

Exploring employee performance dimensionality in Indian public sector units

Exploring
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dimensionality

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Abstract

Purpose – Performance is considered to be a multi-dimensional construct with three underlying dimensions such as Task Performance (TP), Interpersonal Facilitation (IPF), and Job Dedication (JD). Yet, these dimensions exhibit high inter-correlations in many studies. This study explores the dimensionality of performance as perceived by managers in Indian Public Sector Units (PSUs) and its implications on the sustainability of performance practices in these organizations.

Design/methodology/approach – Performance data of 588 PSU executives was obtained from their respective managers (162 in number) using a pen-paper survey. Exploratory Factor Analysis (EFA) followed by a Confirmatory Factor Analysis (CFA) was employed to test the dimensionality of the performance construct using SPSS 25 and AMOS 24.

Findings – The data obtained had best fit when performance was modelled as a second order factor with the three dimensions drawing on it as first order indicators. However, the measurement model with employee performance modelled as a one-dimensional first order factor had poor fit. This indicates that PSU managers do perceive an implicit differentiation between the performance dimensions, but the performance ratings do not explicitly reflect that differentiation.

Originality/value – To the best of the authors' knowledge, this is the first ever study in Indian context that explores the perception of PSU managers on performance dimensionality. It discusses if Indian PSUs could sustain the dynamism of the future workplace with the present performance management practices and makes relevant suggestions in that direction.

Keywords Dimensionality, Factor analysis, Interpersonal facilitation, Job dedication, Public sector units, Task performance

Paper type Research paper

1. Introduction

A talent force is viewed as the largest sustainable competitive advantage of an organization in today's dynamic business landscape. With progressive organizations such as Google, Adobe, Microsoft or Facebook considering their human capital as their biggest asset, 73% CEOs across the globe have stated talent management and building a performance driven culture as their biggest mandate in the PwC 18th Annual Global CEO survey (PwC, 2015). Employee performance, in any organization, is strongly linked to its corporate goals and stakeholder expectations. Hence, an organization cannot succeed or sustain if employees do not perform (Cappelli, 2008). Given this background, it becomes imperative for managers and performance researchers to understand the components that underlie the larger construct of employee performance. This understanding would help managers to set the right performance standards for their subordinates and communicate the performance expectations candidly.

Traditionally, employee performance in any organization was restricted to dispensing activities mentioned in the role description of an employee (Campbell *et al.*, 1993). However,



in the last four decades, the construct broadened with studies like [Campbell *et al.* \(1990\)](#) or [Campbell *et al.* \(1993\)](#) defining performance to even encompass wider range of activities that have not been exclusively mentioned in the job description of a role; yet, enhance organizational productivity by helping create a positive organizational work environment for employees ([Griffin *et al.*, 2007](#)). Today, the multi-dimensionality of performance is quite established across studies ([Bates and Holton III, 1995](#)), with Task Performance (TP) and contextual performance (CP) being the two widely used performance dimensions. TP includes role-specific activities that must be mandatorily dispensed by an employee holding that role and are formally recognized and rewarded by the organization. On the other hand, CP comprises activities that are voluntary in nature and might or might not be rewarded by the organization; nor would an employee be penalized for not carrying out these non-role specific activities ([Borman and Motowidlo, 1993, 1997](#)). [Van Scotter \(1994\)](#), further, defined Interpersonal Facilitation (IPF) and Job Dedication (JD) as two separate dimensions of contextual performance. While IPF involved helping and cooperating with peers, JD involved putting in additional discretionary effort to getting things done in the organization. Hence, performance can be viewed as a three dimensional construct comprising TP, IPF and JD.

Despite well-established dimensionality (e.g. [Aryee *et al.*, 2004](#); [Conway, 1999](#); [Wang *et al.*, 2010](#)), performance researchers often run into trouble with highly correlated performance dimensions ([Campbell *et al.*, 1990](#); [Conway, 1996, 1999](#); [Motowidlo and Van Scotter, 1994](#); [Van Dyne and LePine, 1998](#)). Most studies attribute these high correlations to rater halo-effect. However, [Rotundo and Sackett \(2002\)](#) urged researchers to move beyond this cliché to explore if the correlations reflected the actual truth of how managers perceived these dimensions, and were not really any kind of rater error.

This study responds to the queries of these researchers by empirically testing the dimensionality of performance construct in the context of Indian PSUs. Most Indian PSUs still follow archaic narrative essay type performance appraisal methods like the “Annual Confidential Reports” (ACRs), and are yet to move to a well-defined, objective, and transparent Performance Management System (PMS; [Gupta *et al.*, 2018a, b](#)). Tall organizational structures leading to information asymmetry at lower hierarchical levels ([Khatri, 2011](#)) and siloed functioning are challenges that face the Indian PSU managers ([Gupta *et al.*, 2018a, b](#)). In such conditions, it would be interesting to study the perception of PSU managers regarding performance dimensions. Very few studies in India, and none as to the best of the authors’ knowledge in the context of Indian PSUs, have conducted a study to empirically test and verify performance dimensionality. Hence, this study contributes uniquely to performance literature, and also to managerial decisions related to managing performance in PSUs.

