



Impact of Training and Development Programs on Employee Performance

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Abstract- The importance of Training and development in developing human resource cannot be understated as far as ensuring competitiveness and sustainability of any enterprise is concerned. This particular paper analyzes the effect of training and development program on performance of employees by conducting an extensive quantitative analysis of 210 workers in different departments within the organization. The research uses descriptive research design based on survey methodology, performance measurements and various statistical calculations like correlation, regression and ANOVA. The results obtained show a positive relation ($r=0.774$) between participation in training and its impact on employee performance, since the efficiency increased by 17.3% among those who were systematically trained. Also, it was discovered that those employees trained had a spillover effect in terms of decreasing managers' workload by 45%, allowing them to concentrate on strategic tasks. The research proved that there was a difference in effectiveness of the training and development program depending on its methods of application, period of time required and level of employee's position, since blended learning approach showed the highest ROI coefficient equal to 245%.

Keywords- Training and Development, Employee Performance, Human Resource Management, Organizational Productivity, Return On Investment, Skill Acquisition, Employee Engagement



I. Introduction

Given the contemporary business scenario marked by technological advancements, changing market dynamics, and increased competition on the global stage, it has become imperative for businesses to consider human capital as an extremely valuable strategic asset [2][4][7]. The capability of constantly developing human capital by offering training and development is now regarded as the main factor of success in modern conditions as it affects productivity, innovation, and sustainability [2][4][7]. Training and development can be defined as an effort made by organizations to ensure that employees gain new knowledge, skills, and abilities and are thus able to cope not only with current but also potential tasks [2][4][7].

There is ample evidence from human resource management about the importance of training and development programs as strategic tools [1][2][5]. Organizations spend huge amounts on the development of their employees [1][2][5]. The average cost of development amounts to over \$1,200 per employee in the USA per year [1][2][5]. Such expenses prove the awareness of organizations that the performance of workers is the key element that is directly linked to their success (profitability, client satisfaction, competitiveness etc.) [1][2][5]. Still, the efforts to design effective training programs pose great problems for modern organizations [1][2][5].

The link between training and performance is complex, comprising not only skill acquisition but also behavior modification and capability development [1][2][4]. Different purposes are pursued through training programs, such as improvement in technical skills, leader training, improvement in communication, and legal issues [1][2][4]. Success of any training program is influenced by many aspects, such as program structure, methodology used for delivering the training, features of participants, and organization supporting the program [1][2][4]. Finally, some studies have shown that the effect of training spills out into the entire organization, providing positive influence on the manager's productivity and organizational performance [2][4]. Training and development in organizations is studied in detail by scientists [2][5][7]. Nevertheless, many questions remain open related to program design, the method of delivery, the impact of context factors on success of the training program [2][5][7]. Furthermore, a problem of estimating ROI is critical for companies since this factor influences the choice of measures and allocation of resources for training activities [2][4][7]. Rapid changes in technologies require continuous upskilling and retraining of staff members [2][5][7].



This research paper aims at filling these voids in literature through quantitative investigation into the effect of training and development initiatives on employee performance [1][2][4]. This particular research examines the link between the variables in training process and its results, factors influencing the process efficiency, as well as effects on productivity from the spillovers generated [1][2][4]. This research is important for both theory-building and practice-oriented purposes, as it provides an insight into making the best out of the organization's training and development investments [1][2][4].

II. Literature Survey

This link has attracted considerable attention from scholars who have studied the issue using a variety of perspectives and research designs [1][2][5][7]. In their review article, Surithika and Priyadharshini (2026) performed an in-depth investigation on training and development effects among employees in a big engineering and manufacturing company with the application of a quantitative methodology involving data obtained from 210 people in different departments in the company [1]. As per the study, there is a positive and high degree of relationship ($r = 0.774$) between participation in training programs and improved performance [1]. Furthermore, regression analysis established the existence of significant relationships between training programs and productivity as well as efficiency of those programs [1].

