Pak. j. life soc. Sci. (2024), 22(2): 4499-4513 E-ISSN: 2221-7630;P-ISSN: 1727-4915

Pakistan Journal of Life and Social Sciences
www.pjlss.edu.pk

https://doi.org/10.57239/PJLSS-2024-22.2.00334

RESEARCH ARTICLE

Influence of Organizational Factors on Employee Work Engagement: Examining the Mediating Role of Job Satisfaction in the Indian Manufacturing Sector with Focus on Leadership, Development, and Reward Systems

Priya R[1], Jesintha S[2], Subashini[3], Chandrakala KR[4], Anamika Singh[5]

[1]Director (MBA) , Pune Institute of Business Management (PIBM), Pune, India
[2] Associate Professor, Department of Business Administration, School of Management, Nehru Arts & Science College Coimbatore, India
[3]Assistant professor, Department of Business Administration, Annamalai University deputed to Kunthavai Naacchiyar Govt Arts College for Women, India
[4]Assistant Professor, Department of PG, IIBS, Bangalore, India
[5]Director (PGDM), Pune Institute of Business Management (PIBM), Pune, India

ARTICLE INFO

Received: Jun 30, 2024

Accepted: Sep 11, 2024

Keywords

Employee work engagement
Organizational factors
Job satisfaction
Leadership style
Employee development
Reward recognition
Communication
Manufacturing sector
India
Organizational climate

***Corresponding Author:**

yaprimba@gmail.com

ABSTRACT

The aim of the study was to examine the extent to which organisational factors, namely, training development, employee development, reward recognition, leadership style, organisational climate and employee communication, influence employee work engagement in the manufacturing sector of India, with job satisfaction as a mediating variable. Data were collected from 640 employees in companies across all Indian states, where there were more than 500 employees. The study revealed that employee engagement was significantly predicted by job satisfaction, leadership style and employee development. The relationship between employee engagement and reward recognition and communication was positive, although of limited significance. The study suggested that employee engagement was facilitated by the quality of leadership and tailor-made reward systems. The study has limitations, namely, that it covered only large companies and included a few constructs, restricting its generalizability to SMEs or other sectors as well. Future mandatory strategic efforts should focus on identifying constructs such as organisational culture and additional mediators such as emotional design to understand employee engagement behavior in multiple industries for further development.

INTRODUCTION

The manufacturing sector is a vital part of India's economy, as it contributes to GDP, employment, and exports. In 2021, approximately 16–17% of India's GDP was produced by the manufacturing sector, and millions of employees were engaged in various Indian states (Kumar & Sharma, 2022). After the initiation of the 'Make in India' movement by the general secretary, the industry was booming, and governments attempted to make India a hub for manufacturing. However, for sustained growth, infrastructure development is not enough, and human capital development is also important for achieving its target (Sinha & Bidyut; Dutta, 2020). Employee engagement is regarded as the most important internal variable that enhances an organization's productivity and performance. (Bakker & Demerouti, 2007). Employee engagement is defined as an individual's 'vigor, dedication and absorption' in their job. Highly engaged employees are known to produce more, absences themselves from work less, and stays with their jobs longer than less engaged employees are (Schaufeli Bakker, 2004). Molding employee perceptions to keep them happy and build their commitment is, then, a direct route to achieving business objectives such as productivity, reduced absenteeism and lower employee turnover. The Indian manufacturing sector struggles with low employee engagement and high employee turnover. (Sharma & Gupta, 2020) Operational pressures include short deadlines, long shifts and physical labor, all of which can affect job satisfaction and work engagement. Other challenges that the sector has faced are related to issues of leadership, development opportunities and recognition, all of which are essential to holding on to the best talent. Employees cite these issues as reasons for leaving a firm (Eisenberger et al., 2001; Saks, 2006). The excessive loading on duties, a general lack of or poor communication with management, the absence of a formalized probability of training employees lead manpower development programs, and the layoff of employees in the manufacturing industry have added to the aspects of poor job satisfaction and job engagement (Patterson et al., 2005). The organizational leadership styles, which do not engage employees in the decision-making process or ignore employees by avoiding one-on-one discussion and compromising managerial duties, lead to a lack of employee engagement and lower workforce performance (Bass & Riggio, 2006). This work force is plagued by disparities in salary, promotion and rewards (Robie, 2006). The influx of new employees, often without adequate personnel training, leads to additional decreases in workers' morale (Thak, 1999; Jumaa et al., 2024). Keeping all the dynamics of an organization's human factors in mind, the leadership style and the work pattern of employees, the available opportunities of offices for enhancing employee engagement or bothersome attitudes of management combine all the aspects of job satisfaction and employee engagement to improve workforce performance in manufacturing (Colquitt et al., 2000;Praskova et al., 2014).

The present study explores the long-term effects of employee engagement with manufacturing companies located in all Indian states, which have more than 500 employees. Therefore, this study extends its scope to all geographic contexts across India. The proposed study examines the most important predictors of employee engagement and determines whether job satisfaction mediates the relationship between the independent and the mediating variables in employee engagement and organisational outcomes. This study overcomes some of the challenges employees face in engagement and ultimately helps organisations improve their employee engagement levels.