2. Literature review

Researchers, over years, have defined performance in many ways. [Campbell \(1990\)](#) defined performance as measurable and controllable individual behaviours that contribute to organizational goals. [Kane \(1996\)](#) stated that an individual’s performance is beyond a particular purpose and also includes the legacy that the individual leaves behind. [Motowidlo *et al.* \(1997\)](#) stated that job performance is “behavioural, episodic, evaluative, and multidimensional” and defined it as “the aggregated value to the organization of the discrete behavioural episodes that an individual performs over a standard interval of time” (p. 71). [Brumback \(1988\)](#) noted that “success is not always positive nor failure always negative” (p. 388), emphasizing the influence of the behavioural dimension of the construct and provided a comprehensive definition of performance as mentioned below (that is considered the working definition of performance for this study):

Performance means both behaviours and results. Behaviours emanate from the performer and transform performance from abstraction to action. Not just the instruments for results, behaviours are also outcomes in their own right – the product of mental and physical effort applied to tasks – and can be judged apart from results. (p. 387)

Katz (1964) defined two sets of desired workplace behaviours. The first set of behaviours comprised role-specific tasks, duties and responsibilities that were formally rewarded on successful completion and non-completion of which led to penalty like warning, suspension, or termination. On the other hand, the second set of behaviours were voluntary in nature that might or might not be formally rewarded, however, were crucial to smooth functioning of organizational machinery and internal processes by creating a positive environment, marked by enhanced employee cooperation and reduced employee disputes. These behaviours gain salience in the modern day corporate set-up as managers strive towards tapping collective intelligence of members to build high performing team structures (Conway, 1999).

Later, the first set of behaviours was modelled into constructs such as role performance in system (Katz and Kahn, 1978), *TP* (Borman and Motowidlo, 1993, 1997), task proficiency (Campbell, 1990), in-role performance (Williams and Anderson, 1991; Werner, 1994), technical activities (Borman and Brush, 1993), or job role (Welbourne *et al.*, 1998). Out of these, task performance is the most widely used construct in performance research (e.g. Aryee *et al.*, 2004; Wang *et al.*, 2010).

The second performance domain comprised constructs like organizational citizenship behaviour (OCB; Bateman and Organ, 1983; Organ, 1988; Smith *et al.*, 1983), soldier effectiveness model (Borman *et al.*, 1985), prosocial organizational behaviour (POB; Brief and Motowidlo, 1986), organizational spontaneity (George and Brief, 1992; George and Jones, 1997), *CP* (Borman and Motowidlo, 1993, 1997), or extra-role behaviours (Van Dyne *et al.*, 1995).

Though seemingly overlapping and merged together in few studies (e.g. Van Scotter, 2000; Werner, 2000), these constructs differ from each other in their conceptual definitions (Motowidlo, 2000; Podsakoff *et al.*, 2000) and taxonomic structures (Rotundo and Sackett, 2002).

2.1 Differentiating *TP* from *CP*

Borman and Motowidlo (1993, p. 73) defined *TP* as the accomplishment of role-specific tasks, contributing to organization's technical core that are formally recognized and are a part of the incumbent's job description. However, since formal requirements vary across organizations, this notion of accomplishment of formally recognized or documented activities might make comparison of *TP* difficult for the same roles across organizations (Rotundo and Sackett, 2002). Further, the present-day work environment is so dynamic, that it demands roles to evolve continuously in order to meet business expectations. In such conditions, it is humanly impossible to update job descriptions at the same pace and frequency as the roles change. Practitioners have even suggested replacing responsibilities with competencies in job descriptions because it is not possible to predict what exactly a role is all about. Thus, it would be unfair to restrict task performance to accomplishment of only tasks mentioned in the job description (Schmidt, 1993). Hence, for the purpose of this study, the definition of *TP* as borrowed from Rotundo and Sackett (2002, p. 67) is: "TP includes behaviours that contribute to the production of a good or the provision of a service. However, the definition is not restricted to include only those behaviours that are listed in the job description".

Borman and Motowidlo (1993) proposed the concept of *CP* and differentiated it from *TP*. Borman and Motowidlo (1997, p. 100) stated that "Contextual activities include volunteering to carry out task activities that are not formally a part of the job, and helping and cooperating with others in the organization to get tasks accomplished". Although, not core technical

activities, they contribute to organizational effectiveness by shaping the “organizational, social, and psychological context that serves as the catalyst for task activities and processes”. Drawing heavily on past concepts like OCB (Bateman and Organ, 1983; Organ, 1988; Smith *et al.*, 1983), POB (Brief and Motowidlo, 1996), and the soldier effectiveness model (Borman *et al.*, 1985), the authors presented a taxonomy of CP that included five basic behaviours: (1) persisting own task activities with enthusiasm and dedication; (2) volunteering to carry out non-task activities; (3) helping and cooperating with others; (4) complying to organizational rules and procedures; and (5) endorsing, supporting and defending organizational objectives.

