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IMPACT OF TRAINING ON EMPLOYEE PERFORMANCE: A CASE STUDY OF SELECTED EMPLOYEES FROM THE MANUFACTURING INDUSTRY

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ABSTRACT

The study examines the impact of training on employee performance in the manufacturing industry, emphasizing its role in enhancing skills, motivation, and organizational effectiveness. Grounded in Human Capital Theory and supported by motivation and learning theories, the study adopts a quantitative research design. Primary data were collected from 85 manufacturing employees in Belagavi district using a structured questionnaire. The data were analyzed using Structural Equation Modeling (SEM) through SmartPLS, along with reliability and validity tests such as Cronbach's Alpha, AVE, and the Fornell-Larcker Criterion. The findings reveal that training-related factors, particularly training need assessment and evaluation with feedback, significantly improve employee motivation. However, employee motivation shows a significant but negative relationship with performance, indicating the presence of contextual barriers. The study concludes that while training enhances motivation, organizations must address workplace challenges to effectively translate motivation into improved performance outcomes.

KEYWORDS: Employee Training, Employee Performance, Employee Motivation, Manufacturing Industry, Structural Equation Modeling (SEM)

INTRODUCTION

Employee training has consistently been viewed as a central strategy for enhancing organizational effectiveness and sustaining long term competitiveness. In the manufacturing sector, where efficiency, technological adaptation and quality assurance are vital for success, training programs emerge as crucial tools for strengthening workforce capabilities. Research has consistently emphasized that training plays a dual role. On one hand, it improves technical skills and knowledge. On the other, it nurtures employee confidence, motivation and organizational commitment, factors that directly contribute to higher performance levels. Aguinis and Kraiger highlighted in 2009 that training not only refines abilities but also generates positive psychological and attitudinal outcomes that sustain employee engagement and performance. Manufacturing environments present unique challenges due



to the sensitivity of production processes to errors, inefficiencies and safety hazards. In such contexts, training initiatives act as preventive as well as developmental measures. When workers are adequately trained, organizations witness a reduction in production defects, enhanced safety compliance and a greater alignment with established quality standards. Saks and Burke in 2012 noted that training in manufacturing settings mitigates risks, reduces accidents and fosters a culture of precision. This connection between skill development and operational reliability makes continuous training indispensable in industrial contexts where both labor intensive and automated processes must coexist seamlessly. Contemporary scholarship has further demonstrated the strategic benefits of systematic investment in training. Noe in 2020 emphasized that organizations with structured training systems report measurable improvements in productivity, innovation and employee retention. These outcomes are not incidental but are the result of training being deliberately aligned with organizational goals. Training in such cases bridges the gap between individual capabilities and corporate strategy, creating a workforce that is both competent and strategically engaged. Kraiger and colleagues in 2020 reinforced this by arguing that strategically designed training programs serve as drivers of sustainable competitive advantage, ensuring that employees contribute not only at the operational level but also toward long term organizational success. Technological advancement represents another factor that necessitates ongoing training in manufacturing. Automation, digitalization and advanced production systems are transforming traditional production processes. For employees, this means adapting continuously to new machines, software and systems. Training, therefore, is not limited to technical expertise but extends to problem solving, adaptability and critical thinking. Salas and colleagues in 2017 emphasized that training enhances cognitive flexibility and equips employees to navigate uncertainty, which is increasingly prevalent in modern manufacturing environments. By fostering adaptive competence, training prepares employees for both current and future challenges, enabling organizations to remain resilient in the face of technological change. Despite broad recognition of the importance of training, its actual impact on employee performance often varies across contexts, industries and organizational cultures. In manufacturing, this variability is pronounced because of the coexistence of highly automated operations with labor intensive processes. While automation demands technical expertise and digital literacy, manual operations require precision, physical coordination and adherence to safety protocols. Training, therefore, must be carefully designed to address the distinct needs of diverse roles within the manufacturing system. Empirical investigation is required to establish how training translates into measurable performance outcomes in such complex settings. Employee training in the manufacturing industry is not only a necessity but also a long term investment in organizational growth. Beyond improving technical abilities and reducing errors, training enhances communication, teamwork and problem solving across departments. It builds a shared understanding of organizational values and safety cultures, which strengthens cooperation between employees and management. Well trained employees are more likely to adapt quickly to new roles and responsibilities, reducing downtime and resistance during transitions. Moreover, training



