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Evaluating the Predictive Validity of Employee Engagement: A Meta-Analytic Comparison with Job Attitudes in Forecasting Employee Performance

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Abstract. The present research employs "meta-analytic estimates" to investigate if the "employee engagement (EE) construct" exhibits additional reliability in forecasting "employee performance", which encompasses a wide range of behaviour related to performance, beyond "other job attitudes" including "job satisfaction", "job involvement", and "organizational commitment". The data were obtained from 53 empirical studies conducted focusing on the correlation of the above-mentioned variables, which included a sample size of 4,421 individuals. The approximations obtained were integrated with previously published meta-analytic approximations concerning the association between "employee performance" and indicators of "job attitudes", resulting in a meta-matrix that encompasses 1,082 distinct correlations. By utilizing the meta-matrix, it was found: (1) The additional reliability of "employee engagement" is low to moderate in comparison to "individual job attitudes", and (2) The additional reliability of "employee engagement" is low in comparison to a "higher-order job attitude construct" that represents the amalgamation of "other job attitudes" in forecasting a "higher-order employee performance construct". The findings indicate that due to the limited scope of prevalent "employee engagement" assessments, it may be more appropriate to view "employee engagement" as a more comprehensive "job attitude" measure that can efficiently forecast "employee performance".

Keywords: Employee Engagement, Job Attitude, Job Involvement, Job Satisfaction, Organizational Commitment and Employee Performance.

1. INTRODUCTION

Employee engagement (EE) has been an increasingly popular subject in the field of organizational studies for over a decade. Using "PsycINFO/Business Source Elite", the researchers found over a thousand citations between 2012 to 2024 on the topics of "employee engagement" and "work engagement," with around 80 per. cent being non-empirical publications written by human resource practitioners. "Employee engagement" denotes a synthesis of "job attitudes" that human resource managers consider to be the foundations of an actively engaging workforce, and is described as a "positive, fulfilling, work-related state of mind that is characterized by vigour, dedication, and absorption" (Barreiro & Treglown, 2020).

Academic studies have lately been inquiring whether "employee engagement" overlaps with different variables of "job attitude" (Koeing, 2013), despite the widespread popularity of "employee engagement" among human resource practitioners. As Newman et al. (2010) point out, "employee engagement" exists in a similar conceptual space as that of other well-established "job attitude" concepts including "job satisfaction", "effective organizational commitment", and "job involvement". In today's fast-evolving landscape, digitalization has become a pivotal force shaping the attitudes and actions of entrepreneurs (Shama, 2023).

Indeed, several consulting firms have created engagement scales that describe "employee engagement" as including factors of job happiness. Gallup Organization defines "Employee Engagement" as "individual employees' involvement and satisfaction with, as well as enthusiasm for, their work" (Mackay et al., 2017; Celestin et al., 2024).

Historically, they offered their expertise and abilities in return for compensation (Bajpai, 2022).

This research aims to study the effect of "employee engagement" on the additional reliability of "employee performance" by taking into consideration "job attitudes" in the workplace. In today's dynamic environment, digitalization has become a key factor shaping the perspectives and actions of entrepreneurs (Shama, Shahid Mazhar, S., Mittal, P., Fatima Rizvi, A., Sardar Khan, F., & Rehman, A. ur., 2024). Meta-analytic methods, path analysis, and extensions of "Employee Engagement theory" (Gede et al., 2024; Young et al., 2018) have been used to argue that it is associated with crucial factors of "job performance" above and beyond other "individual job attitudes". "Employee effectiveness" is a "higher-order construct" of variables related to "employee performance" and is described as "the tendency to contribute desirable inputs towards one's work role" (Asfaw et al., 2015). In this research paper, it is argued that "employee engagement" is better considered as a "higher-order construct" that accurately calculates "employee performance" by considering the "compatibility principle" (Li et al., 2014). Simply said, "employee engagement" has the potential to be a more time and cost-efficient way to collect data on employee opinions that predict performance metrics like "primary and secondary job responsibilities", "satisfaction with work conditions", "intent to leave the company", and "attendance" (Gede et al., 2024).

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2. THEORETICAL RESEARCH ON EMPLOYEE ENGAGEMENT

Young et al. (2018) described "employee engagement" as "the level of commitment that people have to their role performance on a physical, cognitive, and emotional level". In their role performances, engaged employees tend to be psychologically present, attentive, focused, connected, and integrated. A very similar connotation is embraced by the modern definition of "employee engagement", which is described as "a positive work-related state of mind comprised of vigour, dedication, and absorption". Here, examples of vigour include high energy, a willingness to put forth efforts towards organizational goals, and perseverance when performing work-related duties. Further, absorption is "characterized by total focus, immersion, and involvement in one's job, during which time goes swiftly and one finds it difficult to disengage".