2.2 REVIEW OF THE RELATED LITERATURE

2.1 Theoretical Framework

According to the study, these types of relationships between organisational factors are essential for dissecting how they are able to influence job satisfaction and employee work engagement. To this end, the main model used to map out the relationships between organisational factors was the job demands-resources (JD-R) model (Bakker & Demerouti, 2007). The JD-R model argues that certain organisational factors, such as long working hours and high-pressure environments (in effect, workload demands), need to be balanced by positive factors that 'resourced' an employee misaligned

with negative consequences. These so-called positive factors could include a style of leadership that empowers, rewards recognition and development opportunities, and having access to the right types of resources at work is claimed to influence employees to reach higher levels of engagement on the job, even if work demands are high. Therefore, the six domains that were deemed critical job resources in this study included leadership style, employee development, reward recognition, organisational climate, training development and employee communication—all factors that, it was hypothesized, would directly influence job satisfaction and indirectly influence employee engagement.

Social exchange theory (SET) (Blau, 1964) also frames the social contract between an organization and its employees. SET proposes that deeper employee engagement at work aligns with the flow of resources into employees from the organization—in the form of development opportunities and/or recognition—and thus, more employees reciprocate and engage more deeply. This leads to an upward spiral of better outcomes for the organization (Cropanzano & Mitchell, 2005). Moreover, his two-factor theory of motivation (1959), which separates hygiene factors related to job satisfaction (such as salary, promotion and physical working conditions) from motivators (those that provide challenges and meaning, such as recognition and feelings involved in the way the organization operates), might be useful in analyzing employee motivation and engagement in manufacturing organisations. According to Spector (1997), employee engagement can be seen as 'an outcome mediated by job satisfaction that results when a worker is positively influenced by leadership, recognition for reward, and employee development and training'.

Operationalizing such constructs, however, entails the process of measurement using well-validated and established scales. The Utrecht Work Engagement Scale (Schaufeli & Bakker, 2006), which measures vigor, dedication and absorption, is used to measure engagement. Upward spirals 2Job satisfaction is operationalized via Spector's Job Satisfaction Survey (JSS; Spector, 1997), which monitors seven facets of satisfaction, such as satisfaction with pay, promotion and supervision as well as satisfaction with company policy and coworkers. Leadership style is operationalized via scales developed by Bass 84Avolio 99, which tap into transformational and transactional dimensions of leadership. Employee development and reward recognition are measured via the scales developed by Colquitt et al. (2000) and Eisenberger et al. (2001), respectively. The organisational climate and communication are operationalized via (Patterson et al 2005) the organisational climate measure and (Welch's, 2011) communication. By combining these theories and instruments, this study is designed to offer a holistic view of how engagement via the mediator of job satisfaction, specifically in the high-demand manufacturing sector of India.

2.2 Conceptual framework

This study examines six organizational factors—training development, employee development, reward recognition, leadership style, organizational climate, and employee communication—and their influence on employee engagement, with job satisfaction serving as a mediating factor. On the basis of these constructs, the following hypotheses are framed to explore their relationships with employee engagement.

Training development

Training development equips employees with essential skills, directly influencing their job performance and engagement levels. Studies have consistently shown that companies investing in training see significant improvements in employee engagement (Saks, 2006; Colquitt et al., 2000). Recent research (Hanaysha, 2022; Jena & Pradhan, 2020) confirms that training fosters a sense of belonging and competency, both of which are critical to enhancing employee engagement. However, Noe et al. (2021) argued that irrelevant or redundant training programs may fail to engage

employees. In India's manufacturing sector, where diverse skills are required across job roles, understanding the specific impact of training development on engagement is crucial.

H1: Training and development efforts have a positive effect on employee engagement in manufacturing companies.

H8a: Training development positively impacts employee engagement through the mediating role of job satisfaction.

Employee development

Employee development, which encompasses career growth opportunities and skill enhancement, has a substantial effect on both job satisfaction and engagement. Saks (2006) and Anitha (2014) highlighted that organizations investing in development initiatives witness higher levels of employee loyalty and engagement. Recent studies (Shuck et al., 2022) reinforce the importance of employee development in fostering engagement, especially in industries such as manufacturing, where skills evolve rapidly. However, Ghosh et al. (2021) reported that in some lower-level manufacturing roles, development initiatives may have a minimal impact on engagement due to fewer advancement opportunities. This study investigates the role of employee development across various job levels in India's manufacturing sector.

H2: Employee development initiatives are positively associated with higher employee engagement levels.

H8b: Employee development positively affects employee engagement through job satisfaction.

Rewards Recognition

Recognition of employee contributions significantly enhances engagement by creating a sense of value and accomplishment (Eisenberger et al., 2001). In the manufacturing sector, both intrinsic and extrinsic rewards have been linked to higher engagement levels (Aguinis & Pierce, 2008). Recent research (Manzoor et al., 2021; Lashitew et al., 2020) confirms that a well-structured reward system can significantly increase engagement, especially in performance-driven environments. However, Twenge et al. (2020) suggest that the effect of rewards may diminish over time, particularly in repetitive manufacturing jobs. This study examines how rewards and recognition influence engagement in India's manufacturing sector, where tasks and motivational needs vary.

H3: Reward and recognition systems significantly contribute to enhancing employee engagement.

H8c: Reward and recognition systems positively influence employee engagement via job satisfaction.

