

Original Article

The Role of Training and Development in Enhancing Employee Performance

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ABSTRACT: It is well established that training and development are key pillars of HRM, directly impacting employee performance and organisational growth. In a changing workplace, businesses are quickly realising the importance of structured training programs to address existing skill gaps and boost workforce productivity. This study examines how training for employees of different ages and experience levels can enhance their performance. The main objective of this research is to examine the effects of training and development programs on employees' productivity, confidence, skill utilisation, job satisfaction, and career advancement. The research design used was descriptive research. Primary data were collected through a structured questionnaire-based survey of 100 respondents from different organisations. It included people of various ages and levels of experience, mostly under 25 and with a range of work experience. The data interpretation mainly involved percentage analysis. Results: The results of this survey are consistent with the conclusions that training programs make a significant difference in employee performance. The majority of the respondents found that training was very relevant to their job descriptions, improved their confidence level and improved productivity. In addition, the research indicates that regular use and support of new skills by the organisation are linked to career advancement and job satisfaction.

KEYWORDS: Employee Performance, Human Resource Management (HRM), Job Satisfaction, Skill Development, Training and Development, Workforce Productivity.

1. INTRODUCTION

Training and Development (T&D) is one of the most essential functions of human resource management due to the increasing awareness of organisations around the world that human capital is the most valuable and strategic resource they have to invest in and manage in today's rapidly changing and highly competitive business environment. Training is a structured approach to increasing an employee's knowledge, skills and competencies for the current job, and development is a program or set of programs designed to develop an employee for future roles and career advancement opportunities. Technological innovation and growth, globalisation and evolving demographics of the workforce force organisations to make ongoing structured investments in learning programs that will equip them to meet the gap in required skills, increase workforce efficiency and ensure competitive advantage. India, especially in the fast-changing urban business landscapes like Bengaluru, is witnessing a growing trend in formalised employee training programs for companies to keep their workforce relevant, productive, and motivated. Although training and development are recognised as important measures, many organisations do not consider training and development as a strategic investment and give it the attention it deserves, causing a lack of relationship between program implementation and measurable program outcomes. This disconnect between the intent and the effect is the focus of the present study. Although several studies explore the theory of training and employees' performance, the direct perception of employees with respect to the relation between training and the performance of employees across different age groups, experience and in different organisations in the Indian context is limited, especially for those who have joined the organisation recently and for mid-sized organisations, which this study aims to address. The main issue that the research will examine is whether training and development programs, as they are being delivered today, actually lead to the performance of employees or if they are not as frequent, relevant and supported by the organisation, these programs are not effective. This can be studied through the following objectives: firstly, to see how organizations are providing training programs and how relevant they are to the employees' employee productivity; secondly, to examine the effect of the training and development on the employee productivity in terms of employee confidence and skill application; thirdly, to analyse the role of organizational support in reinforcing the employee training and development; and fourthly, to determine the relationship between training and development and employees' career growth and overall job satisfaction. One critical objective of the research is to answer the important questions: Just how effective are training programs in improving employee performance? Is there a correlation between employee confidence and the frequency of training? Is there a correlation between the effectiveness of training and consistent organisational support? The scope of this study is restricted to any working professionals within different organizations in India. The primary data were obtained by giving a structured questionnaire-based survey to 100 respondents, who were mainly in the age group under 25 years, and work experience (in years) ranged from less than 1 year to more than 5 years. The survey included 15 well-formulated questions that represented the dimensions: Training frequency, relevance, effectiveness, performance improvement after training, productivity, training confidence, application of training, organisational training support, satisfaction with training opportunities, career development opportunities, and quality of training programs. A

descriptive research design was adopted, and percentage analysis was the primary method used to interpret the data generated. The results of this investigation could be both of theoretical and practical importance: Theoretically, the study could help expand the pool of knowledge about HRD; Practically, it could provide HR managers, organisational leaders and policymakers with practical lessons in designing and implementing more effective training strategies. This study also acknowledges the employees' perception, practical evidence from surveys, and organisational experiences to align theory with action, thereby strengthening the proposition that training and development programs, implemented using a specifically structured, consistently delivered, and organisational support program, are essential to improve employee performance and sustain organisational growth.