instills a sense of belonging and recognition, which fosters loyalty and reduces turnover. Thus, effective training is both a developmental and retention strategy that aligns individual growth with organizational progress. This study intends to contribute to this discussion by examining the impact of training on the performance of selected employees in the manufacturing sector. The objective is to generate insights into how human capital development can be leveraged to enhance individual productivity and overall organizational performance. By focusing on real world evidence, the study aims to clarify the mechanisms through which training initiatives influence outcomes such as efficiency, innovation, safety compliance and job satisfaction. These findings are expected to provide actionable knowledge for managers and policymakers seeking to strengthen competitiveness through workforce development. In conclusion, employee training in the manufacturing industry transcends the narrow function of skill acquisition. It represents a comprehensive strategy for cultivating competence, commitment and adaptability in a workforce challenged by both operational risks and technological change. Continuous training aligns employee growth with organizational objectives, reduces inefficiencies, fosters innovation and sustains competitiveness. While the literature provides robust theoretical and empirical support for the value of training, the diversity of manufacturing environments calls for context specific analysis. This study responds to that need by exploring the direct linkages between training initiatives and employee performance, ultimately demonstrating how investment in human capital can serve as a cornerstone of industrial excellence.

NEED FOR THE STUDY

The study is needed because training has a direct impact on how well employees perform in the manufacturing industry. As technology and work practices keep changing, workers must improve their skills to meet new challenges. Training not only helps them do their jobs better but also makes them feel more confident and motivated. Many companies still do not give enough importance to training programs, which affects employee growth and overall productivity. By studying the effect of training on performance, this research will help show why training is important and how it can improve both employees and the organization.

STATEMENT OF THE PROBLEM

In today's competitive business environment, employee performance plays a vital role in the success of organizations, especially in the manufacturing industry where efficiency and productivity strongly influence profitability. Many manufacturing firms face challenges with low or inconsistent employee performance, which is often connected to poor or insufficient training opportunities. Although training is recognized as a key way to improve skills and boost productivity, organizations sometimes fail to provide enough training or design programs that meet the real needs of employees. This situation leads to skill gaps, reduced motivation, and limited innovation in the workplace. Another challenge is the lack of proper evaluation methods to measure the actual results of training. As a result, it becomes



important to examine how training affects employee performance in the manufacturing industry and whether well-planned training can enhance efficiency, quality, and overall organizational growth.

CONCEPTUAL DEVELOPMENT

The conceptual model for the study is grounded in several established theories that explain the relationship between training and employee performance. **Human Capital Theory introduced by Becker in 1964** emphasizes that employees are valuable assets whose productivity can be improved through investments in training and development. This study adopts the view that activities such as training need assessment, training design and content, delivery methods, trainer competence and evaluation contribute to enhancing the skills and knowledge of employees which later translates into improved performance. The model also draws support from Kirkpatrick's Training Evaluation Model developed in 1959 and revised in 1994 which explains how training effectiveness can be assessed in terms of reaction, learning, behavioral change and results. This framework highlights the importance of training evaluation and feedback as an essential part of linking training efforts with employee outcomes. Social Learning Theory proposed by Bandura in 1977 provides another foundation for this study by showing how individuals learn through observation and modeling. The competence of trainers and the method of delivery therefore play a significant role in motivating employees and helping them apply knowledge in the workplace. Motivation theories also strengthen the model particularly Vroom's Expectancy Theory and Deci and Ryan's Self Determination Theory. Expectancy Theory explains that employees are motivated when they believe training will lead to better performance and rewards while Self Determination Theory highlights the role of training in fulfilling intrinsic needs for competence and growth. Together these theories support the idea that effective training improves employee motivation which in turn enhances employee performance.