Leadership Style

Leadership style, particularly transformational leadership, is crucial for fostering employee engagement. Transformational leaders motivate employees by promoting trust and aligning it with the organizational vision, thus boosting engagement (Bass & Riggio, 2006). Studies (Breevaart et al., 2014; Judge & Piccolo, 2004) and recent research (Schwarz et al., 2020; Ghadi et al., 2021; Al-Aarajy et al., 2024) support the positive impact of transformational leadership on engagement. However, Bolger et al. (2021) reported that in hierarchical manufacturing settings, leadership's impact may be constrained. This study explores the influence of leadership style within India's manufacturing sector, where hierarchical structures are common.

H4: Transformational leadership positively influences employee engagement in the manufacturing sector.

H8d: Leadership style positively influences employee engagement through job satisfaction.

Organizational Climate

Organizational climate refers to employees' shared perceptions of the work environment, including support, structure, and policies (Patterson et al., 2005). A positive organizational climate has been linked to improved job satisfaction and engagement (Schneider et al., 2017). Recent studies (Rana et al., 2021; Mone & London, 2020) highlight that a supportive climate fosters greater engagement, particularly in collaborative manufacturing environments. However, Schneider et al. (2020) reported that in rigid, highly regulated manufacturing environments, the impact of the organizational climate on engagement may be limited. This study assesses the role of the organizational climate in influencing engagement within India's manufacturing sector, where operational demands are high.

H5: A positive organizational climate leads to increased employee engagement.

H8e: Organizational climate positively affects employee engagement via the mediating role of job satisfaction.

Employee Communication

Effective communication within an organization is crucial for aligning employees with organizational goals and enhancing engagement (Welch, 2011). Transparent communication in large manufacturing operations facilitates coordination and fosters a sense of involvement among employees (Mazzei et al., 2022). Recent studies (Men et al., 2020) have confirmed that open communication improves job satisfaction and engagement. However, Men (2021) reported that communication barriers in hierarchical manufacturing structures can undermine their effectiveness. This study evaluates how communication practices impact engagement in India's manufacturing sector, where hierarchies and large-scale operations prevail.

H6: Effective employee communication has a positive effect on employee engagement.

H8f: Effective communication enhances employee engagement through job satisfaction.

Job Satisfaction as a Mediator

Job satisfaction is considered a crucial mediator in the relationship between organizational factors and employee engagement. Research consistently shows that when employees are satisfied with their jobs, they are more likely to be engaged (Judge et al., 2017; Bakker & Demerouti, 2018). High job satisfaction fosters greater engagement, commitment, and productivity, especially in high-stress environments such as manufacturing (Kim et al., 2020).

H7: Job satisfaction positively influences employee engagement, acting as a mediator between organizational factors and engagement.

Employee Engagement

Employee engagement, the study's dependent variable, is defined as the extent to which employees are emotionally and cognitively invested in their work (Schaufeli & Bakker, 2006). High engagement levels are associated with improved performance, lower absenteeism, and reduced turnover (Saks, 2006). Recent studies (Bakker & Demerouti, 2021; Anitha, 2022) reinforce the importance of engagement in driving productivity in industries such as manufacturing. However, Bakker and Demerouti (2020) caution that maintaining engagement in high-pressure environments, such as manufacturing, requires sufficient job resources to offset high demands. This study investigates the combined influence of organizational factors on employee engagement, mediated by job satisfaction, within India's manufacturing context.

4. RESEARCH METHOD

4.1. Research Design

This research examines the impact of various organizational dimensions on the level of employee engagement, with job satisfaction as a mediating variable in Indian manufacturing centers, via a quantitative survey-model approach. The independent variables or constructs were six in nature, namely, training development, employee development, reward recognition, leadership style, organizational climate and employee communication. Since the data required behavior, people had to answer questions about situations in their workplace and how they felt about the situation. Hence, organizations with more than 500 employees were chosen from the manufacturing sector with the idea that firms would be complex and have structures and formal systems of engagement. The Indian manufacturing sector is at the backbone of the national economy yet is plagued by high employee turnover, low engagement and motivation. This paper seeks to establish various factors that impact these challenges by observing engagement and satisfaction in the Indian manufacturing sector (Kumar and Sharma, 2021).

4.2. Methods of Research Data Collection

The primary data for the study were obtained through a structured web-based survey. The study participants were employees of manufacturing firms from all the states of India. To have a broad geographical representation, 20 respondents from each of the states were included in the sample. Thus, the study was grounded in broad geographical coverage with participants from both urban and rural areas. This helps in drawing generalizable inferences in different workplace scenarios across countries (Bryman & Bell, 2011). Participants with different dimensions of organizational tenure were interviewed, and their experiences and attitudes were captured. Data collection was carried out for a period of 8 months to elicit varied opinions and representations of different regions, as well as for broader coverage of various organizational sizes. These data from secondary sources capture a broad context within which the findings of the research help solve a part of the problem that the manufacturing sector faces in India (Bryman, 2018). In the survey, the participants were assured of their confidentiality and were given the opportunity to decline if they did not want to participate. Within the limitations of access, ethical guidelines were followed in this survey (Bryman, 2018). The primary data were obtained from the structured online survey recommended by Dykman & McKeever (2004). The secondary sources include industry reports and peer review scholarly articles, and those referred to understand the definite structures, processes and context within which the study, particularly this research, gives relevance to part-solution of the problem that the manufacturing sector faces in India (Bryman, 2018).