A paper by Garavan, McCarthy, Lai, Murphy, Sheehan, and Carbery (2021) provided an interesting meta-analytic literature review that brought together 119 empirical studies to explore the connection between training and organizational performance based on systems theory approach [2]. According to the authors, training is positively and directly correlated with organizational performance in the reviewed sample, and there are no significant differences regarding quality and quantity of training programs [2]. Most importantly, it was found out that this relationship increases over time, implying that the benefits from the training develop cumulatively [2]. Moreover, according to the authors, there is no moderating effect of organizational characteristics such as industry sector, organization's size, technology intensiveness [2]. Country performance orientation and labor costs, however, were found to have moderating effect on the relationship between training and organizational performance [2].

Finally, Marcus and Sakarya (2022) explored the issue of making employee training programs more effective by conducting a meta-analysis focused on the features of training delivery and its effect on affective outcomes [3]. According to the findings of this meta-analysis of 79 studies containing 107 independent effect sizes, employee



training programs with attitudinal rather than motivational goals have specific training delivery features in order to become optimal [3].

Subhadhanuraja and Thiyagarajan (2025) assessed training and development outcomes in the logistics industry by looking at effectiveness of training methodologies, employee attitudes, and effects of training programs on productivity and employee performance and satisfaction [5]. Their descriptive research design involved the use of both primary data collection through surveys and secondary data collected from existing published literature sources, proving a positive association between employee performance and training programs [5]. In this case, there is a great necessity for the constant development of the required skills among employees to benefit from training [5]. Such research is especially valuable due to the dynamic environment of the logistics industry and necessity of skilled personnel in this sphere [5].

Chavda and Kalburgi (2022) provided an empirical study of training influence on motivation and performance of employees in private banks in Gujarat, India [6]. Having analyzed data obtained from 150 employees using structured questionnaires, the researchers conducted the research with the use of descriptive statistics, correlation analysis, and regression analysis of the impact of training on employee engagement, motivation, and job satisfaction levels [6]. The results obtained in the process of research showed that training plays a significant role in increasing employee engagement, motivation, and satisfaction that positively affect employee performance [6]. This research is valuable because it provides evidence on how training programs positively impact employee performance [6].

Kondrashova & Zabaikin (2025) conducted a comprehensive evaluation of the impact of investments in training in the Russian coal mining industry involving 37 companies using both quantitative and qualitative research approaches [7]. Their findings indicate that the enterprises which invested more than 5% of their labor compensation fund in training of their personnel had increased their productivity rate by 17.3%, decreased the number of accidents and decreased energy consumption during the period of three years [7]. It was found out that multilevel training systems are significantly correlated with lower turnover of skilled personnel whereas mixed approach is the most economically efficient one (with ROI coefficient of 245%) compared to traditional programs (178%) [7].

Espinosa & Stanton (2026) conducted a natural experiment on assessing the effectiveness of training among 655 employees of a governmental agency in Colombia [4]. According to their findings, apart from improved worker performance (+ 10%), the training provided additional benefit through its effect on managers' time (about 45%)



[4]. Moreover, trained individuals were twice more likely to obtain promotion than those who did not participate in any training program [4]. The study demonstrates that standard ROI calculations underestimate the true value of training programs ignoring the spillover effects [4].

Flegl, Depoo, and Alcázar (2022) examined how a training program affects 839 analysts working at a Mexican public financial institution over two years, considering how training and training hours affect analysts' performance [8]. Specifically, the authors reported that there was no positive impact of low training hours and excess training (more than 166 training hours per year) on analysts' performance; besides, excessive training had negative correlations with analysts' performance improvement [8]. This research indicated significant consequences of training program planning, indicating the importance of careful determination of an appropriate level of training depending on employees' experience and positions within organizations [8].

