

<i>Type of HEI</i>	
Public HEI	81.9 %
Private	17.2 %
Combined	.5 %
Foundation owned	.1 %
Did not specify	.4 %
<i>Type of education</i>	
Universities	85.5 %
Colleges	6 %
Polytechnic	5.8 %
Specialized schools	1.4 %
University colleges	.2 %
Higher vocational schools	.9 %
Did not specify	.3 %
<i>Continent</i>	
North America (USA)	16 % (N = 177)
South America (Brazil)	7.5 % (N = 83)
Europe	76.5 % (N = 847)
<i>Length of academic career</i>	
3–6 years	13 %
7–10 years	13.9 %
11–14 years	14 %
15–18 years	12.2 %
19–22 years	11.2 %
23–26 years	8.7 %
27–30 years	7.2 %
31–34 years	5.9 %
35–38 years	3.5 %
>39 years	5.5 %
Did not specify	.3 %
<i>Main teaching area</i>	
Physical sciences	8.4 %
Life sciences	4.3 %
Social and human sciences	56.9 %
Applied sciences	16.8 %
Formal sciences	6.4 %
Interdisciplinary areas	2.4 %
Did not specify	4.7 %
<i>Age</i>	
25–28 years old	2.3 %
29–32 years old	6.4 %
33–36 years old	8.4 %
37–40 years old	10.9 %
41–44 years old	9.1 %
45–48 years old	12 %
49–52 years old	10.4 %

**Table 2** continued

53–56 years old	12.1 %
57–60 years old	9.8 %
>60 years old	13.4 %
Did not specify	5.2 %
<i>Qualifications</i>	
Foundation degree	.1 %
Bachelor degree	1.3 %
Graduation	.5 %
Master degree	21.6 %
Ph.D.	73.4 %
Post-Doc	.1 %
Doctor of Science	.2 %
MD (Doctor of Medicine)	.7 %
Aggregation	.1 %
Did not specify	2 %

Source: Own

**Table 3** Goodness of fit criteria

	Final model	70 % of the sample	30 % of the sample	America	Europe
Chi test	3.54	3.02	1.76	1.64	2.94
<i>p</i> value	.000	.000	.000	.000	.000
GFI	.918	.909	.857	.838	.912
PGFI	.781	.771	.731	.716	.773
RMSEA	.048	.049	.049	.05	.048

Source: Own

1981). Therefore, the Chi statistics is inaccurate under dependence conditions (Hu and Bentler 1995). Using Chi test criteria, the value of 3.54 ( $p = .000$ ) for this model indicates a tolerable fit. Other criteria of goodness of fit were used, such as the root mean square error of approximation [RMSEA] = .048, which indicates a very good fit, the goodness-of-fit index [GFI] = .918, which indicates a good fit, and the parsimony GFI [PGFI] = .781, which also indicates a good fit. These results equal the ones obtained when analysing the first order model (Table 3).

Then, we analysed the model using two different samples, to confirm the results. With this purpose, the original sample was randomly divided into two samples. For the first sample (70 %;  $N = 833$ ), the estimation of the model produced a good fit. Chi-square divided by the number of degrees of freedom was used as the goodness of fit indicator. Using this test criteria, the value of 3.02 ( $p = .000$ ) for this model indicates a tolerable fit. Other criteria of goodness of fit were used, such as [RMSEA] = .049, which indicates a very good fit, [GFI] = .909, which indicates a good fit, and [PGFI] = .771, which also indicates a good fit. In what concerns the second sample (30 %;  $N = 277$ ), there were problems concerning negative variance. This may be due to the fact that small samples are more likely to yield unreliable results (Chou and Bentler 1995). However, when fixing the negative variances at 0—a practice that is accepted when the solution is not admissible (Gerbind and Anderson 1987), Chi-square divided by the degrees of freedom presents a value of 1.76 ( $p = .000$ ), which indicates a good fit. [RMSEA] = .049 indicates a very good fit, [GFI] = .857 indicates a tolerable fit, and [PGFI] = .731 indicates a good fit.

We also had problems related to negative variance when we tested the model for America (USA and Brazil) ( $N = 260$ ). Probably, this result is related to the size of the sample, as mentioned before (e.g., Chou and Bentler). However, when fixing the negative variances at 0, Chi-square divided by the degrees of freedom presents a value of 1.64 ( $p = .000$ ), which indicates a good fit. [RMSEA] = .05 indicates a very good fit, [GFI] = .838 indicates a tolerable fit, and [PGFI] = .716 indicates a good fit. Although these results are satisfying, suggesting that the instrument is adequate to be used in America, they are not as good as we expected.