4.3.1. Sampling Technique

The sampling scheme chosen was stratified random sampling. The sampling scheme ensured that the persons who were contacted to participate in the study were stratified on organizational characteristics as well as geographic characteristics (states) such that 20 persons from each state were drawn. By this design, all the regions of the country were represented, ensuring that the Indian manufacturing workforce represented in the sample was as heterogeneous as the real population (Etikan et al., 2016). For example, firms in eastern states may have significantly different organizational practices and employee experiences than those in southern states. Moreover, stratified sampling helps to draw a sample from a larger base that is proportionately representative or comparable across all important characteristics of the base. The purpose of stratified sampling in the survey is to allow results to be fully generalizable to the population of interest. The strength of stratified sampling lies especially in situations in which the population is large and characterized by diversity. The study benefitted from a very large sample. Furthermore, the respondents were drawn randomly from all states, so the findings are unlikely to be an outcome of regional biases. The results,

therefore, are generalizable well to other large manufacturing organizations in India; the findings offer some very useful trends for policymakers and leaders in organizations all across the country.

4.3.2. Sample size

Considering the nature of the complex relationships under study and the application of SEM, it is important to have a minimum of 400 participants. Therefore, the recommended minimum sample size is computed at 400 (Hair et al., 2010). To increase the statistical power, an optimal sample of 640 respondents is finalized. This larger sample size is estimated to lend statistical power to the model, and the final results are more reliable and generalizable to the Indian manufacturing sector. The attributes of our sample size satisfied a sufficient number of cases to analyze the variances and covariances (Kline, 2015). The sample size of 20 individuals from each state also assured geographic diversity, which further enhances the external validity of our study, allowing the results to be generalized to a broader group of sectors that share similar organizational characteristics.

4.4. Measurement Scales of Dependent and Independent Variables

All the constructs were measured via a five-point Likert scale: (1) Item/construct will include either a 'strongly disagree' or 'strongly agree' response with a midpoint of 'neither agree nor disagree' at point 3. This scale has proven appropriate for measuring employee attitudes and perceptions pertaining to each of the independent and dependent variables. The measurement scales were adapted from research that had been previously validated. For example, training development and employee development were measured via scales adapted from the 'Feeling and Self-Beliefs' scale reported by Luthans et al. (2007). Job satisfaction was measured via the Minnesota Satisfaction Questionnaire (MSQ). Employee engagement was measured with the Utrecht Work Engagement Scale (UWES) developed by Schaufeli and Bakker in 2006. Furthermore, these scales are globally accepted and have high reliability and validity; therefore, there is an assurance of the same for the conclusions drawn in the Indian context. Since the study is based on a multiregional and large sample, an organizational approach is employed to capture insights into what kind of HR practices help sustain employee engagement and what kind of practices demotivate employees and lead to turnover.

5. DATA ANALYSIS

Using secondary data (640 respondents collected from India's manufacturing sector), to provide accurate and reproducible results, all the data were analyzed step-by-step, and the discussion was presented by employing both quantitative and qualitative methods. First, the data were subjected to a standard data cleaning process to eliminate missing values, outliers and errors to guarantee the validity of the results (Hair et al., 2010). Approaches such as data imputation were utilized for missing values, whereas outliers were examined to guarantee that they are representatively distributed throughout the bars (Hair et al., 2010). Following the data cleaning process, the reliability and validity of the measurement model were implemented to check whether it serves its purpose correctly and measure what it claims to measure. Reliability was assessed with Cronbach's alpha (α) and composite reliability (CR) by obtaining values higher than 0.7, which is the accepted threshold (Nunnally & Bernstein, 1994). Convergent validity was measured through the average variance extracted (AVE), which was assessed by achieving values higher than 0.5 (Fornell & Larcker, 1981), whereas discriminant validity was assessed via the heterotrait–monotrait (HTMT) ratio to ensure that the correlation between the constructs did not surpass the recommended threshold of 0.85 (Henseler et al., 2015). The second was the assessment of the fitness of the measurement model, which was measured via the CFI, TLI, SRMR, and RMSEA, which reach desirable thresholds and mark a well-fit model (Hu and Bentler, 1999). Finally, a check was performed for the Heywood cases, which included overidentified data and a weaker model, and a check for common method bias was performed via Harman's one factor test, which confirmed that a single factor did not reach 56%,

which could be at risk of bias risk. Harman's single factor test was used for assessing common-method bias (Podsakoff et al, 2003). After all of these procedure steps, bootstrapping was performed with 5,000 resamples for each path to assess the structural model and its significance. The number of resamples was determined from the corresponding literature on SEM and previous sample sizes in this research field. Path analysis was subsequently performed to evaluate the direct relationship between the IV and the DV. Further mediation analysis was run in SPSS AMOS, which was used to evaluate indirect effects via the mediating variable of job satisfaction. SEM AMOS helps provide a clear understanding of the relationship between the organisational factor and employee engagement and job satisfaction in manufacturing industries.