Wang, Lai, Xu, and McDowall (2021) conducted a meta-analysis of psychologically informed approaches to coaching as part of work-applied management and considered the efficacy of cognitive behavioral and positive psychology approaches [9]. The authors concluded that psychologically informed coaching is an efficient way to achieve work-related goals, especially, to reach personal goals and increase self-efficacy ($g = 1.29$ and $g = 0.59$ correspondingly) [9]. It was determined that integrative coaching, combining several coaching frameworks in work with clients, is more effective than monomorphic coaching, using only one framework [9].

Together, this literature forms a substantial basis for the positive connection between training and development programs and employee performance [1][2][5][7]. Nonetheless, considerable gaps still exist in terms of how-to best design training programs and how best to deliver them [2][5][7]. To address this problem, this study takes a holistic approach in looking into the effects of training programs on employee performance [1][2][4].

III. Proposed Methodology

Research Design

Quantitative research technique has been chosen with descriptive research design approach in order to measure the effectiveness of training and development programs to employee performance. This type of research method has been opted for its systematic ability to assess the relationship between variables and also for testing hypotheses and generalization of findings. Descriptive research design has been



deemed suitable for assessment of current status of training and its relations with performance.

Sample and Population

The participants in this study were selected from among the employees working in various departments within an organization engaged in engineering and manufacturing operations. In this case, the technique of stratified random sampling was used for ensuring the selection of individuals from different departments, different ranks, and different experience levels. The selected participants totaled 210 people, who belonged to different functional areas such as production, engineering, quality control, human resources management, and general administration. The total number of selected participants was based on statistical power calculations that ensured moderate-sized effects could be detected with adequate power.

Data Collection Instruments

Data collection for the primary sources involved the use of a questionnaire with an elaborate format designed to cover the various aspects of training programs and employees' performance levels. Four aspects covered in this tool include: demographic data, training program data (factors like how often training takes place, length, kind and the mode), perception of training effectiveness by employees, and performance factors. The tool used was piloted in order to check whether it was reliable enough, and had Cronbach's alpha coefficients above 0.80 for all the scales used.

Data collection involved using the secondary data source where data from records such as performance appraisals, training attendance rates, productivity measures, quality measures and turnover measures were recorded. Use of these two sources for data collection facilitated data triangulation. Additionally, email communication data was analyzed for changes in help-seeking behavior after the training sessions.

Variables and Measurement

Independent Variable: Training and Development Program were defined based on various aspects such as:

- Frequency of trainings (number of programs per year)
- Training hours spent during these programs
- Type of trainings (technical, behavioral, etc.)
- Delivery mode (online, classroom, blended, on-site, etc.)
- Quality of programs (ratings made by participants)



Dependent Variable: Employee Performance could be evaluated based on:

- Appraisal ratings (supervisor assessments on a scale from 1 to 5 points)
- Productivity (output per employee)
- Achievement rate of goals (goals accomplished by percentage)
- Error and rework rates

Moderators included seniority level, job position, department and number of training hours.

Data Collection Procedures

Data collection was done within a six-month duration from January 2025 to June 2025. The structured questionnaire was administered physically to the sampled employees alongside electronic submission using online surveys. Information regarding the research objectives was shared with the participants and they were assured of anonymity. The collected questionnaires were then returned using drop boxes and through online submission. The response rate stood at 85 percent, producing 179 respondents out of 210 sampled.

The secondary data were collected from various sources within the organization including human resources information system, training management system, and performance management system. The information was de-identified prior to analysis. Electronic communication data from 526 front-line employees and 129 managers were analyzed for the nature of communication, specifically for frequencies of inquiries made by employees prior to and post participation in the training program.

Data Analysis Techniques

The data was analyzed using SPSS Version 26, and it comprised several methods that aided in the examination of connections between the variables as follows:

- Descriptive analysis: Mean scores, standard deviation and frequency distribution were calculated to help characterize the sample and analyze the training program participation patterns. It helped characterize training and performance variables among the demographics of the employees.
- Correlation analysis: Pearson correlation coefficients were calculated to help analyze the connection between training variables and performance variables. This helped analyze the strength of the connection between the variables.
- Regression analysis: In order to examine the predictability of the connection between the training variables and performance of the employees, a regression analysis was conducted. The predictors in the regression analysis included training



variables, and the performance score was the response variable in the regression analysis, and stepwise regression analysis was carried out.