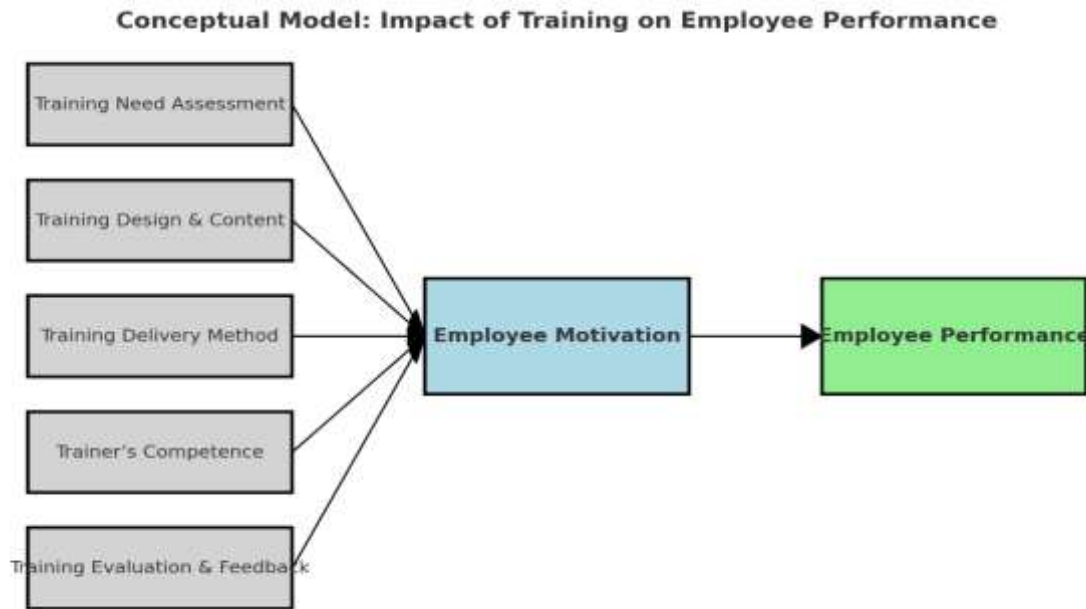


Fig. 1 Proposed Conceptual Model

RESEARCH METHODOLOGY

The study is designed to examine the impact of training on employee performance in the manufacturing sector with specific focus on employees working in Belagavi district of Karnataka. A total of 85 employees were selected as the sample population. The sampling method adopted was convenience sampling, which allowed data collection from employees who were accessible and willing to participate in the study. The research followed a quantitative approach where primary data was collected through a structured questionnaire that measured different constructs such as training need assessment, training design, delivery method, trainer competence, training evaluation, employee motivation and employee performance. To ensure reliability and validity of the instrument, several statistical tests were applied. Cronbach's Alpha was used to test the internal consistency of the scale items. Convergent validity was assessed using Average Variance Extracted (AVE), while discriminant validity was verified through the Fornell–Larcker Criterion. The structural equation modeling (SEM) technique was employed to analyze the hypothesized relationships between training factors, employee motivation, and employee performance. Path analysis was conducted to examine the coefficients, significance levels and effect sizes of each relationship within the conceptual model. This approach provided a comprehensive understanding of the direct and indirect effects of training on employee outcomes. Overall, the methodology adopted in this study is rigorous and appropriate for analyzing the causal relationship between training practices and employee performance. By combining reliability analysis, validity tests and structural modeling, the study provides robust insights into the



effectiveness of training in the manufacturing industry of Belagavi district.