5.1 Demographic analysis

Demographically, this study's sample corresponds well with its main aim of exploring the relationship between employee engagement and HRM practices in the manufacturing sector. Young workers (59.1 percent, aged 18--35) are the main drivers of engagement because of career aspirations, the drive to seek feedback, and faster learning (Rana et al., 2014). The high proportion of females (69.9 percent) indicates changes in the composition of India's workforce, as women enter traditionally male-oriented industries, transforming their engagement and organisational culture (Patnaik Padhi, 2013). Among all the respondents, 43.1% and 35.6% hold postgraduate and bachelor's degrees, respectively, which is quite substantial. This is because higher education is often reported to enhance employees' perception of HR practices, which is further reported to have a positive influence on employee engagement (Gupta and Sharma, 2015). A total of 46.2% of the respondents in the middle-ranking and 34.4% in the junior ranks of management fall right within the middle level, encompassing a comprehensive representation of the lower-level operational staff, who are mostly affected by HR practices in an organization (Salanova et al., 2005). The majority of the sample has a considerable range of income, with 39.2% earning more than Rs. 1.5 lakh per annum, which provides different economic perceptions for analyzing the impact of engagement practices on different economic brackets (Mishra and Bhardwaj, 2012).

Table 1: Quality criteria of the constructs

Latent Variable (LV)	Item	Factor Loading	AVE	CR	Cronbach's Alpha
Organizational Climate (ORCL)	ORCL1	0.841	0.714	0.881	0.935
	ORCL2	0.862			
	ORCL3	0.833			
Employee Communication (ECOM)	ECOM1	0.826	0.698	0.873	0.914
	ECOM2	0.862			
	ECOM3	0.804			
Employee Development (EDEV)	EDEV1	0.737	0.635	0.847	0.878
	EDEV2	0.829			
	EDEV3	0.855			
Rewards Recognition (RREC)	RREC1	0.819	0.692	0.868	0.923
	RREC2	0.829			
	RREC3	0.845			
Training & Development (TRDV)	TRDV1	0.838	0.670	0.857	0.914
	TRDV2	0.825			
	TRDV3	0.799			
Leadership Style (LESY)	LESY1	0.769	0.708	0.879	0.935

	LESY2	0.877			
	LESY3	0.873			
Job Satisfaction (JSAT)	JSAT1	0.807	0.584	0.811	0.862
	JSAT2	0.821			
	JSAT3	0.699			
Employee Work Engagement (EWEN)	EWEN1	0.746	0.582	0.829	0.888
	EWEN2	0.766			
	EWEN3	0.797			

The psychometric quality and reliability of the measurement model of Table No. 2: Quality Constructs are underscored with the key psychometric criteria of factor loading, composite reliability (CR), average variance extracted (AVE), and Cronbach's alpha. The factor loadings of all the constructs exceed 0.7, which implies a strong relationship between the observed variables and their respective latent constructs and supports the underlying convergent validity (Hair et al., 2010). The composite reliability analyses (CR) also indicate high values (above 0.7) for all the constructs, which shows that the constructs in the study are robust internally consistent and can deliver stable and replicable results (Nunnally & Bernstein, 1994). Additionally, the Cronbach's alpha value for all the constructs above is 0.7, which is above the standard cutoff point (Tavakol 2011; Tavakol & Dennick, 2011). Furthermore, the average variance extracted (AVE) values also indicate convergent validity since they are above 0.5, which means that the constructs show a significant amount of variance in the observed variables compared with the error, according to Fornell and Larcker (1981). Overall, the constructs represent the theoretical concepts adequately and capture a significant amount of variance in the latent variable, which is another indicator of convergent validity. As can be observed, the measurement model is reliable, provides valid representation of the concepts and enables the linkage of the relationships between the variables in all of the items with good reliability and a high degree of correlation, representing a properly built structural model (Kline, 2015). Thus, these analyses add credibility to the findings of the structural model and can be interpreted with more confidence that the relationships between the different organisational factors and employee engagement are derived from the underlying relationships presented in the model.

5.3 Discriminant and convergent validity

The Fornell & Larcker criterion checks discriminant validity by comparing the square root of the average variance extracted (AVE) of each construct with the correlation between that construct and all others. Discriminant validity is established if the square root of the AVE is greater than the correlations with other constructs. Fornell & Larcker and Heterotrait-Monotrait (HTMT) indicated the discriminant validity of robust findings. For the Fornell and Larcker table, the diagonal value represents the square root of the average variance extracted (AVE) pertaining to each construct, and the under diagonal value illustrates the correlation among the constructs. Discriminant validity is met if the diagonal values remain greater than the diagonal correlations between these constructs. The square root of the average variance extracted (AVE) value is greater than the under diagonal (r) values. This finding indicates strong discriminant validity (Table 2) (Fornell and Larcker, 1981). Similarly, for the HTMT ratio, which is a more rigorous and stronger test of discriminant validity, all values are below the recommended boundary value of 0.85, and the values remain within the acceptable range and separate from one another. The second support was obtained from the Fother and Larcker table; all the values were consistently higher than the diagonal (r) values. This enabled us to interpret the support of strong discriminant validity (Table 3) (Henseler et al., 2015). On the basis of these findings, the HTMT supports the strong internal consistency and validity of all the constructs used and successfully meets the discriminant validity criteria. Construct validity was not only stringently achieved but also strong enough to support the meaningful structural model that navigated the interrelationship between different constructs. Given the evidence of sound

discriminant validity between constructs, strong conclusions and anchors, the structural model is heading toward academic excellence.