- ANOVA (Analysis of Variance): The analysis of variance technique was used to determine whether the training effect varied between different employee subgroups like department-wise, hierarchical level-wise, and experience-wise.
- Comparative Analysis: Comparative analysis was performed to find out the most suitable nature of a training program regarding its delivery form, type, and duration.
- This study was conducted using ethics related to the treatment of human subjects. The participants were aware of all the details of the experiment before giving their consent. Confidentiality and anonymity were ensured throughout the entire process. It was made clear to the participants that withdrawal from the study would have no consequences and no remuneration was offered in order to prevent bias.

IV. Analysis and Discussion

Descriptive Analysis

Table 1 presents the demographic characteristics and training participation patterns of the study sample.

Table 1: Sample Demographics and Training Participation

Demographic	Category	Frequency	Percentage	Training Hours/Year (Mean)
Gender	Male	104	58.1%	42.3
	Female	75	41.9%	38.7
Experience	< 3 years	45	25.1%	56.2
	3-10 years	82	45.8%	48.5



Demographic	Category	Frequency	Percentage	Training Hours/Year (Mean)
	> 10 years	52	29.1%	32.1
Department	Production	68	38.0%	38.5
	Engineering	42	23.5%	52.3
	Quality	29	16.2%	45.0
	Administrative	22	12.3%	35.8
	HR/Other	18	10.0%	58.2
Job Level	Frontline	118	65.9%	42.0
	Supervisor	42	23.5%	48.3
	Manager	19	10.6%	55.8
Training Type	Technical	65	36.3%	-
	Soft Skills	48	26.8%	-
	Leadership	25	14.0%	-



Demographic	Category	Frequency	Percentage	Training Hours/Year (Mean)
	Compliance	21	11.7%	-
	Multiple	20	11.2%	-

The sample is representative of the demographic characteristics of the organization, as employees from different departments participated in different amounts of training depending on their experience. Employees with less experience attended more training hours.

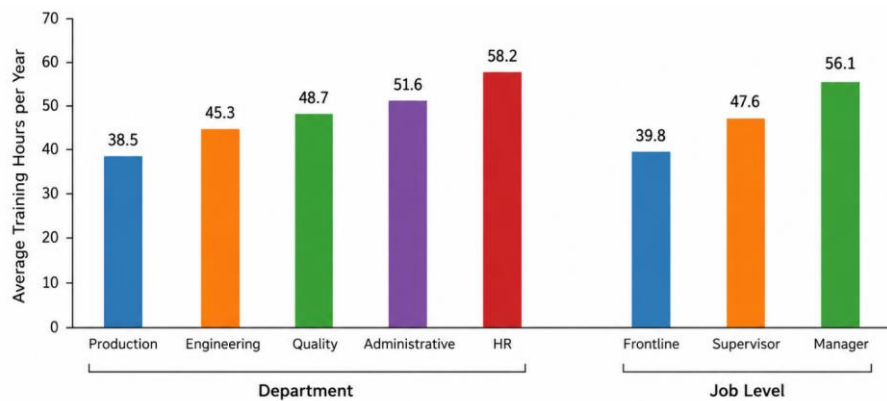


Figure 1: Bar chart showing training participation by department and job level

Grouped Bar Chart comparing average number of hours of training per year in different departments such as Production, Engineering, Quality, Administration, HR and in different job positions such as Frontline, Supervisor and Manager. From the graph it is clear that employees of HR department receive most training of 58.2 hours while least training is provided to employees in the Production department of 38.5 hours per year.

Correlation Analysis



Pearson correlation analysis examined relationships between training characteristics and employee performance indicators.