We also tested the model considering only the European observations ( $n = 847$ ). Using Chi test criteria, the value of 2.94 ( $p = .000$ ) for this model indicates a tolerable fit. Other criteria of goodness of fit were used, such as [RMSEA] = .048, which indicates a very good fit, and [GFI] = .912, which indicates a good fit, and [PGFI] = .773, which also indicates a good fit.

The results found suggest two possibilities: either the instrument is more adequate to evaluate performance in Europe or the size of the sample, as mentioned, has implications in the results.

High reliability is a necessary condition for high validity, and an important prerequisite for applications of scale scores that are frequently used for purposes of behavioural assessment (Raykov and Grayson 2003). Cronbach's alpha was used to estimate the internal consistency of the measure. Results indicate a satisfying level of internal consistency (.749), suggesting that this theoretical construct exhibits appropriate psychometric properties (Cronbach 1951). Composite reliability of the JP construct is .878, which is moderately high (Raykov 2000).

The final model is presented below (Fig. 2). The final scale, which includes 10 items that must be reverse scored for statistical analysis, is presented in Appendix 5.

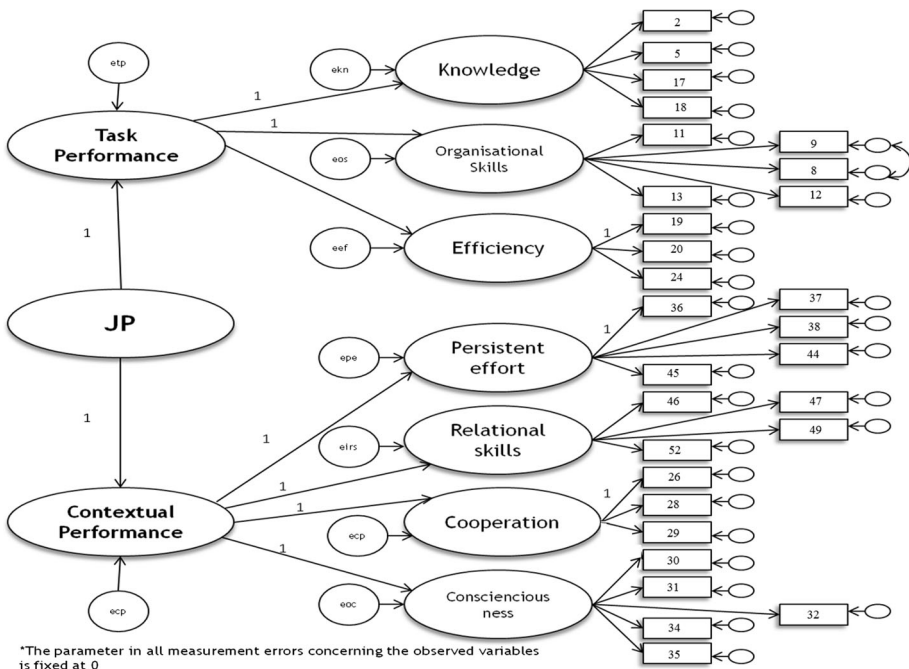


Fig. 2 Final model. Source: Own

## 6 Conclusions

From the theoretical aspects mentioned earlier, we may infer that the great importance of the JP concept lays in the fact that organizational performance can only be understood if we, firstly, understand individual performance, since we must consider not only organisational factors, but also factors that are inherent to the workers or that influence them individually. Similarly, the concept is mainly treated as a dependent variable since, as it was mentioned by Sonnentag and Frese (2002), individual Performance is something organisations want to enhance and optimize.

JP is a dynamic, multidimensional, behavioural, episodic and evaluative concept, defined as evaluative and episodic behaviours that an individual adopts towards his/her work and job, as a result of the dynamics between cognitive abilities, personality and learning experiences, that aggregate value to the organisation. The concept may be measured using two dimensions: task performance (job knowledge, organisational skills, efficiency) and contextual performance (persistent effort, cooperation, organisational consciousness and interpersonal and relational skills).

Although it is not usual to merge sub dimensions when using CFA, multicollinearity problems alerted to the fact that the theoretical analysis could be improved, so the items that measure behaviours such as initiative, motivation to perform, to learn (information seeking) and to work hard, creativity, innovation, adaptability and stress tolerance—included in the dimension ‘personal characteristics’, were later included in the subdimension ‘persistent effort’. These behaviours are, in fact ‘personal characteristics’, but behaviours such as the will to help others (cooperation) or compliance with organisational rules (organisational consciousness) are personal characteristics as well, so those behaviours should have been included in the dimension ‘persistent effort’ from the beginning.