Borman and Motowidlo (1993, 1997) differentiated CP from TP in three ways – (1) Task activities vary as per role requirement, whereas contextual activities could be similar across roles in an organization; (2) task activities are likely to be formally recognized and rewarded during a performance appraisal process, whereas contextual activities need not necessarily be role prescribed or rewarded, and (3) task performance might be majorly a function of an individual’s cognitive ability, whereas contextual performance would be influenced by an individual’s personality traits like extraversion, agreeableness, or conscientiousness. Motowidlo and Van Scotter (1994) proved that TP and CP account for unique variance in overall performance, with a correlation coefficient of 0.2 ($p < 0.01$) between both performance dimensions. Also, they stated that experience influenced TP whereas personality variables influenced CP. Further, Motowidlo *et al.* (1997) stated that cognitive ability strongly influenced TP through adaptations like task knowledge, task skills, and task habits, whereas personality variables strongly influenced CP through contextual knowledge, contextual skills, and contextual habits. Mohammed *et al.* (2002) proved that TP and CP have different antecedents even for teams.

Empirical studies also proved unique influence of TP and CP on overall performance ratings for both managers (e.g. Befort and Hatrupp, 2003; Johnson, 2001) and non-managers (e.g. Borman *et al.*, 1995; Motowidlo and Van Scotter, 1994). Borman *et al.* (1995) surveyed US first-tour soldiers to find that CP did account for unique variance in supervisor and peer ratings of overall performance. When included with other variables like ratee ability, knowledge and proficiency, it enhanced the variance accounted for in supervisor ratings by 15% and peer ratings by 12%. Motowidlo and Van Scotter (1994) surveyed US air force mechanics to find that supervisors viewed TP and CP differently. Befort and Hatrupp (2003), and Johnson (2001) recounted similar findings with supervisor samples from a mid-sized American software company and a US telecommunication company respectively. Werner (1994) reiterated the findings with his study in a university set up.

Van Scotter (2000) proved that TP and CP uniquely influenced outcomes like job satisfaction, affective organizational commitment (AOC), and employee turnover in a study on US air force mechanics. Similarly, Griffin *et al.* (2000) proved that TP and CP had separate unique effects on organizational effectiveness, with task difficulty moderating the relationships between antecedents and outcomes. Becton *et al.* (2017) conducted a study in hospitals to prove that both performance dimensions have differential effects on voluntary turnover, with job complexity moderating the relationship.

2.2 IPF and JD as separate aspects of CP

Researchers went ahead to define two separate facets of contextual performance – IPF and JD. IPF “includes cooperative, considerate, and helpful acts that assist co-workers’ performance” and JD “includes self-disciplined, motivated acts such as working hard, taking initiative, and following rules to support organizational objectives” (Van Scotter and Motowidlo, 1996, p. 525).

In a study on US air force mechanics, Van Scotter (1994), using supervisory ratings, found that TP and IPF directly influenced overall performance, whereas JD indirectly influenced

overall performance through TP and IPF. Further, he also revealed that personality traits like agreeableness and conscientiousness influenced IPF and JD respectively, whereas job knowledge influenced TP. Experience and ability had a direct influence on job knowledge and hence, indirectly influenced TP. Following this, [Van Scotter and Motowidlo \(1996\)](#) conducted another study using supervisory ratings as well as self-ratings on 975 US air force mechanics and found that the three performance dimensions were strongly correlated with overall performance and had a moderate inter-dimension correlation (mean $r = 0.4$, $p < 0.01$; r is the correlation coefficient). However, when the correlation was corrected for unreliability using inter-rater reliability estimates, JD did not account for any unique variance in overall performance, overlapping too much with TP. Hence, the authors suggested including motivational elements of JD in the TP construct, treating IPF as a separate construct. Aligned with this, [Conway \(1996\)](#) also stated that IPF showed more independence from TP than JD. He also proved that the distinction between TP and CP was more pronounced for non-managerial jobs than for managerial jobs. [Conway's \(1999\)](#) meta-analysis differentiated between all the three performance dimensions considering supervisory, self, and peer ratings. He also noted that supervisors paid more attention to TP whereas peers valued IPF more. [Aryee et al. \(2004\)](#) based his study on a local newspaper firm in Northern India and found that TP, IPF, and JD were three distinct factors. Though, the correlations between TP and JD ($r = 0.66$) and that of JD and IPF ($r = 0.67$) were high, the measurement model received decent fit. However, the RMSEA ($0.08 > 0.05$) was just a moderate fit ([Hu and Bentler, 1999](#)).

Based on findings of studies like [Aryee et al. \(2004\)](#); [Conway \(1999\)](#); [Van Scotter \(1994\)](#); [Wang et al. \(2010\)](#), this study hypothesized that Employee Performance would be three dimensional with the three non-overlapping dimensions as TP, IPF and JD.

3. Research methodology

3.1 Sample and data collection

The study used pen-paper survey to collect data from 162 executives in managerial positions across 13 PSU headquarters located in Bhubaneswar, the capital city of Odisha, a state in eastern India. Most of these PSUs have manpower strength of more than 2000 employees and have an annual turnaround of more than Rupees 500 crores. [Table 1](#) provides the mapping of designations used in these PSUs to different hierarchical levels namely – officer level, junior, middle, and senior management levels. The mapping is based on discussions with PSU HR executives.