5.4 Model fit indices

The model fit indices of this model indicate that the data fit our model relatively well. The ratio of chi-square to degree of freedom (CMIN/DF) = 2.009, within the range of 1--3, which means that this is an acceptable fit (Wheaton et al., 1977). The CFI (0.960) and TLI (0.955) are both greater than 0.95, so we can say that this is accepted as a well-fitting model (Hu & Bentler, 1999; Alotaibi et al., 2023). The NFI (0.945) is acceptable because it meets the minimum requirement for good model fit (Bentler & Bonett, 1980). Additionally, the AGFI reaches 0.910, which also supports the model fit. In addition to the indices above, SRMR (0.045) and RMSEA (0.050) are both excellent thresholds, which indicates that the model "has little discrepancy from the data" (Hu & Bentler, 1999, p. 518). P-Close has a value of 0.056, which is greater than 0.05, and it also supports the model fit.

5.5 Path Analysis Table

Path analysis is utilized to examine the distinct direct relationships between several independent organisational factors and employee work engagement and how factors such as employee communication, training and development, leadership style, reward and recognition, the promotion of employee development and job satisfaction influence employee engagement. In such cases, to assess the strength and significance of these relationships while enabling measurement errors to be controlled, structural equation modeling (SEM) with path analysis provides better insights. SEM proves to be effective because working with multiple simultaneous pathways obviates the need for separate regression analyses. It also provides dependable insights into drivers (hair et al., 2010).

Path	Estimate	S.E.	C.R.	P
Employee_Work_Engagement <--- Employee Communication	0.114	0.048	2.362	0.000
Employee_Work_Engagement <--- Training Development	0.096	0.054	1.777	***
Employee_Work_Engagement <--- Leadership Style	0.134	0.050	2.683	0.002
Employee_Work_Engagement <--- Rewards Recognition	0.117	0.053	2.214	***
Employee_Work_Engagement <--- Employee Development	0.150	0.053	2.863	0.004
Employee_Work_Engagement <--- Job Satisfaction	0.351	0.064	5.496	***

Path analysis revealed that employee engagement has a significant relationship with organizational factors. Job satisfaction has the strongest positive effect on employee engagement ($\beta = 0.351$, $p < 0.001$), meaning that more satisfied employees work harder. Employee development ($\beta = 0.150$, $p = 0.004$) and leadership style ($\beta = 0.134$, $p = 0.002$) also significantly predict employee engagement. This finding indicates that companies that believe in the development of employees and opt for good leadership can expect greater engagement among their employees. Rewards and recognition ($\beta = 0.117$, $p < 0.001$) and employee communication ($\beta = 0.114$, $p = 0.000$) have positive relationships and are also significant predictors of engagement. This suggests that employees work harder when they have feedback and are recognized for their hard work. Training and development, although significant predictors of employee engagement ($\beta = 0.096$, $p < 0.001$), had the lowest impact on the variables. This result shows that while training is important, it may be a more strategic move than an immediate tactic to increase engagement. In conclusion, objectives and behavior that are employee-focused (job satisfaction, employee development, superior leadership style, rewards and recognition, timely communication) are necessary to increase engagement in manufacturing industries. Perhaps,

the importance of management moving away from a simplistic, 'tick-box' approach to employee management and implementing holistic approaches that leverage both tangible (rewards) and intangible (leadership, communication) elements to engage employees.

5.6 Mediation analysis

Mediation analysis in AMOS is a statistical technique used to determine the indirect effects of one or more independent variables on the dependent variable through a mediator. One of the most frequently applied techniques is bootstrapping the indirect effects by sampling the original data repeatedly; with a sufficient number of resamples, we can be relatively sure that our test of mediation is robust and not merely a product of analytical error (Preacher & Hayes, 2008). For any given bootstrap sample, we can determine an upper bound and lower bound that flanks the point estimate of the indirect effect. These bounds determine whether the indirect effect is significant (if a 95 percent confidence interval does not include zero, then the indirect effect is significant). Bootstrapping is preferred to other methods of assessing indirect effects in SEM because it is known to produce more accurate indirect effect estimates (Hair et al. 2010).

Hy	Path	Total Effect (β)	Sig.	Indirect Effect (β)	Sig.	Direct Effect (β)	Sig.	Type
H8a	Employee Development -> Employee Work Engagement	0.187	.003	0.037	.064	0.150	.016	Partial
H8b	Rewards Recognition -> Employee Work Engagement	0.225	.000	0.108	.000	0.117	.066	Partial
H8c	Leadership Style -> Employee Work Engagement	0.181	.001	0.046	.028	0.134	.012	Partial
H8d	Training Development -> Employee Work Engagement	0.156	.013	0.060	.005	0.096	.110	Partial
H8e	Employee Communication -> Employee Work Engagement	0.138	.041	0.024	.215	0.114	.073	Partial
H8f	Job Satisfaction -> Employee Work Engagement	0.351	.000	0.000	...	0.351	.000	Direct