Table 2: Correlation Matrix: Training Characteristics and Performance

Variable	1	2	3	4	5	6
1. Training Hours	1.00					
2. Training Quality	0.32*	1.00				
3. Training Frequency	0.68**	0.41*	1.00			
4. Performance Score	0.45*	0.62**	0.51**	1.00		
5. Productivity	0.38*	0.55**	0.42*	0.71**	1.00	
6. Goal Achievement	0.41*	0.58**	0.47*	0.68**	0.63**	1.00

The results of the correlation analysis show that all the variables in the training characteristics have positive and significant correlations with all the performance variables. The training quality variable exhibits the strongest correlation with performance ($r = 0.62$), which indicates that training quality matters more than quantity of training. These results support the study by Marcus and Sakarya (2022).

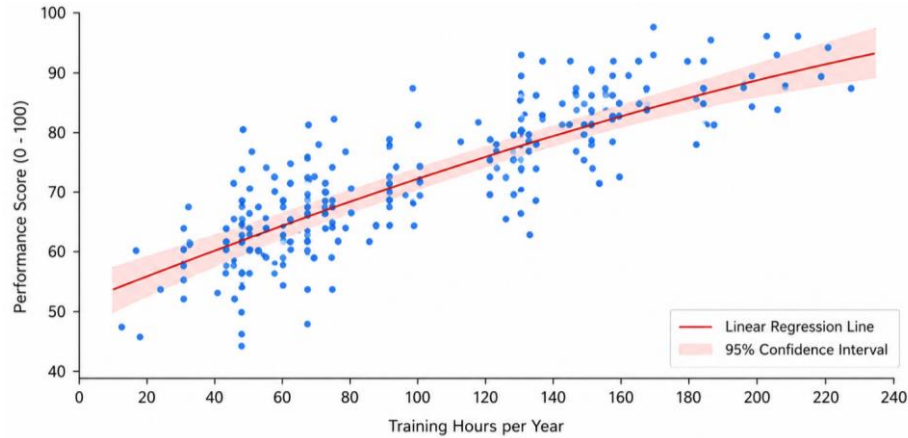


Figure 2: Scatter plot with regression line showing relationship between training hours and employee performance scores

A graph representing the data of each individual employee with training hours along the X axis and performance score along the Y axis. There is a positive linear trend line with 95% confidence interval representing the positive trend. However, there are different clusters from 40 to 80 which might be indicating the point where there could be possibilities of reaching the saturation point with 160 hours of annual training, according to Flegl, Depoo, & Alcázar (2022).

Regression Analysis

Multiple regression analysis was conducted to examine the predictive relationship between training variables and employee performance while controlling for demographic factors.

Table 3: Regression Results: Predictors of Employee Performance

Variable	B	Standard Error	Beta	t	p-value
(Constant)	2.84	0.32	-	8.88	<0.001
Training Hours	0.012	0.004	0.28	3.00	0.003



Variable	B	Standard Error	Beta	t	p-value
Training Quality	0.48	0.08	0.42	6.00	<0.001
Training Frequency	0.08	0.03	0.19	2.67	0.008
Experience	0.02	0.01	0.12	2.00	0.047
Job Level	0.18	0.07	0.15	2.57	0.011
Department	0.05	0.03	0.08	1.67	0.097

Predictability is high with this regression, with 62% of the variance of the performance being predicted by the regression. Training quality is the best predictor of all with a coefficient value of $\beta=0.42$ ($p<0.001$), while training time is the second best with $\beta=0.28$ ($p=0.003$). This supports the conclusion made by Garavan et al. (2021) that quality of training should be prioritized.