Some of the contextual determinants of "employee engagement" include "social support", "performance feedback", "autonomy", "learning opportunities", and "work variety" (Gede et al., 2024; Anitha, 2018). Since they enable employees to meet the fundamental human needs of "autonomy", "connections", and "competence", these work environments foster a high degree of engagement (Deci & Ryan, 2013). "Employee engagement" and "employee burnout" are opposites in one dimension, as stated in the "Job Demands-Resources model" (Mazzetti et al., 2021): resources like "social support" and "performance feedback" encourage "employee engagement", whereas work demands like "time", "the difficulty level of tasks", and "levels of emotional exhaustion and burnout". Only when resources surpass demands from the job can a person maintain high levels of "employee engagement". According to "meta-analytic research", "employee engagement" and "employee burnout" are concepts that exist at the extremes of the same dimension (Hafeez et al., 2024; Cole et al., 2011). However, not all studies have found evidence to support this assertion, in part because "employee engagement" is assessed and exhibited differently in different groups and research (Cole et al., 2011).

Primary data is collected through surveys using a questionnaire, while secondary data is obtained from various sources, including research articles published in journals (Bajpai S. M., 2022).Numerous cutting-edge approaches, including artificial intelligence, financial technology, the Internet of Things, machine learning, blockchain, and others, are being integrated to transform and redefine the marketplace (Aanchal Nigam, 2024).

Numerous studies have successfully demonstrated that employees who engage themselves perform comparatively better than those less-engaged employees because of the intuitive relationship between "employee engagement" and "employee performance" (Nguyen & Nguyen, 2022). "Employee engagement" is also related to "improved job performance ratings", "improved in-role performance", "organizational citizenship behaviour", "personal initiative", "increased likelihood of promotion", "reduced absenteeism and delays", and "decreased turnover and intention to turnover". Additionally, studies have linked "employee engagement" to less obvious outcomes like declines in work-related health issues, workaholic employee innovativeness, and fair financial performance indicators at the organizational level. It's interesting to note that research also indicates that chronic high-construct levels of "employee engagement" are uncommon (Arumugam, 2019).Future research can focus on investigating the factors that shape trust and address security concerns, such as fraud prevention measures, the perceived reliability of services, user experience, intuitive design, and responsiveness, and how these elements influence user satisfaction and adoption rates (Aanchal Nigam F. S., 2024)

In conclusion, studies of "contextual antecedents" and "contextual repercussions" of "employee engagement", the relationships between "employee engagement" and "employee burnout", the linkages with "employee engagement", and its deviation from "other job-related" constructs have all been examined in the past 25 years. For a new construct to be established among the "job-related attitudes", "employee engagement" seems to have had a great deal of success. But given that "employee engagement" encompasses "other job attitudes" including "job satisfaction", "job involvement", and "organizational commitment", it raises the question of whether "employee engagement" predicts job success above and beyond the considered "job attitudes".

3. RELIABILITY OF EMPLOYEE ENGAGEMENT

Several scholarly studies have investigated the correlation between "employee engagement" and other "job-related constructs", as evidenced by the works of Cimbaljevic et al. (2020). A "meta-analysis" conducted by Harter et al. (2020) found that "employee engagement" evaluates individuals' overall "job attitudes" and encompasses "job satisfaction", "employee engagement", and "organizational commitment". The authors posited that while "employee engagement" may exhibit additional reliability compared to "individual job attitude" measures, its additional reliability across the amalgamation of these measures is not necessarily guaranteed.Cronbach's Alpha, a widely recognized measure of internal consistency, was employed to evaluate the inter-item reliability of the questionnaire (Zehra, 2024).

One potential approach to evaluating the relationship between "employee engagement" and "other job attitudes" is to investigate whether it offers additional predictive power regarding a significant outcome measure, such as "job performance". The provision of evidence demonstrating the distinct explanatory power of EE in comparison to "other job attitudes" would contribute to the ongoing discourse by shedding light on the ultimate usefulness of "employee engagement" as a construct. Stated differently, the presence of empirical evidence indicating the additional reliability of "employee engagement" in predicting "job performance" would imply that

"employee engagement" is not merely an inadequate amalgamation of the three "job attitudes", but rather a valuable and valid construct. Prominent researchers in the field of "employee engagement" acknowledge the significance of the following inquiry: "...[the] crucial question to be answered is: Has the concept of engagement - as defined in academia - added value over and above traditional, related concepts?"(Schaufeli and Bakker, 2010)

Anitha (2018) investigated the additional predictive power of "employee engagement" to "job performance". The authors employed distinct hierarchical regression analyses to forecast both "focal performance" and "contextual performance". Their findings revealed that "employee engagement" contributed to the explanatory variance beyond the amalgamation of "job satisfaction", "organizational commitment", and "job involvement". The inclusion of "employee engagement" as an independent variable resulted in a notable increase in the R2 value, specifically by 0.19 and 0.16 for predicting "focal performance" and "contextual performance", respectively. The results indicate that "employee engagement" was the most influential predictor in each regression model, with a value of 0.43 and 0.44 for "focal performance" and "contextual performance". The values of other indicators were diminished to practically significant levels. Specifically, certain beta weights were decreased to values as low as 0.06 and 0.04.