Even though the psychometric properties of the instrument are not excellent, we think this research contributes to the academic context, since the instrument presents good psychometric properties, so it may be used for research on the JP concept. On the other hand, although many studies identify performance dimensions and sub dimensions, most of them do not specify the items used to evaluate them, so we insist on disclosing the scale.

Also, we highlight that, usually, self-reported performance measures are adapted or built in order to be applied to specific contexts, and this particular one was developed in order to be useful in any job-related context. On the other hand, there is a high probability that its application worldwide is possible, considering that some studies we based the instrument on were developed in other cultural contexts.

Particularly concerning the HE context, the instrument is validated for the European HEI, and results suggest that it is adequate to the American context as well. However, we stress that, probably, the fact that we tested the model using a small sample, specifically in what concerns America, may have had some negative implications in the results. Nevertheless, the instrument seems adequate to evaluate performance in Western HE.

The research is also a contribution for organisations in general, since Human resource management (HRM) can use it as a complementary means to objective measures or to evaluate the worker’s performance anonymously, in order to understand the workers’ behaviour as a whole, as well as to understand its relationships with other variables that are relevant to HRM practices, thus supporting decision-making in organisations.

## 7 Limitations and Perspectives for Future Research

According to Viswesvaran (2001), the rational method of synthesizing and theory building is affected by the personal bias of the researcher. Although this could also have happened unwittingly, we are aware that we biased the research in what concerns our theoretical approach, specifically concerning the merging of the sub dimensions ‘persistent effort’ and ‘personal characteristics’. However, we found relevant to modify the model, not only due to the multicollinearity problems, which we could have solved by eliminating one dimension, but mostly so we could present a theory that, indeed, reflects reality.

The fact that the instrument was not applied worldwide arises as a limitation of the research, since we cannot assert that it is amenable of application in all kinds of cultural contexts, although it was developed considering studies from different cultural backgrounds. However, as Aguinis et al. (2001) mention, we must take into account that cultural beliefs, political structures, languages, economies, technologies and acceptability of and familiarity with measures may influence their effectiveness. Hence, it is important to cross-validate measures. Moreover, in what concerns America, only two countries were studied—Brazil and the USA—and the number of responses obtained from these countries is significantly lower than the number obtained from Europe. So, there is the need to validate the scale, not only in other Western countries, but also in other cultural contexts, and to apply the instrument to Brazil and USA using a larger sample, in order to verify if the problems we had are in fact related to the size of the sample.

One other limitation is the fact that all individuals included in the sample work in the HE context. However, although the instrument is validated only to this context, we believe that the scale will be useful in other professional areas, since we considered studies carried out in several professional fields. Nevertheless, there is a lack of scientific validation outside the HE field, so it would be important to apply it to sectors, other than Education.

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## Appendix 1

Synthesis of the reviewed studies on JP

Author	Type of study	Sample	Performance dimensions proposed
Borman and Motowidlo (1997)	Literature review	–	Contextual performance (1) Persisting with enthusiasm and extra effort as necessary to complete own task activities successfully (2) Volunteering to carry out task activities that are not formally part of own job (3) Helping and cooperating with others (4) Following organisational rules and procedures (5) Endorsing, supporting, and defending organisational objectives

Author	Type of study	Sample	Performance dimensions proposed
Anderson (1984)	Field study	Retail store employees (N—non specified) (USA)	<ol style="list-style-type: none"> <li>(1) Knowledge and performance of duties</li> <li>(2) The use of judgment in carrying out the work</li> <li>(3) Promotion potential</li> <li>(4) Reliability and responsibility</li> <li>(5) Effectiveness in working with others</li> </ol>
Blau (1993)	Field study	174 bank tellers (USA)	<ol style="list-style-type: none"> <li>(1) Productivity</li> <li>(2) Dollar shortages</li> <li>(3) Self-development</li> </ol>
Borman and Brush (1993)	Literature review	—	<ol style="list-style-type: none"> <li>(1) Technical activities and the mechanisms of management (<i>planning and organizing, technical proficiency, administration and paperwork, decision making, problem solving, staffing, monitoring and controlling resources, delegating, collecting and interpreting data</i>)</li> <li>(2) Leadership and supervision (<i>guiding, directing, motivating others and providing feedback, maintaining good work relationships, coordinating subordinates and other resources to get the job done</i>)</li> <li>(3) Interpersonal dealing and communication (<i>communicating effectively—oral and written, representing the organisation to the public and clients, maintaining good working relationships, influencing others</i>)</li> <li>(4) Useful personal behaviour and skills (<i>persisting to reach goals, handling crisis and stress, organisational commitment</i>)</li> </ol>
Campbell et al. (1990a, b)	Field study	Army job incumbents (N—non specified) (USA)	<ol style="list-style-type: none"> <li>(1) Core technical proficiency</li> <li>(2) General soldiering proficiency</li> <li>(3) Effort and leadership</li> <li>(4) Personal discipline</li> <li>(5) Physical fitness and military bearing</li> </ol>
Borman et al. (2001)	Literature review	—	<ol style="list-style-type: none"> <li>(1) Personal support (<i>helping, cooperating, courtesy, motivating</i>)</li> <li>(2) Organisational support (<i>representing, loyalty, compliance</i>)</li> <li>(3) Conscientious initiative (<i>persistence, initiative, self-development</i>)</li> </ol>
Chan and Schmitt (2009)	Field study	160 entry-level employees in administrative positions (Singapore)	<ol style="list-style-type: none"> <li>(1) Core technical proficiency</li> <li>(2) Motivational performance (<i>job dedication—motivations to perform, learn, and work hard</i>)</li> <li>(3) Interpersonal performance (<i>interpersonal facilitation—interpersonal conflict resolution, negotiation and teamwork and cooperation</i>)</li> </ol>