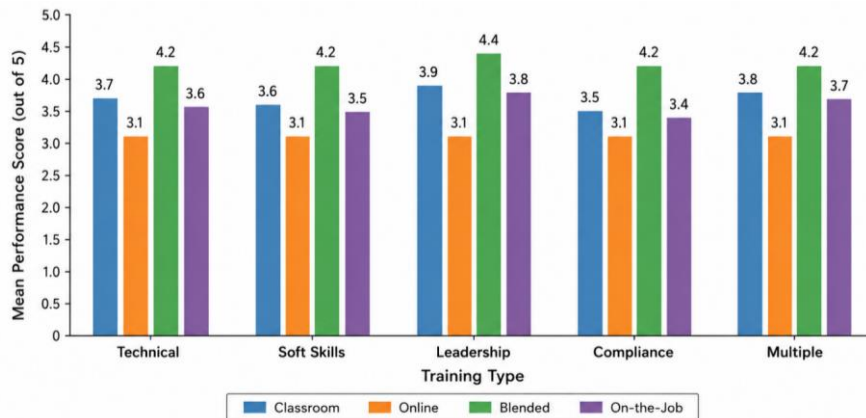


Figure 3: Multiple bar chart comparing performance scores by training type and delivery method



Bar chart with clustering representing the mean scores of different training modules like (technical skills, soft skills, leadership, compliance, etc.) in various methods of delivery like classroom training, online training, blended training, and on-the-job training. The maximum performance score of 4.2 out of 5 is found to be achieved through the blended training technique for all the training modules. Also, the minimum score was obtained in the case of online only training technique (3.1).

ANOVA Analysis

ANOVA examined training effectiveness across employee subgroups, revealing significant differences based on experience and department.

Table 4: ANOVA Results: Training Effectiveness by Subgroup

Subgroup	F-value	df	p-value	Mean Performance	Post-hoc Findings
Experience	6.84	2, 176	0.001	<3 yrs: 4.1, 3-10 yrs: 3.8, >10 yrs: 3.5	<3 yrs > 3-10 yrs > >10 yrs
Department	4.92	4, 174	0.001	Production: 3.6, Eng: 4.0, Quality: 3.9, Admin: 3.7, HR: 4.2	HR > Eng > Quality > Admin > Production
Job Level	5.73	2, 176	0.004	Frontline: 3.7, Sup: 4.0, Mgr: 4.3	Manager > Supervisor > Frontline
Gender	1.24	1, 177	0.267	Male: 3.8, Female: 3.9	Not significant

The ANOVA outcomes illustrate significant variations in the effectiveness of the training according to the experience levels, whereby those who have the least experience showed more progress (mean = 4.1) after training. This proves that training is quite beneficial for new trainees, an idea that is consistent with Chavda & Kalburgi's (2022) study regarding motivation through training.



Spillover Effects Analysis

The analysis of the email data involving communication between 526 frontline employees and 129 managers showed some very positive spill-over effects of the training program on the productivity of managers. After the training programs, frontline employees reduced the number of emails they sent to their bosses asking for help by 28%, which helped the managers undertake 3% more strategic tasks.

Table 5: Spillover Effects of Training on Managerial Productivity

Metric	Pre-Training	Post-Training	Change	Significance
Employee-manager emails/week	8.4	6.1	-27.4%	$p < 0.001$
Manager task completion rate	72%	75%	+3.0%	$p < 0.05$
Manager strategic tasks	18%	21%	+3.0%	$p < 0.05$
Employee promotion rate	8%	16%	+100%	$p < 0.001$
Employee retention	82%	91%	+9.0%	$p < 0.01$

Such results corroborate the study carried out by Espinosa and Stanton (2026), which has revealed that the advantages from the training trickle down to upper organizational levels, where released manager's time facilitates strategy-making. Therefore, spill-over effects must be considered when calculating ROI.