2. LITERATURE REVIEW

Rodriguez, J., & Walters, K. A conceptual study by (2017) conducted groundbreaking research on the role of T&D in employee performance evaluation. They used eleven T&D modalities as their independent variables: on-the-job training, off-the-job training, coaching and mentoring, job rotation, orientation programs, conferences, role playing, career planning, and goal setting. The dependent variables were the dimensions of employee performance such as productivity, efficiency, effectiveness, quality and attendance. Binmlafikh, M.A. & Wahab, S.R.B.A. (2025) conducted a bibliometric and systematic literature review of 169 Scopus-indexed articles (from 2299 initial articles). They focused on quantitative methods (SEM, regression analysis, factor analysis) as key analysis tools, and variables consisted of T&D programs (independent) and organisational performance outcomes (dependent). Tukiran, M. & Desianti, L.C. (2025) performed a systematic review via the PRISMA approach with the subject of T&D and its mediating role between employee engagement and performance outcomes. There are various important theories that underpin Training and Development research. Human Capital Theory (1964) by Becker has established the basis for supporting T&D investment as a form of financial investment and not as an unfunded mandate. In tandem with this, Blau (1964) developed Social Exchange Theory, which provides some insight into what these relationships look like when they are effective in T&D: When an organisation invests in the growth of its employees, they are likely to return the favour by committing themselves more fully to the organisation, increasing their productivity, and being more loyal. Together, these two theoretical pillars offer a strong argument for why structured training programs that are structured can lead to individual and organisational outcomes. This understanding is also expanded by Bandura's (1986) Social Cognitive Theory, which focuses on the importance of self-efficacy in the transfer of learning. The increased self-confidence and motivation of those who acquire a strong belief in their own competence through training is likely to translate to increased application of their skills into tangible performance in the workplace, thus boosting learning outputs. This theoretical perspective is especially applicable to explaining why employee confidence is a major outcome variable in the studies of the effectiveness of training. Kirkpatrick's Four-Level Training Evaluation Model (1959) is one of the most accepted and widely used frameworks for assessing training effectiveness, consisting of four levels: reaction (learned satisfaction), learning (knowledge and skills acquired), behaviour (on-the-job transfer of learning), and results (impact on the organisation). The model was introduced more than 60 years ago but continues to be the prevailing paradigm in the academic and practitioner communities, as revealed by the bibliometric analysis carried out by Binmlafikh and Wahab (2025). Building on this tradition, Goldstein and Ford (2002) emphasised the needs assessment and systematic design process as a means of ensuring that training content is relevant to actual skill gaps in an organisation. They have shown that training programmes that start with a thorough diagnosis of performance deficits have much greater potential to achieve behavioural transfer than do programmes that do not. From this insight, the focus of this study on organisational support as a moderating factor in the relationship between training and performance arises.

3. FINDINGS FROM LITERATURE REVIEW

Rodriguez and Walters (2017) found several individual benefits, including: confidence, motivation, job satisfaction, self-esteem and organisational loyalty. They referenced that \$1.575 spent per employee on learning resulted in a 24% increase in gross profit and a 218% increase in revenue per employee. The annual total investment amount in T&D in the organisation is more than USD 126B. One of the findings of Tukiran and Desianti (2025) is that employee engagement is a very important mediating variable. The social exchange theory of work is the answer to that. The training-engagement interface is strongest when the development initiatives are in line with national priorities and culture. Binmlafikh and Wahab (2025) revealed that the predominant approach used in T&D studies was the quantitative approach, and the common tools used were descriptive statistics, structural equation modelling, and multiple regression.