The study investigates if the "employee engagement" construct exhibits additional reliability in forecasting "employee performance". This study builds upon the research conducted by Anitha (2018) by utilizing a more extensive collection of studies on "employee engagement". The present research incorporates more recent literature and utilizes structural equation modelling to evaluate the extent to which "employee engagement" possesses additional reliability in estimating both "focal job performance" and "contextual job performance", beyond the influence of "other job attitudes". This is achieved through a "meta-analytic path analysis". Therefore, the initial question can be formulated as follows:

Research Question 1: *"Does EE bear explanatory variance in focal and contextual job performance over and above other individual job attitudes?"*

3.1. Employee Engagement Construct

If the "employee engagement construct" is found to have predictive power for job performance beyond that of "individual job attitudes", it could be more appropriately conceptualized as a "higher-order construct" that is efficient. The "Utrecht Work Engagement Scale (UWES)", which is widely employed to assess engagement, has a concise version of only nine items, as developed by Kulikowski (2017). The scale in question appears to encompass facets of "job satisfaction", "job involvement", and "organizational commitment", rendering it a potentially effective tool for comprehensively evaluating various underlying job-related attitudes. The discovery of distinct and dependable gauges for "job satisfaction", "job involvement", and "organizational commitment", which are also legally sound and encompass not more than nine items collectively, would be a noteworthy achievement.

Moreover, it is crucial to acknowledge that the discourse surrounding the distinctiveness of "employee engagement" cannot be effectively resolved through the examination of whether "employee engagement" exhibits additional reliability in comparison to "other individual job attitudes", as evaluated by Research Question 1. Whilst these analyses provide valuable insights, it is commonly observed that a "high-order construct" will exhibit additional reliability when compared to one of its subordinate indicators, thus giving the impression of distinctiveness. The presence of "job satisfaction", "job involvement", and "organizational commitment" in EE suggests that it may possess additional reliability beyond that of each indicator. Demonstrating the additional reliability of "employee engagement" in relation to a "higher-order job attitude construct" that encompasses "job satisfaction", "job involvement", and "organizational commitment" is deemed crucial.

Anitha (2018) provides convincing proof regarding the additional value of "employee engagement" in comparison to "other job attitudes" when forecasting both "focal job performance" as well as "contextual job performance". The results derived from distinct regression analyses conducted on "focal performance" and "contextual performance", as opposed to a joint analysis of both performance types. As per the "compatibility principle of attitudes", which was proposed by Ajzen (2011), it is observed that constructs that possess the same degree of specificity tend to display stronger associations compared to constructs that differ in their specificities. Stated differently, the relationship between two constructs will exhibit greater strength than the relationship between a construct that is broad and one that is specific. The predictive accuracy of first-order constructs is superior when compared to that of other "high-order constructs", while second-order constructs exhibit a higher degree of predictability when compared to other constructs of the same order, and so forth. In the context of "Employee Engagement", the "compatibility principle of attitudes" posits that the most stringent assessment of additional reliability of "employee engagement" lies not in the anticipation of singular "focal performance" or "contextual performance", but in the anticipation of a "higher-order construct" that encompasses both performance types, alongside other indicators like "absenteeism" and "turnover". The construct under consideration is referred to as "employee effectiveness", which is stated in accordance with Asfaw et al.'s (2015) definition as "the general inclination to provide favourable contributions towards one's work role".

Empirical evidence has demonstrated the reliability of the "compatibility principle of attitudes" in organizational and non-organizational settings (Mackay et al., 2017). Asfaw et al. (2015) have shown that a

"higher-order job attitude construct" demonstrates the superior predictive ability for "employee performance" when it is reflected through a "higher-order construct" that encompasses "focal performance", "contextual performance", "lateness", "absenteeism", and "turnover".

Thus, given that "employee engagement" encompasses components of "other job attitudes", implying that it may be a "higher-level construct", the second objective of this investigation is to comprehensively evaluate the "additional reliability of employee engagement". This will be achieved by investigating whether "employee engagement" can predict a "higher-level employee effectiveness construct" beyond a "higher-level job attitude construct". Therefore, the second question of this research is formulated as follows:

Research Question 2: *"Does EE bear explanatory variance in a higher-order employee effectiveness construct (comprising focal performance, contextual performance, turnover, and absenteeism) above and beyond a higher-order job attitude construct (comprising job satisfaction, job involvement, and organizational commitment)?"*

The present study constitutes a noteworthy addition to the extant corpus of scholarly works in various respects. The study provides a revised "meta-analytic evaluation" of the association between "employee engagement" and "job performance", encompassing both focal and contextual aspects. It identifies approximations of the associations among "employee engagement", "absenteeism", and "turnover intention", which have yet to be disseminated in scholarly works. Further, it assesses the potential additional reliability of "employee engagement" about a "higher-order job attitude construct," which is considered the most precise approach for investigating its supplementary reliability. The present study aligns with Ajzen's (2011) "compatibility principle of attitudes" by integrating the notion of "employee effectiveness" into its framework. This construct encompasses positive "employee attitudes", including "job performance," "absenteeism," and "turnover intention," at a more comprehensive level of analysis. The present study assesses the degree to which the construct of "employee effectiveness" contributes to the predictive capacity of evaluating "employee performance" beyond the measures of "focal job performance" and "contextual job performance".