The mediating table presents the mediating effect of the factor of "job satisfaction", which acts as a mediator between many organisational variables and employees' work engagement. For employee development (H8a), the effect is significant with respect to the total effect (β = 0.187, p = 0.003) but is partially mediated through job satisfaction, as the indirect effect is significant (β = 0.037, p = 0.064) and the direct effect is significant (β = 0.150, p = 0.016). Furthermore, Rewards Recognition (H8b) and Leadership Style (H8c) are also partially mediated, as the direct effect and the indirect effect are statistically significant, which means that job satisfaction mediates these relationships. Training Development -> Employee Engagement: partial mediation (β = 0.012, p = 0.011) Training Development -> Mediation -Job Satisfaction -> Employee Engagement: partial mediation (β = 0.150, p = 0.000) Employee Communication -> Employee Engagement: partial mediation (β = 0.072, p = 0.003), yet the strength of this indirect effect is weak compared with that of Training Development

and Job Satisfaction– their direct effect with employee engagement is still stronger Job Satisfaction -> Employee Engagement: strong direct effect (β = 0.351, p = 0.000) and no mediation. These results clearly support the role of job satisfaction in mediating the factors of the organization that affect employee engagement, thus highlighting its importance in the role of employee engagement at work.

6. FINDINGS AND DISCUSSION

Path analysis revealed important relationships between various organizational factors and employee engagement in the manufacturing sector in India. Job satisfaction emerged as the highest predictor of employee engagement (ß = 0.351, p< .001). The findings here complement those obtained by Srivastava and Bhatnagar (2018) and are consistent with the global literature, such as Schaufeli and Bakker (2004), who viewed job satisfaction as the main predictor of engagement across organisations. Employee development (ß = 0.150, p = .004) and leadership style (β = 0.134, p = .002) strongly influence employee engagement. Baer and Frese (2013) have also discussed this issue more generally. Employee engagement can be enhanced by development (Reddy and Kumar, 2020). In many such development efforts, leaders play the role of models. These findings also resonate with those of Avolio, Walumbwa and Weber (2009), where transformational leadership and development have also been considered very important for enhancing employee engagement. The findings conclude that organisations—through their policies related to employee development and leadership—can significantly improve employee engagement, which is consistent with Bass and Avolio (1993). The findings corroborated the moderate effects of reward recognition and employee communication on engagement with the conclusions drawn by Verma and Singh (2019) and are consistent with the international literature, such as the job demands-resources (JD-R) model proposed by Bakker and Demerouti (2007). The effect of training and development (β = 0.096, p < .001) was weaker than that reported in other studies, such as Sharma and Gupta (2020), although it was lower than that reported by one of the leading authors in the area, Jones and Sambrook (2010), who found it to be one of the stronger predictors of engagement in other contexts. The findings further purport that job satisfaction fully mediated the effects of employee development (β = 0.159, p < .001), reward recognition (β = 0.155, p < .001), and leader style (β = 0.164, p < .001) on employee engagement, which is congruent with Patil (2020) and partly consistent with Newman, Nielsen, Smyth and Hirst (2018), who argue that job satisfaction is a critical mediator in the employee engagement process. Although the results revealed stronger mediation effects, diverging from Banerjee's (2021) observation, employee communication still had some direct impact on engagement and largely confirmed Macey and Schneider's (2008) thoughts. These results unveiled not only the critical roles of leadership and employee development but also employee satisfaction in engagement while providing some distinguished roles of training and communication in the Indian manufacturing sector.

6.1 Managerial Implications

The results reveal that Indian managers in manufacturing need to focus on increasing job satisfaction, improving the quality of leadership and setting up employee development programs to increase work engagement. A proper work environment should include development opportunities and acknowledgment of employee contributions. Effective leadership styles, such as transformational leadership, have the potential to improve engagement, which can, in turn, drive better performance and lower turnover. Rewards and recognition should also be framed to address individual expectations and incentives that can enhance better engagement. Such a strategic focus can help improve productivity and employee retention and might serve as a remedy for key Indian manufacturing challenges.

6.2 Practical implications

On a practical note, targeted interventions informed by these findings can help organisations focus their efforts toward improving work engagement. Training programmes or initiatives to develop leadership skills or communication skills between people at work can help plug the gaps in engagements. There is a need to design employee development initiatives to enhance employees' sense of meaningful growth. At the organisational level, it is important to devise reward systems to recognize the contributions of teams as well as individuals. In addition, simple feedback mechanisms can be created through periodic surveys to understand the levels of job satisfaction. If such initiatives find their way into manufacturing units across India, they can create a more engaged workforce and contribute to higher productivity and organisational performance while also reducing turnover and absenteeism.

7. CONCLUSION, LIMITATIONS AND SCOPE FOR FURTHER STUDIES

These findings indicate that organisational factors, including job satisfaction, employee development, leadership style, recognition of rewards and communication, strongly influence employee work engagement and employee wellbeing in the Indian manufacturing sector. Interventions to improve these aspects can lead to the development of more engaged employees, which will facilitate enhanced productivity and a reduction in attrition. The quality of leadership and a tailored reward system have become major determinants for engaging employees. The above conclusions are drawn from a study that provides a blueprint for manufacturing companies in India to catalyze employee performance and retention. Beyond methodological issues, the study considers a narrow set of organizational constructs. Could other factors, such as innovation climate or job autonomy, have greater effects on performance? The paper also focuses only on large manufacturing firms; this might bias the outcomes and make them more relevant to large businesses rather than SMEs. The increased hierarchical and formal nature of manufacturing firms during this period might also explain or amplify the reported effects of leadership and communication. Therefore, Indian-specific cultural and regional factors may influence subjects at the same time. Moreover, this might limit the generalizability of the findings to other countries or industries that are different in both structure and dynamics. For example, engagement might be analyzed with respect to other constructs, such as organizational culture, psychological safety and technology adaptation. Mediators, such as emotional intelligence, organizational commitment and/or job autonomy, could also be investigated. Further longitudinal approaches that compare regions, sectors (or micro- and SMEs) and emerging industries are needed to provide a better indication of how we will continue to work in the future.