4. RESEARCH GAPS

Rodriguez and Walters (2017) clearly mentioned that, "While there have been many research studies performed, there are still gaps and challenges organisational leaders face. Key gaps include: 1. Knowledge translation gap: Research results are not effectively translated into guidance for practitioners. 2. Longitudinal gap: As discussed by Tukiran and Desianti (2025), most of the studies used a cross-sectional design; hence, it is not possible to ascertain clear evidence of causation or long-term loss of skills. 3. Contextual Gap: Although there have been numerous studies that examined how T&D aids employee performance, the effectiveness of T&D has not been scrutinized on such a scale as suggested through Binmlafikh and Wahab (2025), who discuss that it is necessary to conduct research into its effect across a variety of environments: Cultural/economic and industry-specific settings. 4. Dosage gap: No study quantifies the optimal intensity/duration of training for maximal returns in performance. 5. Measurement gap: Performance is often assessed through self-reports rather than objective measures, which

can lead to common method bias. Although there are strong studies to show that T&D increases employee engagement and competencies, many areas still need much work, such as longitudinal studies; cross-cultural studies; practitioner-specific research with more emphasis on knowledge translation and practice development. These are potential limitations that can be addressed through future research using a mixed-method and longitudinal tracking

5. OBJECTIVES OF THE STUDY

This research is aimed at understanding the significance of Training and Development (T&D) programs in improving employee performance in various work environments in the Indian professional world. As human capital is viewed as the most important factor in the success of any organisation, it is important to be able to clearly understand the relationships between structured learning interventions and measurable performance outcomes both academically and practically. Based on the survey of 100 professionals from across Indian organisations and based on existing theories like Human Capital Theory developed by Becker, Social Exchange Theory by Blau and Kirkpatrick's Four Level Evaluation Model, the study aims to achieve the following specific objectives:

- To explore how prevalent, how often and how available training and development initiatives are in organisations, and what employees think of the relevance of content from training programmes to their current role and everyday work. This objective aims to determine if T&D programs are being conducted in the same manner and if they are congruent with the actual needs of jobs held.
- Analysing – to directly influence the Productivity of Employees through Training and Development interventions; to measure dimensions of training that are measurable (Skill development, Performance improvement as a result of training, Transfer of skill and application of skill in the work environment).
- To evaluate the moderating effects of organisational support (managerial encouragement, resource provision, practice opportunities) on enhancing the training outcome and maintaining behavioural change beyond the training event to close the "learning to perform" gap.
- To examine the relationship between training frequency, program quality and key attitudinal outcomes of training, such as job satisfaction and employee confidence, among the most training-sensitive group of the present Indian workforce, namely early career employees (age less than 25).

6. RESEARCH HYPOTHESES

- H₀: Training and Development programs are not valuable for the performance of employees.
- H₁: There is a significant positive effect of training and development activities on employees' performance.
- H₂: There is a positive correlation between the training frequency and productivity of employees.
- H₃: There is a positive relationship between training programs and the confidence level of employees.
- H₄: The effectiveness of training outcomes is mediated by organisational support.
- H₅: There is a positive relationship between skill application from training and performance improvement.
- H₆: There is a positive relationship between training quality and job satisfaction and career progression.

7. RESEARCH METHODOLOGY

- Research Design: The type of research design used in this study is descriptive research because it is a study that examines the employees' perception of training and development (T&D) and its effect on job performance without manipulating the variables.
- Nature of Data: The data employed were both primary and secondary data. A structured Google Forms questionnaire was used to gather primary data from the working people. The supporting information for the theoretical frameworks was taken from secondary data from peer-reviewed journals, books, and academic databases.
- Population and Sampling: The population segment targeted was working professionals in Indian organisations. A total of 100 respondents were gathered. Most were less than 25 years (young career). Respondents belonged to all age groups: under 25 (60%), 25–35 (18%), 36–45 (10%), and above 45 (9%). The range of experience included less than 1 year to more than 5 years.
- Data Collection Tool: The structured questionnaire included demographic profile, training frequency, relevance, and skill enhancement, impact on performance / productivity, employee confidence, skill application, organisational support, job satisfaction, career growth and training quality.