Author	Type of study	Sample	Performance dimensions proposed
Cheng et al. (2007)	Field study	128 construction professionals (Hong Kong or Australia)	<ol style="list-style-type: none"> <li>(1) Task skills (<i>knowledge that's relevant to work, quality of work, skills, judgment, experience, accuracy, accountability, efficiency and initiative</i>)</li> <li>(2) Behaviour (<i>honesty, personal care, punctuality, cooperation, attitude and fairness</i>)</li> <li>(3) Self (<i>gender, age, interests, creativity and reliability</i>)</li> <li>(4) Management skills (<i>guest relations, leadership, communication skills, interpersonal relations and planning</i>)</li> </ol>
Conte and Gintoft (2005)	Field study	174 sales associates (USA)	<ol style="list-style-type: none"> <li>(1) Sales performance</li> <li>(2) Customer service</li> </ol>
Ng and Feldman (2009)	Literature review	–	<ol style="list-style-type: none"> <li>(1) Core task performance (<i>the basic required duties of a particular job: core task performance and performance in training programs</i>)</li> <li>(2) Citizenship behaviour and creativity</li> <li>(3) Counterproductive performance (<i>general counterproductive work behaviours, workplace aggression, substance use, tardiness and absenteeism</i>)</li> </ol>
Fein (2009)	Literature review	–	<ol style="list-style-type: none"> <li>(1) Job-specific task proficiency (<i>the degree to which individuals can perform tasks central to their job</i>)</li> <li>(2) Helping others</li> <li>(3) Displaying organisational conscientiousness</li> <li>(4) Demonstration of effort (<i>the degree that people commit themselves to all job tasks, work at high levels of intensity, and continue to work under adverse conditions</i>)</li> <li>(5) Personal discipline (<i>the extent that individuals refrain from negative performance behaviours such as excessive absenteeism and infractions of work rules</i>)</li> </ol>
Tett et al. (2003)	Field study	335 market research field representatives (USA)	<ol style="list-style-type: none"> <li>(1) Organisational skills</li> <li>(2) Technical skills</li> <li>(3) Self-motivation</li> <li>(4) Persuasiveness</li> <li>(5) Flexibility</li> <li>(6) Interpersonal skills</li> <li>(7) Stress tolerance</li> </ol>
Van Woerkom and de Reuver (2009)	Field study	138 managers with different cultural backgrounds (Europe, Asia, North Africa and North America)	<ol style="list-style-type: none"> <li>(1) Achievement</li> <li>(2) Competences mastered</li> <li>(3) Knowledge</li> <li>(4) Experience acquired</li> <li>(5) Personal development</li> </ol>