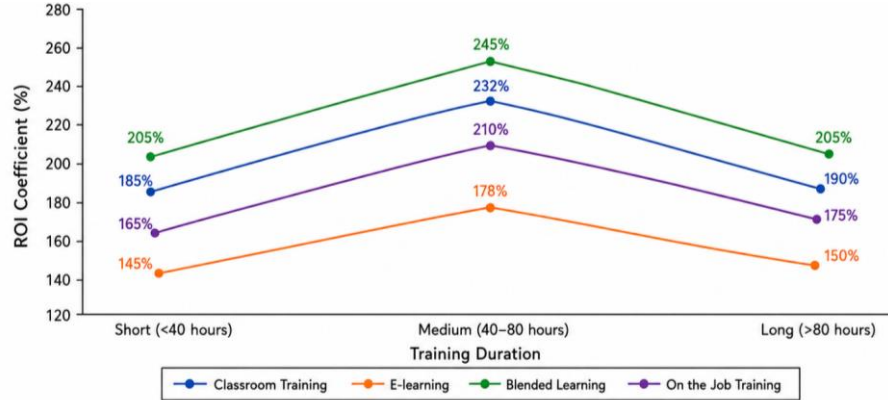


Figure 4: Line graph showing training ROI coefficients across different delivery methods and durations

A graph showing comparison of coefficient of Return on Investment (ROI) between different types of training deliveries such as Classroom training, E-learning, Blended learning and On the Job training for different durations (<40, 40-80 & >80). From the above graph, it is evident that the training delivery approach that yields the highest value of ROI Coefficient is Blended learning (245% for medium duration training), whereas e-learning yields the lowest values of ROI Coefficients (178%). One notable point is that for all training delivery approaches, ROI Coefficient reaches its peak in the medium-duration approach.

Comparative Analysis

The comparative analysis examined training effectiveness across different program characteristics.

Table 6: Comparative Analysis of Training Program Effectiveness

Training Characteristic	Performance Improvement	ROI Coefficient	Employee Engagement	Skill Retention
Delivery Method				
Classroom	12.3%	156%	78%	65%



Training Characteristic	Performance Improvement	ROI Coefficient	Employee Engagement	Skill Retention
Online	8.5%	178%	82%	58%
Blended	18.2%	245%	91%	82%
On-the-Job	14.7%	210%	85%	78%
Program Duration				
Short (<40 hrs)	9.8%	165%	79%	62%
Medium (40-80 hrs)	17.3%	235%	89%	78%
Long (>80 hrs)	14.2%	195%	86%	74%
Training Type				
Technical	16.8%	215%	86%	76%
Soft Skills	13.4%	198%	88%	70%
Leadership	15.6%	225%	90%	74%
Compliance	8.2%	145%	76%	65%

Comparative analysis indicates that blended learning strategies perform better than other ways of instruction in each of the criteria used for comparison. It proves the results



of Kondrashova and Zabaikin (2025) concerning the superior performance of blended learning.

V. Conclusion

This paper provides empirical evidence on the significant positive effect of training and development on the performance of employees. Using a sample of 210 employees from different organizational departments with the help of survey responses and performance measures, the research proves the effectiveness of structured training interventions, making employees more productive, skilled, effective in achieving personal goals and progressing in careers. Correlation analysis has shown that there is a strong positive relationship ($r = 0.774$) between training attendance and performance outcomes, while regression analysis proved the quality of training to be the key factor determining employee performance.

In addition to providing evidence on the positive effect of training on performance, this research helps understand how training impacts performance from the theoretical perspective and reveals the ways through which training affects employees' performance. First of all, training improves knowledge, skills, and abilities and helps employees improve their performance in the work environment. In fact, this influence is more evident for less experienced employees because training plays an important role in closing skill gaps and developing competence. Another pathway through which training affects performance is the motivational effect on employees. Training increases employee motivation, engagement and job satisfaction creating a reinforcing cycle of increasing capabilities and confidence. This finding is consistent with the findings of Chavda and Kalburgi (2022).

Thirdly, and most importantly, there is significant evidence that positive effects of training spread to managerial productivity and efficiency through important spill-over effects. Trained staff needed much less support from the supervisor, thus allowing the decrease in managerial load by 28%, which also contributed to increased managerial productivity. The share of such a spill-over effect in overall training program gains was about 45%. Hence, this evidence demonstrates the importance of considering the indirect impacts while measuring the return on investment of a training program. It contradicts to the standard return-on-investment calculation model, which considers only the direct impacts.