8. RESEARCH ANALYSIS

The results are reported systematically according to the purposes of the study, and the percentage analysis of the responses obtained from 100 respondents from diverse organisations. Respondent Profile: Based on the respondent profile, most of the respondents are from the early career group (under 25 years), and their experience ranges from less than 1 year to more than 5 years. This is a representative cross-section of a young population, which is appropriate for examining the effect of training and development in contemporary organisations. Interpretation-based findings are displayed in tables and charts. The following key results were obtained by percentage analysis:

The frequency and accessibility of training.

- Frequency and availability of training- 76.3% of respondents reported receiving training 'Frequently' or 'Very Frequently'
- Relevance of Training- 86.8% of respondents rated training as 'Highly' or 'Moderately Relevant'. This indicates a high level of match between training content and job needs.
- Skill Enhancement- 84.2% of respondents found training 'Effective' or 'Very Effective' in improving job-specific skills. There was minimal report of ineffectiveness.
- Performance- 86.8% of respondents recorded their performance as Under Going Significant/Moderate Improvement Post Training Significantly, no one responded 'Noimprovement ', showing that training is having a clear and consistent influence on the performance of employees.
- Productivity Impact- The strongest finding that emerged was the significant positive impact of training as a driver for improved productivity, agreed by 94.7% of respondents. This contributes to the realisation of the study goal.

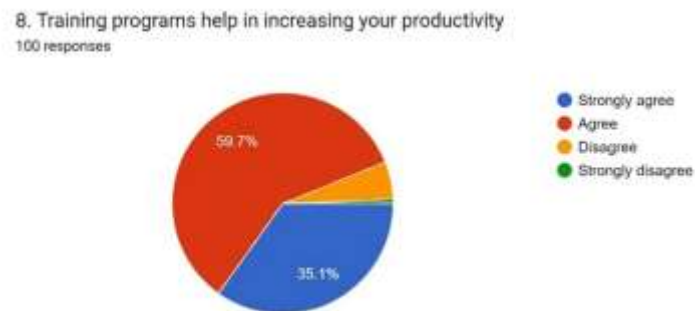


FIGURE 1 Employee Perceptions of the Impact of Training Programs on Productivity



FIGURE 2 Employee Confidence Levels after Completing a Training Program

Interpretation 1.1 shows that 94.7% of respondents agreed or strongly agreed that training increases productivity. 5.3% disagreed. No respondents selected 'Strongly Disagree '. This finding strongly supports sub-hypothesis H₂ and confirms that structured training directly enhances workplace productivity.

Interpretation 1.2 - 87% of respondents believe that they 'Confident' or 'very Confident', after the training. None of the respondents reported feeling 'Not Confident,' while 13.2 percent indicated that they felt only 'Slightly Confident.' This is consistent with Bandura's Social Cognitive Theory (1986), by which Bandura's training enhances job performance through enhancing self-efficacy.

- Skill Application — 89.5% of respondents rated the application in their jobs as 'Well' or 'Very Well' Only 1.3% had no transfer of learning skills applied at all to their work role, suggesting a strong carryover of the training into practice.
- Organisational Support — 93.3% of survey participants agreed that their organisations support the use of skills through managerial encouragement and resourcing
- Arguably Training (leak) — 96.0% of respondents strongly agreed or agreed that training leads to career growth, the best-rated outcome on par with productivity.
- Job Satisfaction — Training and development opportunities: 85.5% of respondents were 'Satisfied' or 'Very Satisfied': No dissatisfaction was reported.