A total of 800 questionnaire forms were distributed to 200 managers (4 forms were given to each manager), out of which 621 filled-up forms were received from 162 managers. Out of

Management level	Designations
Senior Management Level	Director Senior General Manager Chief General Manager General Manager
Middle Management Level	Deputy General Manager Assistant General Manager Chief Manager Senior Manager
Junior Management Level	Manager Deputy Manager
Officer Level	Assistant Manager Junior Manager

Table 1.
PSU designations
mapped to hierarchical
levels

these 162 managers, 7% belonged to the senior management level, 41% belonged to the middle management level, and 52% belonged to the junior management level. The average tenure of the managers 27 years and the average age was 52 years 33 forms were rejected due to missing data, leaving 588 useable forms, resulting in an effective response rate of 73%. Out of these 588 executives who were rated, 27% belonged to the middle management level, 32% belonged to junior management level, and 41% belonged to the officer level. The average tenure of the executives was 21 years and the average age was 46 years.

Following the 1:10 rule (Hair, Jr. *et al.*, 2013), p. 588 data points is adequate for this study that used a questionnaire with a total of 22 items spread across the three dimensions of performance.

3.2 Research measures

All the scales used followed a five-point rating where 1 = 'Extremely Unlikely', 2 = 'Unlikely', 3 = 'Neutral', 4 = 'Likely', and 5 = 'Extremely Likely'.

Table 2 presents the details of items under each construct as per the scales used in this study.

Construct	Scale items to measure the construct	Source
Task Performance (TP)	<i>How likely is the employee to</i> TP1. Adequately complete assigned duties TP2. Fulfil responsibilities specified in his job description <i>or needed by his/ her formal organizational role*</i> TP3. Perform tasks that are expected of him/her TP4. Meet formal performance requirements of the job TP5. Engage in activities that will directly affect his/her performance evaluation TP6. Neglect aspects of job that he/she is obligated to perform (R) ** TP7. Fail to perform essential duties (R) **	<i>Williams and Anderson (1991)</i>
Interpersonal facilitation (IPF)	<i>How likely is the employee to</i> IPF1. praise co-workers when they are successful IPF2. support or encourage a co-worker with personal problems IPF3. talk to others before taking actions that might affect them IPF4. say things to make people feel good about themselves or the work group IPF5. encourage others to overcome their differences and get along IPF6. treat others fairly IPF7. help someone without being asked	<i>Van Scotter (2000)</i>
Job dedication (JD)	<i>How likely is the employee to</i> JD1. put in extra hours to get work done on time JD2. pay close attention to important details JD3. work harder than necessary JD4. ask for a challenging work assignment JD5. exercise personal discipline and self-control JD6. take the initiative to solve a work problem JD7. persist in overcoming obstacles to complete a task JD8. tackle a difficult work assignment enthusiastically	<i>Van Scotter (2000)</i>

Table 2.
Details of items under each construct as per the scales used in this study

Note(s): *TP2 was slightly modified (italicized portion) to align with present day workplace requirements where TP is not restricted to only activities documented in the job description (Rotundo and Sackett, 2002; Schmidt, 1993). **Reverse coded items in the scale

3.3 Statistical tools and techniques used

This study used SPSS 25 and AMOS 24 to conduct an Exploratory Factor Analysis (EFA), followed by a Confirmatory Factor Analysis (CFA) to verify if Indian PSU managers perceived the three performance dimensions differently and establish the dimensionality of the construct in an Indian context, particularly in the context of Indian PSUs.

4. Results and findings

4.1 Reliability and inter-construct correlations

Table 3 presents the descriptive statistics, correlations and reliabilities of the study constructs. Cronbach's alpha value for all the three constructs is above the threshold value of 0.7 mentioned by Hair, Jr. *et al.* (2013) or Nunnally (1978). Hence, the scales used in the study are found to be reliable and internally consistent.

However, the correlations of both TP and IPF with JD are more than 0.7. This could be indicative of issues with discriminant validity of the constructs, going further. EFA or CFA are the two commonly used statistical methods for exploring underlying factor structures in a data set (Hair, Jr. *et al.*, 2013). EFA allows the statistical software (SPSS 25 in this study) to freely explore underlying dimensions or factors from the data without any a-priori input from the researcher on the factors or dimensions. On the other hand, in CFA the researcher is required to have a-priori knowledge of the factor structure from past research or theory and load the items of a particular factor on to that factor in the measurement model. Hence, CFA checks the alignment of the data collected from a particular context to the already established factor structure and can establish the dimensionality of a larger construct like employee performance. Although authors (e.g. Costello and Osborne, 2005; Hair, Jr. *et al.*, 2013) have encouraged the use of CFA and not EFA for well-established scales, results from an EFA when married to CFA findings could provide richer insights. However, care should be taken not to infer anything based on stand-alone EFA results.

4.2 EFA

Kaiser-Meyer-Olkin (KMO) value for this study was 0.965 (greater than the threshold value of 0.7) and Bartlett's test was significant implying existence of internal factor structures in the data (Hair, Jr. *et al.*, 2013). Table 4 presents the initial pattern matrix obtained through EFA where Principal Axis Factoring was used along with Promax rotation to extract factors with eigenvalues above 1. Factor loading less than 0.5 was suppressed (Hair, Jr. *et al.*, 2013). Two factors explaining 61% of the total variance were extracted against the expectation of getting three factors. JD2 and JD5 loaded on TP instead of JD. JD6 and JD7 had a non-loading problem. In the next two-steps, JD5 was removed, followed by JD2. Table 5 presents the final pattern matrix with clear loadings where JD6 and JD7 did load on Factor 1. However, the solution still had only two factors explaining 62.092% of the total variance in the model. That is because IPF and JD loaded on the same factor. This is indicative of existence of a second order factor in this model (Gaskin, 2018a). After all, IPF and JD are dimensions of CP. Further, the factor

Constructs	No. of items	Mean	Std. Dev	TP	IPF	JD
TP	6	3.99	0.60	<i>(0.921)</i>		
IPF	7	3.53	0.65	0.689**	<i>(0.903)</i>	
JD	7	3.70	0.79	0.795**	<i>0.782**</i>	<i>(0.943)</i>

Note(s): The bold figures along the diagonal represent the scale reliabilities. ** Correlation is significant at 0.01 level (2-tailed)

Table 3. Descriptive statistics, correlations, and reliabilities of study constructs

Table 4.