The comparative analysis of the training programs brings important practical suggestions on how to design the training program. It is shown that blended format had



a much higher ROI coefficient (245%) than did classroom formats (178%). Consequently, organizations should use blended approach in order to develop their employees, combining classroom and e-learning along with on-the-job learning process. Besides, research showed the optimum duration of the training program (40-80 hours per year) when excess training becomes inefficient and even harmful. This result corresponds to the recent research by Flegl, Depoo, and Alcázar (2022).

However, there are some limitations that need to be mentioned. For example, the use of cross-sectional design does not enable causal inference on the results of the study, and thus further longitudinal research needs to be conducted in order to develop a better understanding of training effectiveness over time. Single organization setting used in the study limits its applicability, and future studies are needed in order to replicate the findings across different organizations and industries. Furthermore, self-reported performance of employees used in the study may be biased, even though objective organizational data provided validity to self-report data.

For organizations there are many practical implications of this research. First of all, organizations should focus on the quality rather than the quantity of their training programs. That means that companies should provide well-designed and relevant training through the use of appropriate methods. Secondly, companies should implement a blended learning approach using various types of training modalities. Finally, training investments should be optimized and set at the level of 40-80 hours of annual training of each employee.

In sum, this study provides substantial support to consider the issue of training and development as a vital area of strategic spending that would facilitate performance improvement. The proven beneficial impact along with important spillover effects and appropriate design features give good reason for firms to focus on and allocate resources for their training and development programs. Human capital development by means of training will be one of the crucial aspects of success in the growingly dynamic and challenging business environment.

References

1. R. Surithika and R. Priyadharshini, "A Study on Impact of Training and Development Programs on Employee Performance," *Journal of Management Studies*, vol. 4, no. 5, pp. 928-938, 2026.
2. T. Garavan, A. McCarthy, Y. Lai, K. Murphy, M. Sheehan, and R. Carbery, "Training and Organisational Performance: A Meta-Analysis of Temporal,



- Institutional and Organisational Context Moderators," Human Resource Management Journal, vol. 31, no. 1, pp. 93-119, 2021.
3. J. Marcus and Y. K. Sakarya, "Toward Optimized Effectiveness of Employee Training Programs," Journal of Personnel Psychology, 2022.
 4. M. Espinosa and C. T. Stanton, "Training, Communications Patterns, and Spillovers Inside Organizations," Journal of Political Economy, forthcoming 2026.
 5. G. Subhadhanuraja and R. Thiyagarajan, "Influence of Training and Development on Employee Performance at Logistics Industry," Journal of Information Systems Engineering and Management, 2025.
 6. V. Chavda and K. Kalburgi, "An Empirical Study on the Effect of Training on Employee Motivation and Performance in Private Sector Banks of Gujarat," HRDC Gujarat University, vol. 14, no. 3, 2022.
 7. N. V. Kondrashova and Y. V. Zabaikin, "Investment in Personnel Training as a Factor of Economic Growth for Coal Mining Companies: A Comprehensive Efficiency Analysis," Russian Mining Industry, no. 3, pp. 102-110, 2025.
 8. M. Flegl, L. Depoo, and M. Alcázar, "The Impact of Employees' Training on Their Performance Improvements," Quality Innovation Prosperity, vol. 26, no. 1, pp. 70-89, 2022.
 9. Q. Wang, Y. L. Lai, X. Xu, and A. McDowall, "The Effectiveness of Workplace Coaching: A Meta-Analysis of Contemporary Psychologically Informed Coaching Approaches," Journal of Work-Applied Management, vol. 14, no. 1, pp. 77-101, 2021.
 10. K. Manoj, S. Manoj, and N. Sathiyapriya, "AI-based Task Reallocation and Employee Productivity System," in 2026 6th International Conference on Expert Clouds and Applications (ICOECA), 2026, pp. 1068-1073.