Author	Type of study	Sample	Performance dimensions proposed
Williams and Hummert (1990)	Field study	9 clerical employees and 9 supervisors (N = 18) (USA)	<ol style="list-style-type: none"> <li>(1) Job knowledge (<i>ability to adapt to new conditions, level of capability (skills), understanding of required duties, grasp of total job purpose</i>)</li> <li>(3) Job performance (<i>quantity of job performed, quality of job performed, consistency of job performed, safety</i>)</li> <li>(3) Work relations [<i>communication skills—written, oral; cooperation (works well with others)</i>]</li> <li>(5) Personal characteristics (<i>attendance; grooming</i>)</li> </ol>
Coleman and Borman (1999)	Literature review	–	<ol style="list-style-type: none"> <li>(1) Personal support (<i>helping, cooperating</i>)</li> <li>(2) Organisational support (<i>endorsing, supporting and defending organisational objectives, following rules and procedures</i>)</li> <li>(3) Job/task conscientiousness (<i>persisting with enthusiasm and extra effort to complete activities successfully</i>)</li> </ol>
Day and Silverman (1989)	Field study	43 employees of a medium-sized accounting firm (USA)	<ol style="list-style-type: none"> <li>(1) Potential for success (<i>e.g., likelihood of becoming a manager in the firm</i>);</li> <li>(2) Technical ability (<i>e.g., understands technical aspects of the job</i>);</li> <li>(3) Timeliness of work (<i>e.g., completes work within time budgets</i>);</li> <li>(4) Client relations (<i>e.g., gains the confidence, respect and cooperation of clients</i>);</li> <li>(5) Cooperation (<i>e.g., demonstrates a positive and professional manner in working with personnel at all levels</i>);</li> <li>(6) Work ethic (<i>e.g., willing to work long hours and complete assigned tasks</i>)</li> </ol>
Greenslade and Jimmieson (2007)	Field study	112 nurses (Australia)	<ol style="list-style-type: none"> <li>(1) Technical care</li> <li>(2) Non job specific behaviours (<i>duties that were commonly conducted by nurses but were felt to be outside the scope of nursing practice</i>)</li> <li>(3) Providing informational support provision of emotional support to patients and their families</li> <li>(4) The provision of emotional support to patients and their families coordination of care among unit members</li> <li>(5) Behaviours that support the organisation (<i>ex., volunteering to assist on committees</i>)</li> <li>(6) Behaviours that assist team members (interpersonal support)</li> <li>(7) Behaviours that assisted patients and their families (job-task support)</li> <li>(8) Coordination of care among unit members</li> </ol>

Author	Type of study	Sample	Performance dimensions proposed
Hoffman and Woehr (2009)	Field study	404 managers (USA)	<ol style="list-style-type: none"> <li>(1) Technical skills (<i>decision making, judgment, analysis, planning and organizing</i>)</li> <li>(2) Leadership skills (<i>performance management, coaching, idealized influence, inspirational motivation, intellectual stimulation, influencing others, persuasiveness</i>)</li> <li>(3) Interpersonal skills (<i>confrontation effectiveness, sensitivity, team building, communication skills</i>)</li> </ol>
Molefe (2010)	Field study	178 academics (South Africa)	<ol style="list-style-type: none"> <li>(1) Knowledge</li> <li>(2) Organisational skills</li> <li>(3) Assessment procedures</li> <li>(4) Subject relevance</li> <li>(5) Utility of assignments</li> <li>(6) Student–lecturer relations</li> <li>(7) Communication skills</li> </ol>
Salgado et al. (2003)	Field study	118 middle-level managers (Spain)	<ol style="list-style-type: none"> <li>(1) Job knowledge</li> <li>(2) Efficiency</li> <li>(3) Problem-solving</li> <li>(4) Ability</li> <li>(5) Leadership</li> <li>(6) Job-adaptability</li> <li>(7) Interpersonal relationships</li> <li>(8) Level of aspiration</li> <li>(9) Initiative</li> <li>(10) Attitude</li> </ol>
Viswesvaran et al. (2005)	Literature review	–	<ol style="list-style-type: none"> <li>(1) Administrative competence</li> <li>(2) Quality</li> <li>(4) Productivity</li> <li>(5) Job knowledge</li> <li>(6) Interpersonal competence</li> <li>(7) Effort</li> <li>(8) Leadership</li> <li>(9) Compliance/acceptance of authority</li> <li>(10) Communication competence</li> </ol>
Wang et al. (2008)	Field study	168 supervisor-subordinate dyads (Republic of China)	<ol style="list-style-type: none"> <li>(1) Provides first-class services to the customers</li> <li>(2) Satisfies all customers' needs</li> <li>(3) Fulfills the requirements of the</li> <li>(4) Position</li> <li>(5) Interpersonal facilitation</li> <li>(6) Job dedication</li> <li>(7) Provides realistic suggestions for work improvements</li> <li>(8) Possesses the capability to adapt to different types of work</li> <li>(9) Tries to use different ways to solve problems during work</li> <li>(10) Does his/her best to avoid errors</li> </ol>