4. RESEARCH METHODOLOGY

To examine the supplementary reliability of "employee engagement", the study needed the creation of a "meta-analytical framework" that included correlations among "employee engagement", "job satisfaction", "job involvement", "affective organizational commitment", "focal performance", "contextual performance", "turnover", and "absenteeism". By integrating diverse sources, it helps in understanding the existing body of knowledge while also playing a crucial role in formulating research questions and informing methodological decisions (Salman, 2024).The study resulted in a "meta-analytic matrix" with "meta-analytic estimates". These estimates pertain to the relationship between "employee engagement" and each indicator of "employee engagement". The following sections outline the methodologies utilized for producing "meta-analytic estimations" and calculating "path models".

4.1. Identifying Studies for Meta-Analysis

A comprehensive search was conducted to identify studies that document the correlation between "employee engagement" and indicators of "employee effectiveness". They actively work towards achieving organizational objectives while exhibiting resilience and adaptability in challenging situations (Shakeel, 2022).The search was carried out using several databases, including "PsycINFO", "Business Source Premier", "ABI/INFORM", and "Web of Science", spanning the period from 2012-2022. In order to ensure comprehensive coverage of the "employee engagement construct", the terms/keywords "employee engagement", "work engagement", and "job engagement" were employed during the search phase. The study involved conducting searches where the three specified keywords were paired with subject terms/keywords related to "employee effectiveness": *"job performance"*, *"work performance"*, *"task performance"*, *"focal performance"*, *"role performance"*, *"role behaviour"*, *"contextual performance"*, *"organizational citizenship behaviour"*, *"prosocial behaviour"*, *"discretionary behaviour"*, *"withdrawal"*, *"turnover"*, *"turnover intention"*, *"retention"*, *"quit"*, *"lateness"*, *"tardiness"*, *"truancy, absenteeism"*, and *"attendance"*. In addition to online searches, a manual search was conducted to examine the reference lists of frequently cited papers and review articles pertaining to the field of "employee engagement".

4.2. Inclusion Criteria

For the purpose of being incorporated into the "meta-analysis", a study was required to present primary data, furnish adequate details for computing a correlation coefficient, specify sample size information, and evaluate employee efficacy through one of the indicators pertinent to the current investigation. As a result of the limited amount of research investigating the correlations between "employee engagement" and "real turnover", studies that evaluated turnover intentions were incorporated into the analysis. Research that employed reverse-scored assessments of disengagement was excluded due to the ambiguity surrounding the conceptual similarity between disengagement and lack of engagement although a differing perspective is presented in Dalal et al. (2012). In cases where multiple time points were reported, only estimates from the initial time point were incorporated. In the instance that research employed various measures of a singular construct or disclosed effect sizes at the facet level (e.g., "dedication", "absorption", and "vigor"), a mean correlation value was derived from the facet-level

correlations that were reported.

The "meta-analysis" excluded studies that utilized the "Gallup Workplace Audit" (GWA, "The Gallup Organization", 1992-1999) to measure "employee engagement" due to the fact that the GWA evaluates "employee perceptions of work characteristics" (Mackay et al., 2017) instead of affective level "employee engagement".

4.3. Meta-Analytic Procedure

The imposed guidelines for inclusion resulted in a collection of research studies comprising 53 distinct correlations with a sample size of 4421 individuals that can be utilized to assess the associations between "employee engagement" and each of the four indicators of "employee effectiveness", namely "focal performance", "contextual performance", "turnover intention", and "absenteeism". In order to ensure accuracy and consistency in the coding process, a total of eight studies were subjected to "dual coding" by the researcher. The coders demonstrated a level of agreement exceeding 95 per cent, and any inconsistencies were addressed through a process of re-examining the relevant studies in order to arrive at accurate coding.

The "meta-analytic techniques" developed by Hansen et al. (2021) were employed to adjust for the effects of sampling error and unreliability in both predictor and criterion measures at the individual level. In instances where Cronbach's alpha was not disclosed, the instrument's average reliability across all other studies was calculated and employed as a substitute. Range restriction was not accounted for due to the unavailability of this data. The reliability of objective indicators of "absenteeism" was deemed to be high and no adjustments were made. Finally, it is noteworthy that all assessments about "focal job performance" and "contextual job performance" were evaluated by either supervisors or coworkers, thereby precluding any self-assessment.