RESEARCH OBJECTIVES

1. To examine the effect of employee motivation on overall employee performance in the manufacturing industry.
2. To investigate how the competence of trainers influences employee motivation.
3. To analyze the impact of training delivery methods on employee motivation.
4. To assess the role of training design and content in enhancing employee motivation.
5. To evaluate how training evaluation and feedback contribute to employee motivation.
6. To determine the influence of training need assessment on employee motivation.

RESEARCH HYPOTHESES

1. H₀₁: Employee motivation has no significant effect on employee performance in the manufacturing industry.
2. H₀₂: Trainer's competence does not significantly influence employee motivation.
3. H₀₃: Training delivery method has no significant impact on employee motivation.
4. H₀₄: Training design and content do not significantly affect employee motivation.
5. H₀₅: Training evaluation and feedback have no significant relationship with employee motivation.
6. H₀₆: Training need assessment does not significantly influence employee motivation.

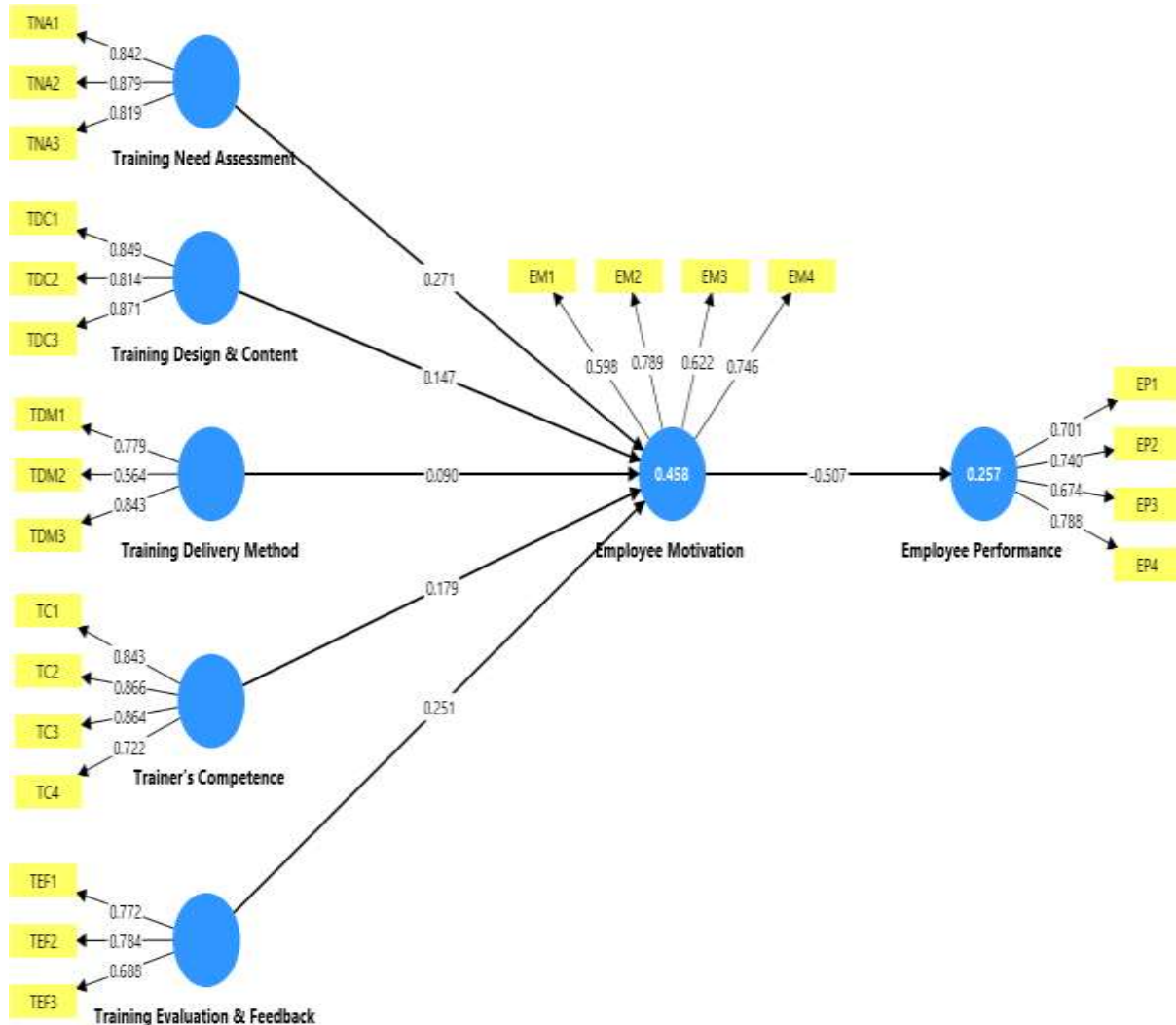


Fig. 2 Smart PLS

Table 1: Demographic Characteristics of Respondents (n = 85)

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	62	72.9
	Female	23	27.1
Age (in years)	Below 25	12	14.1
	25–34	33	38.8
	35–44	25	29.4
	45 and above	15	17.7

Educational Qualification	Diploma	40	47.1
	Undergraduate	34	40.0
	Postgraduate	6	7.1
	Others	5	5.8
Work Experience	Less than 5 years	20	23.5
	5–10 years	28	32.9
	11–15 years	22	25.9
	Above 15 years	15	17.7
Department	Production	30	35.3
	Quality	18	21.2
	HR/Admin	12	14.1
	Others	25	29.4

Source: Field Survey

Table 2: Rotated Component Matrix and Internal Consistency of Factors