Author	Type of study	Sample	Performance dimensions proposed
Hogan et al. (1998)	Field study	214 entry level workers (USA)	(1) Work dedication ( <i>being accountable, following rules and procedures, listening to supervision</i> ) (2) Interpersonal facilitation ( <i>communication with and assisting coworkers</i> )
Gibbons et al. (2006a, b)	Field study	139 managers (USA) 317 managers (Korea)	(1) Planning and organisation (2) Oral communication (3) Written communication (4) Leadership (5) Problem solving (6) Conscientiousness (7) Team work (8) Interpersonal and relational skills (9) Motivation (10) Conflict management/resolution (11) Information seeking (12) Persuasiveness (13) Listening (14) Creativity (15) Adaptability (16) Stress tolerance (17) Readiness to develop (18) Fairness (19) Emotion management (20) Cultural adaptability
Mumford et al. (2005)	Documentary study	499 scientists obituaries	(1) Creativity (2) Innovation
Dess and Shaw (2001)	Literature review	–	Strong network of relationships ( <i>having access to both information and resources for their employing organisation, attracting other high-performing workers, and maintaining strong network ties to external stakeholders</i> )
Sparrowe et al. (2001)	Field study	190 employees in 38 work groups, from several types of organisations (USA)	(1) Social network centrality
van Knippenberg et al. (2004)	Literature review	–	(1) Decision quality when working in groups (2) Creativity when working in groups (3) Innovation when working in groups
Wright and Hobfoll (2004)	Field study	50 Human service counselors (USA)	(1) Support (2) Goal emphasis (3) Team building (4) Work facilitation

Author	Type of study	Sample	Performance dimensions proposed
Wisecarver et al. (2007)	Field study	188 active duty enlisted noncommissioned officers assigned to Special Forces (USA)	(1) Teaching others (2) Building effective relationships with indigenous people (3) Using and enhancing language skills (4) Planning and preparing for missions (5) Decision making (6) Confronting physical and environmental challenges (7) Navigating in the field (8) Being safety conscious (9) Administering first aid and responding to life-threatening situations (10) Managing administrative duties (11) Troubleshooting and solving problems (12) Handling interpersonal situations (13) Contributing to the team effort and morale (14) Displaying honesty and integrity (15) Showing initiative and effort

## Appendix 2

Task performance dimensions found after the literature review

Author	Task performance dimension	Definition
Anderson (1984) Day and Silverman (1989) Campbell et al. (1990a, b) Williams and Hummert (1990) Blau (1993) Borman and Brush (1993) Salgado et al. (2003) Tett et al. (2003) Viswesvaran et al. (2005) Cheng et al. (2007) Greenslade and Jimmieson (2007) Wang et al. (2008) Chan and Schmitt (2009) Fein (2009) Hoffman and Woehr (2009) Ng and Feldman (2009) Van Woerkom and de Reuver (2009) Molefe (2010)	Job knowledge	Behaviours that reflect the degree to which individuals have the knowledge and abilities that are relevant to their job

Author	Task performance dimension	Definition
Day and Silverman (1989) Borman and Brush (1993) Tett et al. (2003) Salgado et al. (2003) Viswesvaran et al. (2005) Gibbons et al. (2006a, b) Cheng et al. (2007) Greenslade and Jimmieson (2007) Wisecarver et al. (2007) Hoffman and Woehr (2009) Molefe (2010)	Organisation skills	Behaviours that reflect skills which are relevant to the organisation of work, such as planning and organizing, problem solving, monitoring and controlling resources and meeting deadlines in order to get the job done
Williams and Hummert (1990) Blau (1993) Salgado et al. (2003) van Knippenberg et al. (2004) Conte and Gintoft (2005) Viswesvaran et al. (2005) Cheng et al. (2007) Wang et al. (2008)	Efficiency	Behaviours that reflect the degree to which individuals efficiently perform tasks that are central to their job

### Appendix 3

Contextual performance dimensions found after the literature review

Author	Contextual performance dimension	Definition
Campbell et al. (1990a, b) Borman and Brush (1993) Borman and Motowidlo (1997) Coleman and Borman (1999) Borman et al. (2001) Viswesvaran et al. (2005) Gibbons et al. (2006a, b) Wisecarver et al. (2007) Fein (2009)	Persistent effort (merged with personal characteristics)	Persistence to reach goals
Anderson (1984) Day and Silverman (1989) Williams and Hummert (1990) Borman and Motowidlo (1997) Hogan et al. (1998) Coleman and Borman (1999) Borman et al. (2001) Wright and Hobfoll (2004) Gibbons et al. (2006a, b) Cheng et al. (2007) Wisecarver et al. (2007) Greenslade and Jimmieson (2007) Chan and Schmitt (2009) Fein (2009)	Cooperation	Effectiveness in working with others Extra task execution Helping others