EFA – Initial pattern matrix

	Pattern matrix ^a	
	1	2
TP1		0.654
TP2		0.729
TP3		0.716
TP4		0.692
TP5		0.706
TP6		0.941
TP7		0.847
IPF1	0.716	
IPF2	0.787	
IPF3	0.803	
IPF4	0.817	
IPF5	0.839	
IPF6	0.543	
IPF7	0.905	
JD1	0.581	
JD2		0.630
JD3	0.618	
JD4	0.672	
JD5		0.776
JD6		
JD7		
JD8	0.526	

Note(s): Extraction Method: Principal Axis Factoring. EFA - Final pattern matrix Rotation Method: Promax with Kaiser Normalization. ^aRotation converged in 3 iterations

correlation matrix showed a correlation of 0.767 between the two factors, indicating discriminant validity issues between constructs.

4.3 CFA

Next, a CFA was conducted to further verify the dimensionality of the larger construct of employee performance. The initial measurement model had three constructs, drawing on respective items as defined in the used scales. All the 22 items were retained. However, this model had poor model fit (CMIN/DF = 6.122; $p = 0.000$; CFI = 0.904; RMSEA = 0.093; SRMR = 0.051) when compared to thresholds provided by [Hu and Bentler \(1999\)](#). Hence, the model needed re-specification depending on modification indices (MIs). MIs indicated that the error terms of three pairs of items were quite high – TP6-TP7; JD7-JD8; and JD2-JD5. In these pairs, items with lower loadings were removed from the model, one at a time, checking for model fit each time a model re-specification was done. The traditional practice of co-varying error terms to improve model fit is being discouraged now-a-days since it introduces artificial relationships into the measurement model that might not be backed by theory. Rather, deletion of problematic items is preferred, especially with reflective constructs ([Hair, Jr. et al., 2013](#); [Hermida, 2015](#); [Gaskin, 2018b](#)). The final measurement model (Model 1; See [Figure 1](#)) after re-specifications had a total of 18 items drawn on respective constructs, after removal of TP6, JD8, JD2 and JD5. This improved the model fit considerably to acceptable levels (CMIN/DF = 3.193; $p = 0.000$; CFI = 0.965; RMSEA = 0.061; SRMR = 0.031).

4.4 Testing reliability, convergent and discriminant validity of constructs

After obtaining model fit for the measurement model (Model 1), the next step was to check for reliability, convergent and discriminant validity for the constructs. [Table 6](#) presents the

	Pattern matrix ^a	
	1	2
TP1		0.708
TP2		0.769
TP3		0.730
TP4		0.703
TP5		0.733
TP6		0.898
TP7		0.829
IPF1	0.710	
IPF2	0.786	
IPF3	0.777	
IPF4	0.787	
IPF5	0.842	
IPF6	0.616	
IPF7	0.885	
JD1	0.641	
JD3	0.688	
JD4	0.713	
JD6	0.548	
JD7	0.572	
JD8	0.599	

Note(s): Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization.
^aRotation converged in 3 iterations

Table 5.
EFA – Final pattern matrix

composite reliability (CR), average variance extracted (AVE), and the correlation between constructs. $CR > 0.7$ and $AVE > 0.5$ for all constructs indicate that reliability and convergent validity criteria are met (Hair, Jr. *et al.*, 2013). However, the square root of AVE for TP (0.815) is less than correlation coefficient between TP and JD (0.826). The square root of AVE for IPF (0.760) is less than correlation coefficient between IPF and JD (0.866). The square root of AVE for JD (0.852) is less than correlation coefficient between IPF and JD (0.866). The square root of AVE for IPF (0.760) is less than correlation coefficient between IPF and TP (0.770). This clearly indicates that there is no discriminant validity between the three constructs.

4.5 Model 2: employee performance (*EmpPerf*) as a one-dimensional first order construct

Results from both EFA and CFA, along with high correlation between the constructs indicated that the three dimensions of performance did not have discriminant validity. Hence, all the 18 items were loaded on one single factor named as *EmpPerf* (Model 2; See Figure 2), instead of loading on three different factors. However, this model had extremely poor model fit (CMIN/DF = 9.674; $p = 0.000$; CFI = 0.859; RMSEA = 0.122; SRMR = 0.063). This hinted at possibility of existence of a superior model that would fit the data better.