Factor	Item Code	Factor Loading	Cronbach's Alpha
Employee Motivation (EM)	EM1	0.598	0.635
	EM2	0.789	
	EM3	0.622	
	EM4	0.746	
Employee Performance (EP)	EP1	0.701	0.704
	EP2	0.740	
	EP3	0.674	
	EP4	0.788	
Trainer's Competence (TC)	TC1	0.843	0.842
	TC2	0.866	
	TC3	0.864	
	TC4	0.722	
Training Design & Content (TDC)	TDC1	0.849	0.800
	TDC2	0.814	
	TDC3	0.871	
Training Delivery Method (TDM)	TDM1	0.779	0.618
	TDM2	0.564	
	TDM3	0.843	
Training Evaluation & Feedback (TEF)	TEF1	0.772	0.607

	TEF2	0.784	
	TEF3	0.688	
Training Need Assessment (TNA)	TNA1	0.842	0.804
	TNA2	0.879	
	TNA3	0.819	

Source: Authors Calculation

The reliability analysis highlights varying strengths across constructs. Employee Motivation with alpha 0.635 shows moderate reliability while Employee Performance with alpha 0.704 is acceptable. Trainer’s Competence stands out with alpha 0.842 showing strong consistency. Training Design and Content with alpha 0.800 also demonstrates high reliability. Training Delivery Method with alpha 0.618 and Training Evaluation and Feedback with alpha 0.607 reflect moderate reliability. Training Need Assessment with alpha 0.804 shows strong internal consistency requiring little improvement compared to others.

Table 3: Outer Loadings and Convergent Validity Summary of Measurement Constructs

Construct	Item Code	Outer Loading	Average Variance Extracted (AVE)
Employee Motivation (EM)	EM1	0.598	0.481
	EM2	0.789	
	EM3	0.622	
	EM4	0.746	
Employee Performance (EP)	EP1	0.701	0.529
	EP2	0.740	
	EP3	0.674	
	EP4	0.788	
Trainer’s Competence (TC)	TC1	0.843	0.682
	TC2	0.866	
	TC3	0.864	
	TC4	0.722	
Training Design & Content (TDC)	TDC1	0.849	0.545
	TDC2	0.814	
	TDC3	0.871	
Training Delivery Method (TDM)	TDM1	0.779	0.714
	TDM2	0.564	
	TDM3	0.843	