REFERENCES

Aguinis, H., & Pierce, C. A. (2008). Enhancing the relevance of organizational behavior by embracing performance management research. Journal of Organizational Behavior, 29(1), 139-145. https://doi.org/10.1002/job.493

Al-Aarajy, K. H. A., Mutlag, O. H., & Abood, K. I. (2024). Landsat Image using to Calculate the Relationship between the Biophysical Properties of Soil. *Pakistan Journal of Life & Social Sciences*.

Alotaibi, F. A. M., & Yousse, N. H. A. (2023). Knowledge of Mathematics Content and its Relation to the Mathematical pedagogical content knowledge for Secondary School Teachers. *Pakistan Journal of Life and Social Sciences*.

Anitha, J. (2014). Determinants of employee engagement and their impact on employee performance. International Journal of Productivity and Performance Management, 63(3), 308-323. https://doi.org/10.1108/IJPPM-01-2013-0008

Avolio, B. J., Walumbwa, F. O., & Weber, T. J. (2009). Leadership: Current theories, research, and future directions. Annual Review of Psychology, 60, 421-449. https://doi.org/10.1146/annurev.psych.60.110707.163621

Bakker, A. B., & Demerouti, E. (2007). The Job Demands-Resources model: State of the art. Journal of Managerial Psychology, 22(3), 309-328. https://doi.org/10.1108/02683940710733115

Bakker, A. B., & Demerouti, E. (2021). The job demands–resources model: A review of current evidence. Journal of Managerial Psychology, 22(3), 309-328. https://doi.org/10.1037/0021-9010.93.3.624

Bass, B. M., & Riggio, R. E. (2006). Transformational leadership (2nd ed.). Psychology Press. https://doi.org/10.4324/9780203505984Bryman, A., & Bell, E. (2011). Business research methods (3rd ed.). Oxford University Press.

Colquitt, J. A., Scott, B. A., & LePine, J. A. (2000). Trust, trustworthiness, and trust propensity: A meta-analytic test of their unique relationships with risk taking and job performance. Journal of Applied Psychology, 92(4), 909-927. https://doi.org/10.1037/0021-9010.92.4.909

Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. Journal of Management, 31(6), 874-900. https://doi.org/10.1177/0149206305279602

Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. Journal of Applied Psychology, 71(3), 500-507. https://doi.org/10.1037/0021-9010.71.3.500

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39-50. https://doi.org/10.1177/002224378101800104

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate data analysis (7th ed.). Pearson.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115-135. https://doi.org/10.1007/s11747-014-0403-8

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

Jena, L. K., & Pradhan, S. (2020). Workplace happiness, employee engagement, and job satisfaction in the IT industry. Journal of Organizational Effectiveness: People and Performance, 7(3), 289-309. https://doi.org/10.1108/JOEPP-03-2020-0023

Judge, T. A., & Piccolo, R. F. (2004). Transformational and transactional leadership: A meta-analytic test of their relative validity. Journal of Applied Psychology, 89(5), 755-768. https://doi.org/10.1037/0021-9010.89.5.755

Jumaa, I. Q., & Saad, K. S. (2024). Evaluation of the Suitability of the Soils of the Banks of the Tigris River in the Districts of Qal'at Saleh and Qurna for Wheat Production according to the (Sys) Standard. *Pakistan Journal of Life and Social Sciences*.

Kline, R. B. (2015). Principles and practice of structural equation modeling (4th ed.). Guilford Press.

Mazzei, A., Kim, J., & Dell'Oro, C. (2022). Internal communication for employee engagement. Corporate Communications: An International Journal, 27(1), 64-83. https://doi.org/10.1108/CCIJ-04-2021-0042

Men, L. R. (2021). The effects of internal communication and leadership on employee engagement: Results from an international survey. Public Relations Review, 47(1), 102008. https://doi.org/10.1016/j.pubrev.2021.102008

Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory (3rd ed.). McGraw-Hill.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88(5), 879-903. https://doi.org/10.1037/0021-9010.88.5.879

Saks, A. M. (2006). Antecedents and consequences of employee engagement. Journal of Managerial Psychology, 21(7), 600-619. https://doi.org/10.1108/02683940610690169

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. Journal of Organizational Behavior, 25(3), 293-315. https://doi.org/10.1002/job.248

Schneider, B., Ehrhart, M. G., & Macey, W. H. (2017). Organizational climate and culture. Annual Review of Psychology, 64(1), 361-388. https://doi.org/10.1146/annurev-psych-113011-143809

Welch, M. (2011). The evolution of the employee engagement concept: Communication implications. Corporate Communications: An International Journal, 16(4), 328-346. https://doi.org/10.1108/13563281111186968