Author	Contextual performance dimension	Definition
Anderson (1984) Williams and Hummert (1990) Borman and Brush (1993) Borman and Motowidlo (1997) Hogan et al. (1998) Coleman and Borman (1999) Borman et al. (2001) Viswesvaran et al. (2005) Cheng et al. (2007) Greenslade and Jimmieson (2007) Fein (2009) Ng and Feldman (2009)	Organisational conscientiousness	Personal discipline (the extent to which individuals refrain from negative performance behaviours, such as excessive absenteeism and infractions of work rules and procedures) Compliance
Campbell et al. (1990a, b) Borman and Brush (1993) Borman et al. (2001) Tett et al. (2003) Salgado et al. (2003) Campbell et al. (1990a, b) Viswesvaran et al. (2005) Gibbons et al. (2006a, b) Cheng et al. (2007) Wisecarver et al. (2007) Wang et al. (2008) Ng and Feldman (2009) Chan and Schmitt (2009) Van Woerkom and de Reuver (2009) Mumford et al. (2005)	Personal characteristics (merged with persistent effort)	Initiative Motivation to perform, to learn (information seeking) and to work hard Creativity and innovation Adaptability Stress tolerance
Day and Silverman (1989) Williams and Hummert (1990) Borman and Brush (1993) Hogan et al. (1998) Borman et al. (2001) Dess and Shaw (2001) Tett et al. (2003) Salgado et al. (2003) Viswesvaran et al. (2005) Gibbons et al. (2006a, b) Wisecarver et al. (2007) Cheng et al. (2007) Chan and Schmitt (2009) Hoffman and Woehr (2009) Molefe (2010)	Interpersonal and relational skills	Communication skills—oral and written Conflict resolution Negotiation Influencing others Social network



**Appendix 4**

Descriptive and reliability statistics for the 55 initial indicators

Item	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
Mean	6.25	6.29	6.19	4.87	5.82	5.73	5.98	4.27	5.48	5.50	5.18	4.80	5.12	6.33	6.21
SD	.918	1.009	.941	1.413	1.320	1.073	.951	1.864	1.454	1.370	1.363	1.733	1.298	.897	.939
Skewness	-1.611	-2.163	-1.443	-4.67	-1.493	-.741	-1.242	-.108	-1.068	-.968	-.691	-.338	-.544	-1.717	-1.618
SE of skewness	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073
Kurtosis	3.688	6.195	2.878	-.041	2.257	.389	2.670	-1.231	.511	.547	.154	-1.009	.166	4.119	3.873
SE of Kurtosis	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147
Item	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
Mean	4.83	4.23	5.22	3.77	5.02	5.36	4.64	5.21	2.79	5.98	4.98	5.39	5.60	5.15	5.84
SD	1.375	1.791	1.279	1.654	1.466	1.169	1.342	1.133	1.449	1.053	1.664	1.176	1.145	1.447	1.570
Skewness	-.408	-.115	-.670	.335	-.703	-.645	-.323	-.452	.877	-1.181	-.594	-.649	-.904	-.816	-1.416
SE of skewness	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073
Kurtosis	-.139	-1.062	.244	-.870	.131	.433	-.060	.357	.444	1.640	-.589	.508	1.031	.291	1.154
SE of Kurtosis	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147
Item	31.	32.	33	34.	35	36.	37.	38.	39.	40.	41.	42.	43.	44.	45.
Mean	5.39	6.11	5.83	3.41	5.46	5.19	5.04	5.87	5.22	5.27	6.30	5.77	5.23	5.63	5.01
SD	1.658	1.236	1.331	1.590	1.415	1.553	1.384	1.107	1.423	1.312	1.018	1.027	1.223	1.227	1.498
Skewness	-1.022	-1.754	-1.336	.457	-.964	-.769	-.742	-1.156	-.868	-.839	-1.888	-.664	-.651	-1.118	-.551
SE of skewness	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073
Kurtosis	.230	3.264	1.645	-.390	.494	-.173	.363	1.817	.557	.629	4.482	2.11	.369	1.334	-.423
SE of Kurtosis	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147

Item	46.	47.	48.	49.	50.	51.	52.	53.	54	55.
Mean	4.92	6.00	5.54	5.09	5.09	4.60	3.46	4.65	5.50	4.95
SD	1.408	1.106	1.096	1.851	1.354	1.444	1.350	1.232	1.254	1.466
Skewness	-.542	-1.234	-.901	-.821	-.684	-.401	-.038	-.284	-.909	-.680
SE of skewness	.073	.073	.073	.073	.073	.073	.073	.073	.073	.073
Kurtosis	-.132	1.701	1.238	-.565	.309	-.267	-.462	.373	.976	-.009
SE of Kurtosis	.147	.147	.147	.147	.147	.147	.147	.147	.147	.147