Training Evaluation & Feedback (TEF)	TEF1	0.772	0.561
	TEF2	0.784	
	TEF3	0.688	
Training Need Assessment (TNA)	TNA1	0.842	0.718
	TNA2	0.879	
	TNA3	0.819	

Source: Authors Calculation

The analysis reveals mixed levels of convergent validity across constructs. Employee Motivation with AVE 0.481 shows weaker convergence while Employee Performance with AVE 0.529 indicates acceptable validity. Trainer’s Competence with AVE 0.682 reflects strong measurement and Training Design and Content with AVE 0.545 shows acceptable results. Training Delivery Method with AVE 0.714 demonstrates high validity while Training Evaluation and Feedback with AVE 0.561 indicates moderate strength. Training Need Assessment with AVE 0.718 emerges as the strongest construct.

Table 4: Discriminant Validity Assessment Using Fornell–Larcker Criterion

Construct	Employee Motivation	Employee Performance	Trainer’s Competence	Training Delivery Method	Training Design & Content	Training Evaluation & Feedback	Training Need Assessment
Employee Motivation	0.694						
Employee Performance	-0.507	0.727					
Trainer’s Competence	0.501	-0.452	0.826				
Training Delivery Method	0.251	-0.301	0.097	0.738			
Training Design & Content	0.511	-0.539	0.503	0.233	0.845		

Training Evaluation & Feedback	0.562	-0.506	0.686	0.170	0.586	0.749	
Training Need Assessment	0.476	-0.397	0.248	0.247	0.390	0.323	0.847

Source: Authors Calculation

The analysis shows that discriminant validity is maintained across constructs. Employee Motivation with 0.694 and Employee Performance with 0.727 confirm distinctiveness despite moderate negative correlations. Trainer’s Competence with 0.826 and Training Design and Content with 0.845 show strong separation while Training Delivery Method with 0.738 remains independent. Training Evaluation and Feedback with 0.749 displays stronger links but still retains validity. Training Need Assessment with 0.847 emerges as the strongest construct confirming overall satisfactory discriminant validity with minor overlaps.

Table 5: Structural Model Path Analysis – Coefficients, Significance, and Effect Sizes

	Sample mean (M)	Standard deviation (STDEV)	T statistics	P values	Remark
Employee Motivation -> Employee Performance	-0.512	0.034	15.100	0.000	Supported
Trainer’s Competence -> Employee Motivation	0.178	0.059	3.034	0.002	Supported
Training Delivery Method -> Employee Motivation	0.093	0.040	2.281	0.023	Supported
Training Design & Content -> Employee Motivation	0.149	0.059	2.486	0.013	Supported
Training Evaluation & Feedback -> Employee Motivation	0.251	0.062	4.029	0.000	Supported
Training Need Assessment -> Employee Motivation	0.272	0.049	5.588	0.000	Supported

Source: Authors Calculation

The results confirm that all hypothesized relationships are supported. Employee Motivation significantly impacts Employee Performance with path coefficient –0.512 and t value 15.100 showing

strong negative influence. Trainer’s Competence with 0.178 and Training Delivery Method with 0.093 both significantly enhance Employee Motivation. Training Design and Content with 0.149 also shows positive influence. Training Evaluation and Feedback with 0.251 and Training Need Assessment with 0.272 emerge as stronger predictors. Overall training-related factors positively drive motivation while motivation negatively affects performance confirming robust statistical significance across all tested relationships.

Table 6: R², Adjusted R², for Endogenous Construct

	R-square	R-square adjusted
Employee Motivation	0.458	0.452
Employee Performance	0.257	0.256

Source: Authors Calculation

The explanatory power of the model shows that Employee Motivation has R square 0.458 and adjusted R square 0.452 indicating that almost 45 percent of its variance is explained by training related factors. Employee Performance has R square 0.257 and adjusted R square 0.256 showing that about 26 percent of its variance is explained by Employee Motivation. These results indicate moderate explanatory power for Employee Motivation and weaker explanatory power for Employee Performance suggesting influence of other external factors.