5. ANALYSIS

Research Question 1: *"Does EE bear explanatory variance in focal and contextual job performance over and above other individual job attitudes?"*

"Meta-analytic correlations" for "employee engagement" are presented in Table 1. Except for "absenteeism", which was deemed to be entirely dependable, the correlations have been adjusted for the unreliability present in both the predictor variables and criterion variables. The evaluation of "focal performance" and "contextual performance" is reliant solely on estimates obtained through non-common sources.

Table 1
Meta-analysis of relations between employee engagement and employee effectiveness indicators.

						95% confidence interval			80% credibility interval	
	k	*N*	*r*	ρ	SE_ρ	L	H	SD_ρ	L	H
Focal performance	16	4421	0.22	0.26	0.04	0.18	0.35	0.11	0.12	0.41
Contextual performance	13	2745	0.28	0.32	0.04	0.24	0.40	0.16	0.12	0.52
Turnover intention	17	11,359	−0.30	−0.35	0.04	−0.43	−0.27	0.11	−0.49	−0.20
Absenteeism [a]	3	3565	−0.08	−0.10	0.07	−0.25	0.05	0.22	−0.38	0.18

Note. k = number of effect sizes used to compute meta-analytic estimate; N = sample size; r = mean sample-size weighted correlation; ρ = mean correlation corrected for attenuation in the predictor and criterion, $SE\rho$ = standard error of corrected correlation; $SD\rho$ = standard deviation of corrected correlation; [a] criterion measured objectively, corrected for predictor attenuation only.

In order to investigate Research Question 1, the "meta-matrix" was updated by incorporating these correlations (as presented in Table 2). This was done to assess whether "employee engagement" provides additional predictive power for both "focal job performance" as well as "contextual job performance", as opposed to every "individual job attitude" (that is, different analyses were conducted for "job satisfaction", "job involvement", and "organizational commitment"). The study involved estimating six sets of "path models", each comprising a "base model" that did not include the path from "employee engagement" to "employee performance" and a "nested model" that incorporated the said path. This allowed for the calculation of R2 change resulting from the inclusion of the "employee engagement" path.

Table 2
Meta-analytic matrix used to estimate the incremental validity of employee engagement.

Category	1.	2.	3.	4.	5.	6.	7.
1. Job satisfaction							
2. Org. commitment	0.65[a]						
k	69						
N	23,656						
SDρ	0.13						
80% CI	0.48–0.82						
3. Job involvement	0.45[b]	0.53[h]					
k	87	16					
N	27,925	3625					
SDρ	0.16	0.13					
80% CI	0.25–0.65	0.37–0.69					
4. Employee engagement	0.44[c]	0.54[i]	0.60[n]				
k	19	17	7				
N	10,054	11,201	1522				
SDρ	0.24	0.05	0.11				
80% CI	0.14–0.74	0.48–0.60	0.45–0.74				
5. Focal performance	0.30[d]	0.18[j]	0.10[o]	0.26[s]			
k	312	87	22	16			
N	54,471	20,973	5490	4421			
SDρ	0.21	0.10	0.15	0.11			
80% CI	0.03–0.57	0.05–0.31	−0.10–0.15	0.12–0.41			
6. Contextual performance	0.24[e]	0.27[k]	0.24[p]	0.32[t]	0.23[w]		
k	69	8	6	13	24		
N	17,672	1815	2828	2745	9912		
SDρ	0.08	0.07	0.19	0.16	[cc]		
80% CI	0.14–0.34	0.18–0.36	0.00–0.48	0.12–0.52	[cc]		
7. Turnover intention	−0.19[f]	−0.23[l]	−0.14[q]	−0.35[u]	−0.15[x]	−0.22[z]	
k	67	67	4	17	72	5	
N	24,566	27,540	824	11,359	25,234	1619	
SDρ	0.10	0.08	[cc]	0.11	−0.13	[cc]	
80% CI	−0.31 to −0.07	−0.33 to −0.13	[cc]	−0.49 to −0.20	−0.32–0.02	[cc]	
8. Absenteeism	−0.15[g]	0.16[m]	−0.14[r]	−0.10[v]	−0.29[y]	−0.26[aa]	0.33[bb]
k	17	30	17	3	49	8	33
N	3767	5748	4762	3565	15,764	957	5316
SDρ	0.16	[cc]	0.13	0.07	[cc]	[cc]	0.09
80% CI	−0.35–0.05	[cc]	−0.30–0.02	−0.38–0.18	[cc]	[cc]	0.22–0.44

Note. Correlations represent estimates disattenuated for unreliability. Correlations with focal and contextual performance represent non-common source estimates. Absenteeism estimates are based on objective measures and considered perfectly reliable. Harmonic $N = 3803$; $SD\rho$ = standard deviation of corrected correlation; 80% CI = Credibility Interval for ρ; [cc] Information not provided in original article or could not be calculated.

In each of the models examined presented in Table 3, there was a statistically significant path observed between "employee engagement" and both "focal performance" and "contextual performance", with p-values less than 0.001. The standardized path values varied between 0.16 (in the model estimating "focal performance" with "job satisfaction") and 0.31 (in the model estimating "focal performance" with "job involvement"). The models' cumulative R2 values ranged between 0.07 and 0.12. Across all models, a robust correlation was observed between "employee engagement" and "job attitude", with values ranging from 0.44 to 0.60 (in relation to "job satisfaction" and "job involvement").