Reliability statistics for the initial 8 dimensions (55 items)

Initial dimensions	Number of items	Cronbach's Alpha
Job knowledge	10	.728
Organisational skills	8	.706
Efficiency	6	.531
Cooperation	4	.436
Personal characteristics	7	.657
Organisational conscientiousness	6	.589
Interpersonal and relational skills	10	.686
Persistent effort	4	.693

## Appendix 5

### Final JP Scale

#### *Instructions*

“In order to complete the following questionnaire, you must be employed for, at least, 6 months, in an organisation that has, leastways, four workers. Below are some statements regarding how you normally act in your job. When answering, consider the last 6 months to 1 year of work as a reference point. If any of the questions does not apply to your actions during this time, consider how you would normally act in your current job. ‘Organisation’ refers to the institution you work for. When you see the expression ‘other workers’, consider all the workers, regardless of their position in the organisation. Keep in mind that this questionnaire is completely anonymous and confidential and that there are no right nor wrong answers. Please indicate the best answer to each of the following statements, given that ‘1’ means ‘strongly disagree’, ‘2’ means ‘disagree’, ‘3’ means ‘somewhat disagree’, ‘4’ means ‘neither agree nor disagree’, ‘5’ means ‘somewhat agree’, ‘6’ means ‘agree’ and ‘7’ means ‘strongly agree’.”

---

#### *Task performance*

- |                       |  |
|-----------------------|--|
| Job knowledge         | 2. If I need to perform a task that I'm not familiar with, I seek for information that allows me to perform it better  |
|                       | 5. I don't think I could execute my tasks effectively if I didn't have a certain amount of experience  |
|                       | 17. The way I perform the basic tasks required in my job is not always in agreement with what I'm capable of doing (R)   |
|                       | 18. The way I perform the basic tasks required in my job corresponds completely to the performance that the organisation where I work asks from me                                       |
| Organisational skills | 8. It is not always easy for me to perform tasks on time (R)   |
|                       | 9. When I have a deadline to perform a certain task, I always finish it on time  |
|                       | 11. If I had to perform a task in conjunction with other workers, I would probably be responsible for the planning, organizing and monitoring of the work to be done                     |
|                       | 12. I always leave my tasks to the last minute (R)   |
|                       | 13. I am always aware when there is a lack of the resources (material or human) needed for the efficient performance of the organisation   |
| Efficiency            | 19. Sometimes, I feel disappointed with my performance at work, because I know I could have done better  |
|                       | 20. I consider myself a fundamental worker to the organisation I work for, due to the high quality of my performance   |
|                       | 24. Receiving feedback (from my subordinates, my colleagues, my supervisor or from the organisation) is fundamental in order for me to continue performing my duties with dedication (R) |

#### *Contextual performance*

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|-------------------|--|
| Persistent effort | 36. When something is not right at work, I don't complain because I am afraid that others won't agree with me (R)  |
|                   | 37. Usually, I take the initiative to give constructive feedback in order to improve the performance of other workers (subordinates, colleagues, supervisor or workgroups) |
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	38. In the event the organisation did not provide the training that I consider necessary to perform my duties effectively, I would seek information from other sources
	44. I'm still able to perform my duties effectively when I'm working under pressure
	45. As soon as I arrive at work, I set aside all my personal problems, so that my performance is not harmed
Cooperation	26. Usually, I dedicate less effort to work when performing a task in conjunction with other people (R)
	28. I am always willing to assist other workers from the organisation, even when I don't have much time available
	29. Usually, I also perform tasks that are not related to my specific duties
Organisational conscientiousness	30. Frequently, I arrive late at work (R)
	31. It's really difficult for me to miss work, even when I'm feeling sick
	32. I would never adopt actions that could harm the well-being of the other workers
	34. When I think that the goals of the organisation conflict with my personal goals, my dedication to work decreases (R)
	35. I take my job really seriously, so I always comply with the rules and procedures imposed (by my supervisor or by the organisation), even when no one is around
Interpersonal and relational skills	46. My communication skills are so good that I'm always able to capture everyone's attention
	47. Communication inside organisations, even in workgroups, is fundamental so that people can perform their tasks effectively
	49. When I write a message to others (other workers or students) I feel a certain difficulty in expressing what I'm thinking
	52. When someone has a different opinion from mine, I usually convince them that my opinion is the best

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