4.6 Model 3: TP and CP as two factors in the measurement model

Since, IPF and JD had loaded on one factor during EFA, the same model was replicated in CFA (Model 3; See Figure 3) to see if the model fitted the data better and qualified the discriminant validity test. However, this model too had a poor fit (CMIN/DF = 5.293; $p = 0.000$; CFI = 0.931; RMSEA = 0.086; SRMR = 0.042) to the data. The fit indices, however,

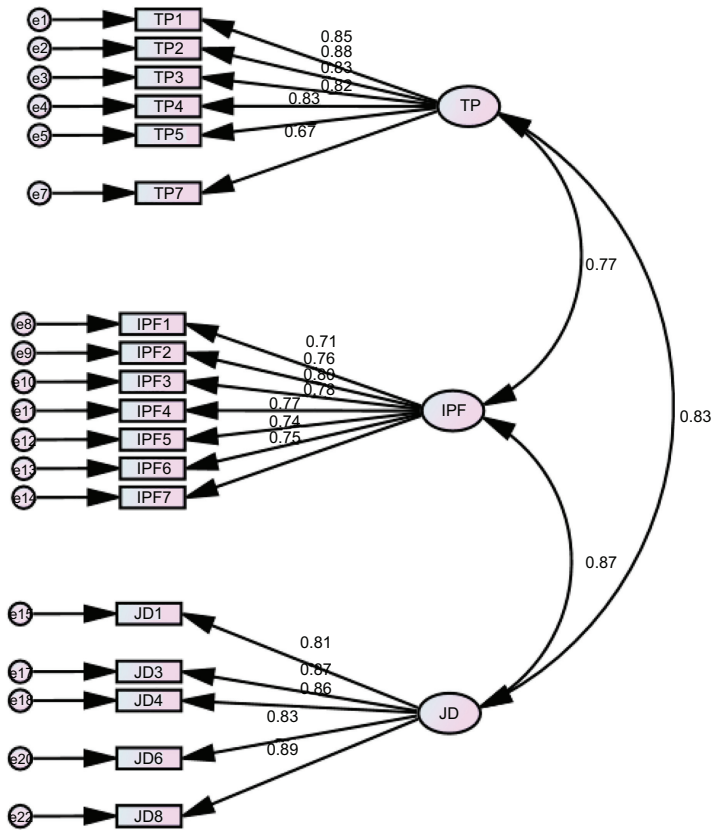


Figure 1.
Model 1 –
Measurement model
obtained after model
re-specifications

	CR	AVE	MSV	TP	IPF	JD
TP	0.922	0.665	0.683	0.815		
IPF	0.906	0.578	0.750	0.770***	0.760	
JD	0.930	0.727	0.750	0.826***	0.866***	0.852

Note(s): *** $p < 0.001$; Square roots of AVEs are reported along diagonal in bold

Table 6.
Reliability and validity
of Model 1

were an improvement over Model 2 where all the 18 items had loaded on a single factor called EmpPerf. A check for reliability and validity was not necessary as the model could not even obtain good model fit.

4.7 Model 4: EmpPerf as a second order construct in the measurement model

Since, both Model 2 and Model 3 failed to obtain acceptable model fit, it was decided to test another competing model where EmpPerf would be introduced as a second order factor drawing on the three first order factors – TP, IPF, and JD. This measurement model (Model 4; See Figure 4) achieved a good model fit (CMIN/DF = 3.193; $p = 0.000$; CFI = 0.965; RMSEA = 0.061; SRMR = 0.031).

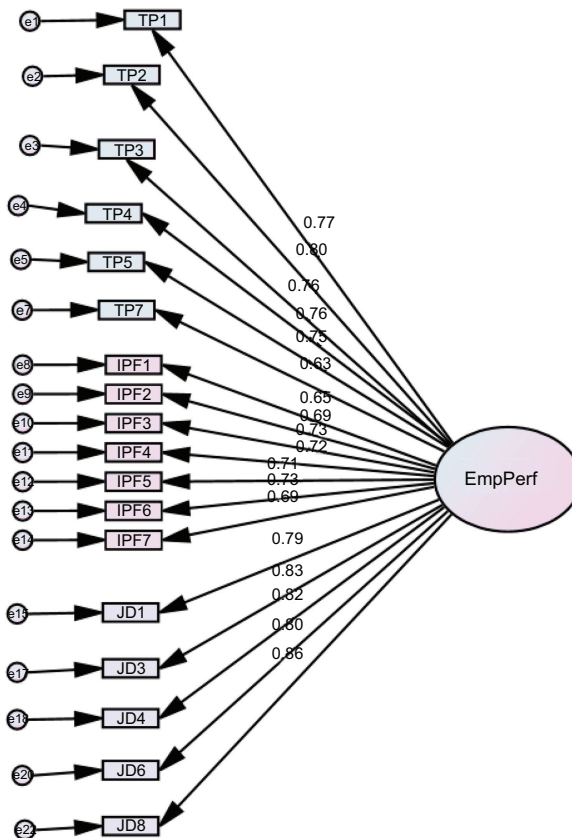


Figure 2. Model 2 – EmpPerf as a one-dimensional first order factor

5. Discussion and implications

The three dimensional model of performance did garner support across studies like [Aryee et al. \(2004\)](#); [Conway \(1999\)](#); [Van Scotter \(1994\)](#); and [Wang et al. \(2010\)](#). However, in the context of Indian PSUs, the dimensions failed to obtain discriminant validity and were modelled as first order indicators of a second order construct like EmpPerf. The findings are akin to those in studies like [Van Scotter and Motowidlo \(1996\)](#) or [Conway \(1996\)](#) that had found high overlap between TP and JD, suggesting combining these constructs. In the present study too, TP had a higher correlation with JD ($r = 0.795, p \leq 0.01$) than with IPF ($r = 0.689, p \leq 0.01$). However, the correlation between JD and IPF ($r = 0.782, p \leq 0.01$) was also high in this study, resulting in no discriminant validity between all the three constructs. This is contradictory to findings from studies cited above that had treated IPF as a separate construct.