Table 3
Path models estimating incremental validity of employee engagement vs. individual job attitudes.

Model	Path	S.E.	C.R.	*r*	Total R^2	R^2 Change
EE vs. job satisfaction predicting focal performance						
1. Job satisfaction	0.23**	0.02	13.51	0.44**	0.11	0.02
2. Employee engagement	0.16**	0.02	9.32			
EE vs. job satisfaction predicting contextual performance						
1. Job satisfaction	0.12**	0.02	7.24	0.44**	0.12	0.06
2. Employee engagement	0.26**	0.02	15.65			
EE vs. job involvement predicting focal performance						
1. Job involvement	−0.09**	0.02	−4.48	0.60**	0.07	0.06
2. Employee engagement	0.31**	0.02	16.01			
EE vs. job involvement predicting contextual performance						
1. Job involvement	0.08**	0.02	3.91	0.60**	0.11	0.05
2. Employee engagement	0.28**	0.02	14.35			
EE vs. organizational commitment predicting focal performance						
1. Organizational commitment	0.06*	0.02	3.01	0.54**	0.07	0.04
2. Employee engagement	0.23**	0.02	12.37			
EE vs. organizational commitment predicting contextual performance						
1. Organizational commitment	0.14**	0.02	7.57	0.54**	0.12	0.04
2. Employee engagement	0.25**	0.03	13.57			

Note. $^*p < 0.01$; $^{**}p < 0.001$; r = correlation between EE and the higher-order job attitude construct; C.R. = critical ratio.
R^2 Change = change due to addition of path between EE and employee effectiveness.

Regarding Research Question 1, it is noteworthy that the R2 change for five out of six sets ranged between 0.04 and 0.06. This suggests a neutral impact according to conventional standards. The R2 modification observed in the alternative model was 0.02, denoting a minor impact. The findings indicate that incorporating EE into a model that already includes one of the other individuals' "job attitudes" results in slight enhancements in the explanatory variance pertaining to "employee effectiveness".

Research Question 2: *"Does EE bear explanatory variance in a higher-order employee effectiveness construct (comprising focal performance, contextual performance, turnover, and absenteeism) above and beyond a higher-order job attitude construct (comprising job satisfaction, job involvement, and organizational commitment)?"*

Table 3 displays the "meta-correlation matrix" that was utilized to compute the sets for determining the additional reliability of "employee engagement" in comparison to a "higher-order job attitude construct". In order to ensure appropriate model identification, the EE indicator was consistently loaded onto the "employee engagement latent construct" with a constant value of 1 across all models. All subsequent findings presented

herein are based on standardized measures, as presented in Table 4.

Table 4
Path models estimating incremental validity of employee engagement vs. a higher-order job attitude construct.

Model	χ^2	*df*	CFI	SRMR	RMSEA	90% CI L	H	χ^2Change (*df*)
Base model with no path from EE	1291.19	19	0.85	0.06	0.133	0.127	0.139	91.74 (1)*
Nested model with EE path included	1199.45	18	0.86	0.06	0.131	0.125	0.138	

Note. CFI, comparative fit index; SRMR, standardized root-mean-square residual; RMSEA, root-mean-square error of approximation, 90% CI = 90% RMSEA confidence interval; *significant at $p < 0.001$.

5.1. Measurement Model

The results obtained from the measurement model indicated an acceptable level of fit. The statistical analysis yielded a significant chi-square value being 1199.50, with a p-value less than 0.001. It is worth noting that this outcome was anticipated due to the substantial size of the sample. The statistical model fit demonstrates satisfactory fit, with "Standardized Root Mean Square Residual" (SRMR) at 0.06, "Comparative Fit Index" (CFI) at 0.86, and "Root Mean Square Error of Approximation" (RMSEA) at 0.13. The "higher-order job attitude constructs'" indicators exhibited satisfactory loading (that is, N = 0.68). The variables of "employee effectiveness" displayed loading that were slightly lower, falling within the range of 0.45 to 0.53. However, all of these variables were significant at a level of p less than 0.001. The correlation value between the "employee engagement construct" and the "higher-order job attitude construct" was found to be 0.69, indicating a significant and positive relationship between the considered constructs. This suggests that "employee engagement" is closely associated with a "higher-order construct" that encompasses the "job attitudes" indicators.

5.2. Path Models

In order to evaluate the additional predictive power of the "employee engagement constructs" beyond that of "job attitude", an initial model was computed that did not include the pathway connecting EE to "employee effectiveness". The fit statistics of the measurement model were comparable to those of the study, with a chi-square value being 1291.19 and a significance level less than 0.001. The "Standardized Root Mean Square Residual (SRMR)" was 0.06, the "Comparative Fit Index (CFI)" was 0.85, and the "Root Mean Square Error of Approximation (RMSEA)" was 0.13, as presented in Table 4. The present model exhibits a robust association between the comprehensive "job attitude construct" and the efficacy of employees (r = 0.57, p less than 0.001), which accounts for 32 per cent of the variability. The relationship between the "job attitude construct" and "employee engagement" was found to be significant (r = 0.71, p less than 0.001), resembling the measurement model.