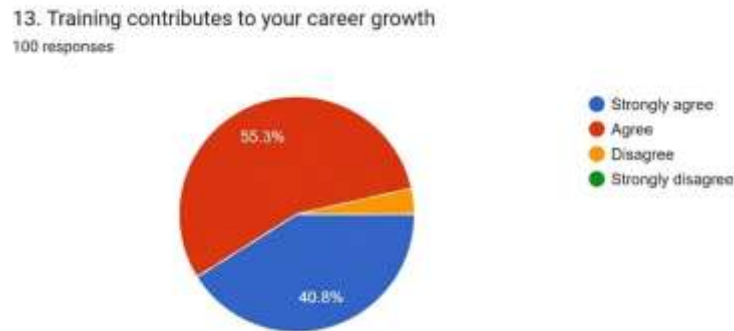


FIGURE 3 Employee Perceptions of the Contribution of Training to Career Growth

Interpretation 1.3 - demonstrates 96.0% of respondents agreed or strongly agreed that training contributes to career growth. This finding supports sub-hypothesis H_6 and indicates that employees perceive training as a direct pathway to professional advancement. Of the 100 respondents, 60% were under 25 years of age, 18% were aged 25–35, 10% were aged 36–45, and 9% were above 45. In terms of gender, 55% were male, and 44% were female. Regarding work experience, 56% had less than 1 year of experience, 23% had more than 5 years, 14% had 1–3 years, and 4% had 3–5 years.

9. IMPLICATIONS

9.1. THEORETICAL IMPLICATIONS

This research is important to the literature on Training and Development (T&D) and employee performance in the following ways:

- This supports the Human Capital Theory (Becker, 1964) and establishes empirical evidence that training investment results in better productivity and performance of employees.
- The findings confirm the Social Exchange Theory (Blau, 1964) by stating that when organisations invest in employees, such as technical training and career planning, they have positive responses in increasing the confidence level of employee satisfaction and loyalty.
- Additionally, the results corroborate Social Cognitive Theory (Bandura, 1986) and highlight how training can be used to promote employee efficacy and self-efficacy.

9.2. MANAGERIAL IMPLICATIONS

The results offer suggestions for managers and HR practitioners:

Training should be viewed and utilised as a strategic investment and not a routine activity, as it is a highly effective measure for boosting productivity (94.7%).

- The training programs should be job-relevant and job-oriented, since relevance is directly connected to effectiveness and application of skills.
- Regular and regular training sessions should be provided by managers with a focus on early career staff.
- Post-training support (mentoring, resources, feedback) is essential to help utilise skills after training. Organisations should concentrate on training their employees to gain confidence by being interactive and practical.

9.3. POLICY IMPLICATIONS

- In addition, the paper provides valuable policy and regulatory implications:
- Organisations should be encouraged to develop industry-wide, structured and standardised training systems.
- Government and regulatory bodies can boost initiatives on skill development, particularly for young professionals.

10. KEY FINDINGS

The following findings are derived from a percentage analysis of 100 valid responses across diverse Indian organisations.

- Training Frequency and Accessibility (H_1): 76.3% of respondents reported receiving training 'Frequently' or 'Very Frequently,' with no respondents indicating 'Never.' Training is institutionalised as routine practice, aligning with Rodriguez & Walters (2017).
- Job Relevance: 86.8% rated training as 'Highly' or 'Moderately Relevant' to their roles. Perceived relevance enables learning transfer (Tukiran & Desianti, 2025).
- Skill Enhancement: 84.2% rated training 'Effective' or 'Very Effective' in improving job-specific skills; only 2.6% found it ineffective.