High correlations between performance dimensions is not uncommon and has been often attributed to rater halo bias by researchers (e.g. [Campbell et al., 1990](#); [Conway, 1996, 1999](#); [Motowidlo and Van Scotter, 1994](#); [Van Dyne and LePine, 1998](#)). But, the probability of it reflecting the actual perception of respondents and not being a function of any rater bias cannot be ruled out completely and needs attention ([Rotundo and Sackett, 2002](#)).

In this case, it appears that PSU managers did not perceive enough distinction between the three dimensions of performance to treat them as separate constructs. But, the data had an extremely poor fit when EmpPerf was modelled as a one-dimensional first order factor with

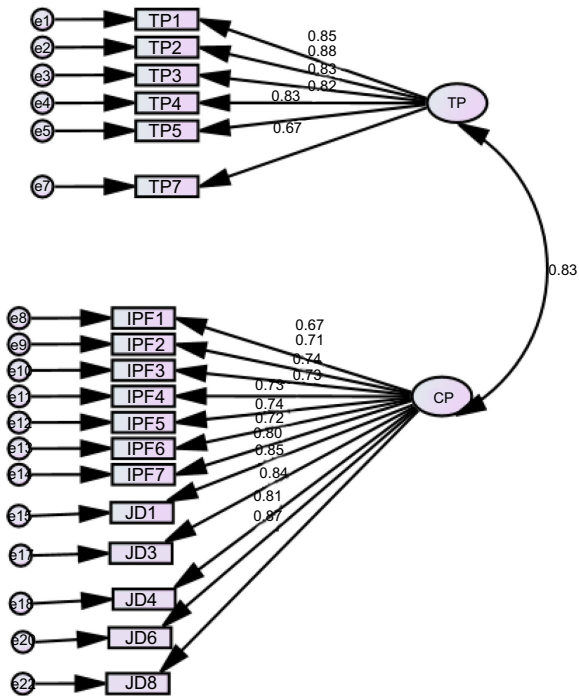


Figure 3.
Model 3 – TP and CP as
two factors in the
measurement model

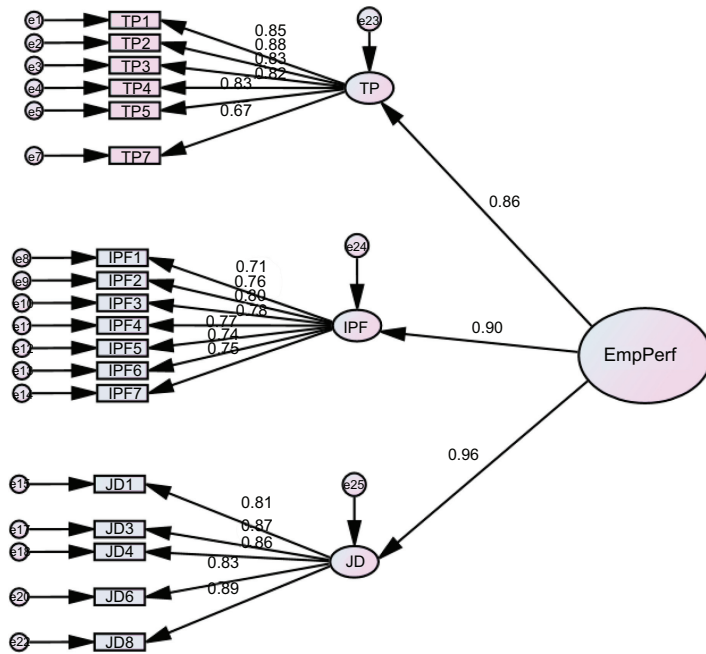


Figure 4.
Model 4 – EmpPerf as a
second order construct

all the 18 items drawn on it. This suggests that PSU managers did perceive an implicit difference between the dimensions, but, their ratings did not reflect it explicitly, rather hinted towards emphasis of PSU managers on overall performance. It could very well be a function of the collectivistic Indian culture, reflected quite strongly in a PSU culture where people tend to take a holistic view of things instead of compartmentalizing them (Kumar, 2010; Misra; Gergen, 1993). The other possibility could be the sample itself which excluded non-executives and blue collar workers and had only executives as respondents since the distinction between performance dimensions is more pronounced with non-managerial jobs than with managerial jobs (Conway, 1996). Further, supervisors also tend to prioritize TP over the other dimensions and hence, the rating in TP could have influenced the way supervisors rated IPF and JD (Conway, 1999), actually leading to some kind of halo bias. However, in specific context of Indian PSUs that have a relational work culture (Gupta *et al.*, 2018a, b), there is a possibility that managers could also have prioritized IPF and an employee having higher ratings on IPF could have been rated high on other performance dimensions too. This is aligned with findings of Lievens *et al.* (2008) that team based cultures placed more weightage on citizenship performance in influencing overall performance ratings. This could have led to the finding of IPF not being a distinct construct from TP and JD, contradictory to findings from studies such as Van Scotter and Motowidlo (1996) or Conway (1996).