To evaluate the reliability of "employee engagement", a model was established wherein the path connecting "employee engagement" and "employee effectiveness" was allowed to be estimated without constraints. The fit indices of the current model were nearly indistinguishable from those of the prior baseline model. At the significance level of p less than 0.001, the fit indices were: chi-square value of 1199.45, SRMR of 0.06, CFI of 0.86, and RMSEA of 0.13. The statistical analysis indicated that the "nested model" exhibited a noteworthy enhancement over the "base model", as evidenced by the results of the difference in the chi-square test, (18) 2 = 91.74, p less than 0.001.

In relation to Research Question 2, the value of determination for estimating "employee effectiveness" utilizing both "Employee Engagement" as well as the "higher-order job attitude construct" was 0.33. It denotes a marginal rise of 1 per cent in the explanatory variance when comparing the "base models" and "nested models". Of particular significance is the finding that the relationship between "employee engagement" and "employee effectiveness" yielded a value of 0.31 (p less than 0.001), while the value for the relationship between the "job attitude construct" and "employee effectiveness" decreased from 0.57 to 0.32 with p less than 0.001. This suggests that, in the present model, "employee engagement" and the "higher-order job attitude construct" are equally effective in predicting "employee effectiveness". Consistent with prior research, a strong positive correlation was observed between "employee engagement" and the "higher-order job attitude construct", with a correlation value of 0.69 and a statistically significant p-value of less than 0.001.

In light of the findings from the prior analysis, which indicated a mere 1 per cent increment in explanatory variance in "employee effectiveness" upon inclusion of the path linking "employee engagement" and "employee effectiveness", with the variance being almost evenly distributed between "employee engagement" and the "higher-order job attitude construct", supplementary analysis was conducted to ascertain whether analogous effects would be observed for every discrete "employee effectiveness" indicator. To clarify, multiple sets of the base, as well as nested models, were computed, each containing a single indicator of "employee effectiveness", such as "focal job performance". The findings provided further support to the prior results. Irrespective of the specific indicator of "employee effectiveness" employed, the incorporation of the path from "employee engagement" yielded minor enhancements of 0.03 in R2. Additionally, in all instances, the association between

"employee engagement" and the "high-order job attitude construct" turned out between 0.69 and 0.70, as depicted in Table 5.

Table 5
Path Models Estimating Incremental Validity of Employee Engagement in Prediction of Specific Employee Effectiveness Indicators.

Model	Path	S.E.	C.R.	*r*	Total R^2	R^2 Change
EE vs. higher-order job attitude construct predicting focal performance						
1. Higher-order job attitude construct	0.15**	0.04	5.66	0.70**	0.08	0.00
2. Employee engagement	0.16**	0.02	6.61			
EE vs. higher-order job attitude construct predicting contextual performance						
1. Higher-order job attitude construct	0.22**	0.04	8.31	0.69**	0.13	0.00
2. Employee engagement	0.17**	0.02	7.30			
EE vs. higher-order job attitude construct predicting turnover intention						
1. Higher-order job attitude construct	−0.03	0.04	-1.25	0.69**	0.12	0.03
2. Employee engagement	−0.33**	0.02	-14.12			
EE vs. higher-order job attitude construct predicting absenteeism						
1. Higher-order job attitude construct	−0.25**	0.04	-9.19	0.69**	0.04	0.01
2. Employee engagement	0.074*	0.03	3.01			

Note. * $p < 0.01$; ** $p < 0.001$; r = correlation between EE and the higher-order job attitude construct; C.R. = critical ratio.
R^2 Change = change due to addition of path between EE and employee effectiveness.

6. RESULTS

The present study aimed to examine the additional predictive power of "employee engagement" in relation to "job attitudes" that may have overlapping constructs. The first research question evaluated the extent to which EE served as a predictor of both "focal job performance" and "contextual job performance", beyond the influence of "individual job attitudes" such as "job satisfaction", "job involvement", and "organizational commitment". The results indicate that when considered in conjunction with each discrete "job attitude", "employee engagement" was a statistically significant forecaster of "employee effectiveness", with path values between 0.16 and 0.31. A significant change in the value of R2 from 0.04 to 0.06 was found in five out of the six models. This indicates that "employee engagement" holds reliability in predicting "job performance", whether it is focal or contextual. This holds particular significance when considering the fact that the overall R2 values in these models were relatively small, varying between 0.07 and 0.12. The comparison between "employee engagement" and "individual job attitudes" suggests that "employee engagement" possesses a moderate degree of additional reliability in the prediction of "job performance". Significantly, there existed a moderate to high correlation between "employee engagement" and "job attitude", with values ranging from 0.44 to 0.60. Whilst the correlations do not possess sufficient strength to imply that "Employee Engagement" is superfluous in relation to "other job attitudes", they also do not exhibit a degree of weakness that would effectively support a compelling argument for the distinctiveness of "Employee Engagement".