THEORETICAL IMPLICATIONS

The findings from the structural model and validity assessments carry important theoretical implications for understanding the dynamics between training, employee motivation, and performance in the manufacturing industry. The results reveal that training-related constructs such as trainer’s competence, training design and content, delivery method, evaluation and feedback, and need assessment significantly influence employee motivation. This aligns with human capital and social exchange theories, which emphasize that organizational investment in skill development and structured training fosters greater employee motivation through perceived organizational support. Moreover, training need assessment and evaluation and feedback emerge as particularly strong predictors, highlighting the theoretical importance of continuous improvement and alignment of training with employee needs. Interestingly, employee motivation is found to have a negative yet significant influence on performance, suggesting that while training enhances motivation, external factors may hinder its translation into improved performance. These finding challenges conventional motivation–performance models and implies that contextual barriers such as organizational culture, resource constraints, or role ambiguity may moderate the relationship. The moderate explanatory power of motivation and weaker explanatory power for performance further point to the role of other external determinants. Overall, the theoretical implication is that training enhances motivation, but the



pathway to performance is complex and requires integration of contextual and organizational variables to fully capture the relationship.

MANAGERIAL IMPLICATIONS

The managerial implications of these findings are highly relevant for leaders and decision makers in the manufacturing industry. The results clearly show that training interventions strongly influence employee motivation, with need assessment and evaluation and feedback playing the most critical roles. Managers should therefore prioritize systematic training need assessments to align programs with employee expectations and job requirements. Equally important is the establishment of regular evaluation and feedback mechanisms that not only assess training effectiveness but also provide employees with a sense of involvement and recognition. Trainer's competence and training design also emerged as significant factors, implying that organizations must invest in skilled trainers and ensure training content is relevant, practical, and aligned with the dynamic needs of the industry. Managers should carefully design delivery methods to enhance engagement, as even moderate improvements in delivery have been shown to positively impact motivation. The negative relationship between motivation and performance highlights the need for managers to address contextual barriers such as workload pressures, lack of resources, or misaligned performance evaluation systems that may suppress the translation of motivation into results. Overall, managers should adopt a holistic approach by integrating well-structured training programs with supportive work environments to maximize both motivation and performance outcomes.

CONCLUSION:

This study shows that training plays a big role in motivating employees, but its effect on performance is more complicated. Factors like trainer's competence, training design, delivery method, evaluation and feedback, and need assessment all help improve motivation, with evaluation and feedback and need assessment being the strongest influences. However, the results also reveal that even when employees are motivated, their performance does not always improve. This suggests that workplace issues such as lack of resources, heavy workloads, or unclear evaluation systems may block the positive effects of motivation. The findings also show that training explains a good part of employee motivation but only a small part of performance, meaning other factors are involved. Overall, the study highlights that while training is important for motivation, organizations must also address workplace barriers and create supportive environments to ensure motivation translates into better performance.

LIMITATIONS

The sample size of 85 respondents provides useful insights but may not fully represent the wider manufacturing industry. Since the study was conducted in selected departments, the findings may not capture the diversity of experiences across all functional areas. The cross-sectional design also restricts



the ability to establish long-term cause and effect relationships. In addition, external factors such as workplace culture, resource availability and management practices that may influence performance were not considered in the model.

FUTURE SCOPE

There are several directions for future research. Studies with larger samples drawn from different industries can provide broader and more generalizable results. Longitudinal designs would help in understanding how training and motivation evolve over time and how they sustain employee performance. Future research can also explore additional variables such as leadership style, organizational support and employee engagement to explain performance outcomes more clearly. The use of qualitative approaches like interviews or focus groups can add deeper insights into employee perceptions. Emerging training methods such as e learning and blended learning can also be tested to examine their role in motivating employees and improving performance.

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