Another reason could be the fact that PSU managers are not adept at differentiating between various forms or levels of performance since most PSUs still follow an archaic performance appraisal system with hand-written ACRs. (Gupta *et al.*, 2018a, b). These ACRs usually follow the descriptive essay method to document critical incidents in order to appraise an employee. Thus, the method is quite subjective, with focus on overall performance and not on various components of it. Is this practice sustainable in the modern world? The question definitely raises concerns and needs discussion.

Discussing the dynamism of future workplace, Alaganandan (2016) predicted the co-existence of three types of workplaces in future, calling it as the blue, orange, and green worlds. Employees in the blue world would believe in competition and reward equity would be a priority to them, whereas the orange world would resemble a gig-economy where employee-employer relationship would be mostly contractual, project-based, and talent barter between organizations would be common. On the other hand, green world employees would be driven by purpose and collaboration and generating synergy to achieve a cause would be the priority. Future organizations would exist in the intersection space of these three worlds, with different employee cohorts having (full-time employees, contractual employees, consultants, freelancers) different performance standards and levels. This would require performance managers to be extremely agile and observant to understand the subtle differences between performance criteria of different employee groups of the same organization. Within each cohort also, performance expectations would vary as a function of diversity in age, gender, culture, skills, or experience, further adding to the complexity. In such conditions, the ability of managers to engage with employees on a continual basis and provide on-going feedback would be pivotal in the success of PMS in organizations. Would PSUs be able to sustain in a flexible and dynamic environment as such? Not at least with the present performance management practices where managers are failing to even differentiate between various performance dimensions.

PSU managers themselves have voiced the need for them to migrate to a well-defined, objective, and transparent PMS that differentiates between various forms and levels of performances. However, the rigid operational rules set by Government have been the impediments to change (Gupta *et al.*, 2018a, b). It is high time PSUs change their performance management methods to move towards a more objective and transparent key performance indicator (KPI) based PMS. Further, PMS could be integrated with organizational and role based competencies in order to evaluate not only results (TP), but also behaviours (IPF, JD).

Technology and automation could be a huge aid in this transformation. Linking PMS to software systems like Jira, Confluence or BambooHR would help both employees and managers track performance on a real time basis. Similarly, software could be used for informal and non-monetary spot rewards and recognition where an employee could be recognized by his or her superior, peer, or subordinate for accomplishments, big or small, by sending thank you notes, or a star-performer e-certificate, etc. This could be an excellent tracker of employee contextual performance. Managers must indulge in continuous and on-going feedback with subordinates to be able to differentiate between various levels and types of performances. This change must be supported through broad-based training programs for employees as well as managers. Workshops on setting clear performance goals, evaluating rater biases, and giving and receiving feedback would be highly effective in implementing a successful PMS. Technology like machine learning, gamification, online or class-room simulations, and mobile app-based learning could be leveraged to achieve effective and efficient results in training. Initially, PSUs could rely on outside experts or consultants to help them design the PMS, hand-hold employees in implementing it, and manage employee communication regarding the change. Gradually, the ownership could be completely transferred to the PSU managers. While this would require unstinted support and involvement of top leadership, PSUs must also be careful to involve employees in each step of the change by allowing employees to voice their opinions, ideas, or concerns through focus-group discussions, app-based or online surveys, and design-thinking workshops related to PMS. Artificial intelligence enabled chat-bots, mobile app based intranet systems could make change communication effective. This would surely help the PSUs enhance workplace performance and productivity and also sustain in the competitive and dynamic business landscape.

6. Conclusion and directions for future research

The study uniquely contributes to the performance literature by testing the dimensionality of performance construct in context of Indian PSUs, which had never been done before. It tests various models of performance and concludes that EmpPerf modelled as a second order factor with the three dimensions – TP, IPF, and JD, drawn on it as three first order indicators is the model that fits the data the best. Further, it adds insights by proving that Indian PSU managers do not perceive explicit difference between performance dimensions while rating subordinates. Rather, the focus is on overall performance, though they might be implicitly differentiating between the performance facets. The study reviews the complexity of future workplace to state that in order to sustain, PSUs need to re-define performance management practices to make them more robust, objective, and transparent, and concludes by suggesting methods to improve managerial capabilities of assessing and managing performance better.

In spite of the study making relevant contribution to both research and practice, there are gaps that can be addressed through future performance studies. The sample in this study was restricted to executive from PSU headquarters in Bhubaneswar. The study could be replicated across other samples like executives working on field sites, non-executives, blue collar workers and even private employees from other sectors to compare and contrast the findings with this study. This study used only supervisory ratings that could have led to rater halo effect. Future studies could also plug in self and supervisory ratings to study if dimensionality of performance changes by doing so. A follow up study could explore the influence of the individual performance dimensions on perception of overall performance in context of PSU managers. One could also look at developing newer performance measures or using other performance measures like that developed by [Welbourne et al. \(1998\)](#) that might suit the Indian context better.

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