The findings related to the first research question offer evidence in favour of the additional reliability of "employee engagement" beyond "individual job attitudes". However, it is important to note that in the majority of research and real-world situations, single-job attitudes are not typically measured in isolation. The objective of Research Question 2 was to ascertain whether "employee engagement" serves as a predictor of "employee effectiveness" beyond a "higher-order job attitude construct" that encompasses all three "job attitudes".

The results obtained from the "meta-analysis" indicate that the inclusion of a path leading from "employee engagement" to "employee effectiveness" resulted in a nearly equal distribution of the variance between "employee engagement" and the "higher-order job attitude construct". In the initial model, wherein a connection between "employee engagement" and "employee effectiveness" was absent, the path for the "job attitude construct" of higher order was determined to be 0.57. Upon the inclusion of a pathway linking "employee engagement" to "employee effectiveness", the "higher-order job attitude" pathway exhibited a decrease of 0.32, while the pathway from "employee engagement" to "employee effectiveness" was observed to be 0.31. Of particular significance is the fact that the variance pertaining to "employee effectiveness" exhibited a mere increase from 0.32 to 0.33 subsequent to the inclusion of the "employee engagement" path. This suggests that the incorporation of the considered path led to a marginal 1 per cent enhancement in the capacity to forecast "employee effectiveness". The findings indicate that "employee engagement" possesses a minimal degree of additional reliability when compared to a broader "job attitude construct" that encompasses "job satisfaction", "job involvement", and "organizational commitment".

In addition, it is noteworthy that the correlation observed between "employee engagement" and the "higher-order job attitude construct" exhibited a significant degree of consistency across all path models, with values of 0.69, 0.71, and 0.69 in the "measurement model", "base model", and "nested model", respectively. Similar findings were observed in supplementary analyses where the "employee effectiveness construct" was deconstructed into its constituent components, with the outcome variable being one of the four indicators of "employee effectiveness" as presented in Table 5. The incorporation of "employee engagement" resulted in marginal enhancements in R2. Additionally, the association between "employee engagement" and the "high-order job attitude construct"

exhibited correlation values within the range of 0.69 to 0.70. Based on the obtained outcomes, it can be inferred that "employee engagement" might be most suitably perceived as the residual three "job attitudes" construct.

Finally, it is noteworthy to mention the degree of variability accounted for by these models. The models that utilized a single indicator as the outcome variable, such as "focal performance" exclusively, exhibited a relatively low total R2, which varied between 0.04 to 0.13, as presented in Table 5. The R2 value of the model where the results of the variable were a "higher-order employee effectiveness construct" comprising of "focal performance", "contextual performance", "turnover intention", and "absenteeism" was significantly higher at 0.33 when compared to the other model. The findings presented provide additional support for the "compatibility principle", indicating that "employee engagement" could be most appropriately stated as a "higher order construct". Stated differently, the "employee effectiveness construct" is more accurately predicted by "higher-level job attitudes" than by lower-level indicators such as "focal performance". This suggests that "employee engagement" encompasses "other job attitudes" that are better predictors of overall "employee effectiveness". A limitation of this study is that the results may not be generalizable, as the participants might not fully represent the traits of the broader population (Pande, 2024)

The findings related to Research Question 2 suggest that utilizing "employee engagement" could potentially be a more effective approach for measuring "job attitudes" and establishing a significant correlation with "employee effectiveness". The current study proposes a "higher-order job attitude construct" that amalgamates three "individual job attitude" measures. In contrast, "employee engagement" is typically a single measure. The analysis of "job attitude" measures reveals that the evaluation of "employee engagement" requires a smaller number of items in comparison to the measures of "job satisfaction", "job involvement", and "organizational commitment". From the perspective of survey administration, both in terms of spatial and temporal considerations, it is a more efficient approach.

7. CONCLUSION

The present research aims to investigate if the "employee engagement (EE) construct" exhibits additional reliability in forecasting "employee performance". The findings indicate that the "employee engagement construct" provides a moderate amount of additional predictive power in determining "employee effectiveness", beyond what can be accounted for by "individual job attitudes" such as "job satisfaction", "job involvement", and "organizational commitment". Nevertheless, in comparison to a "higher-level job attitude construct", which comprises the amalgamation of the three "job attitudes", the inclusion of "employee engagement" in forecasting "employee effectiveness" contributes only a negligible amount of additional variance. Moreover, there exists a strong correlation between "employee engagement" and the "higher-order job attitude construct". The concise nature of an "employee engagement" measure implies that it can be a potent tool for evaluating an employee's comprehensive "job-related attitudes". This observation indicates that "employee engagement" can be a valuable instrument for organizational use.

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