- Post-Training Performance Improvement (H₁): 86.8% reported 'Significantly' or 'Moderately Improved' performance. Notably, zero respondents reported 'No Change,' reinforcing that training produces measurable outcomes.
- Productivity Impact (H₂): 94.7% agreed training increases productivity (57.7% 'Agree,' 34.6% 'Strongly Agree') — the strongest endorsement in the study, consistent with Rodriguez & Walters (2017).
- Employee Confidence (H₃): 86.8% reported feeling 'Confident' or 'Very Confident' post-training; no respondents lacked confidence, supporting social exchange theory (Tukiran & Desianti, 2025).
- Skill Application (Transfer): 89.5% applied learned skills 'Well' or 'Very Well' on the job, addressing the knowledge-transfer gap identified by Binmlafikh & Wahab (2025).
- Organisational Support (H₄): 93.3% agreed organisations actively support skill application through managerial encouragement and resources.
- Employee Satisfaction: 85.5% were 'Satisfied' or 'Very Satisfied' with T&D opportunities; no dissatisfaction reported.
- Career Growth Driver (H₆): 96.0% agreed training contributes to career growth (38.5% 'Strongly Agree'), matching productivity as the strongest endorsement.
- Overall Quality Rating: 71.1% rated training quality 4 or 5 out of 5. (mean = 4.07/5), confirming programs are perceived as substantive and well-executed.

11. CONCLUSION

This study aimed to explore the role of Training and Development (T&D) in improving the performance of employees in five major areas of performance: productivity, confidence, skill utilisation, job satisfaction and career promotion. The results are crystal clear positive results are found on all dimensions analysed after structured, well-delivered training programs, as shown by a survey of 100 professionals with varied work backgrounds from Indian organisations.

The null hypothesis (H₀) is strongly rejected. 84.2% to 96.0% of respondents reported seeing improvements after training, and to their credit, none of them saw no change at all or was not satisfied with the T&D opportunities at their organisations. There is strong empirical evidence for all five sub-hypotheses (H₂–H₆). The results align with and support the global academic consensus of Rodriguez and Walters (2017), Tukiran and Desianti (2025), and Binmlafikh and Wahab (2025), and are expected to provide grounded, employee-perception evidence for the underrepresented Indian work environment.

The data have revealed three key learnings. First, the training-to-performance link is not one way, but a cycle: frequency and relevance create competency, competency creates confidence, confidence creates skill application, and sustained application (with organisational support) creates career growth and job satisfaction. HR strategy needs to be planned to take into account each of the nodes in this developmental "chain" and must not be limited to training as a one-off activity. Second, the early career workers (ECW) aged under 25 years show the highest sensitivity to investment in T&D, indicating that organisations that invest in the development of new workers are likely to benefit from compounding long-term performance gains. The finding has strategic relevance for onboarding design and planning for early years of tenure.

Third, the small number of respondents who indicated that they trained often and had good quality programs reminds us that training can't just happen; it needs to be purposefully designed, consistently implemented, and reinforced by the manager. The core theoretical value of this study is its contextual specificity, which places the already existing theoretical frameworks (Becker's Human Capital Theory, Blau's Social Exchange Theory and Kirkpatrick's Evaluation Model) in the lived experiences of working people in India.

11.1. SUMMARY OF FINDINGS

The findings of the study prove that training and development programs positively influence work performance. The majority of respondents stated that training is regular, relevant and effective. Most noted an increase in productivity (94.7%), confidence (86.8%) and skill application (89.5%). Further, organisational support (93.3%) is a major factor that also contributes to the effectiveness of training. Further, employees were highly satisfied (85.5%) and strongly agreed that training is a contributing factor to career advancement (96.0%). The results overall support that formal and facilitated learning is seen to have a significant positive effect on employee performance and development.

11.2. ACHIEVEMENT OF OBJECTIVES

The study was able to accomplish all of its objectives as follows:

- The first objective, which involved looking at the availability, frequency and relevance of training, was met most respondents reported that they were able to receive regular and job-relevant training.
- The second aim, of studying how the training affects productivity, confidence, and use of skills, was achieved, and most said that they had improved in each of these areas.
- The third aim, to assess the role of organisational support, was fulfilled, as the majority of the respondents noted that organisational support helps in the effective application of skills.

- The fourth goal, examining the correlation between training and career progression and job satisfaction, was also met with high consensus of the respondents about the positive correlation that exists between training and the career development of the participants and their satisfaction with their jobs.

Therefore, the research validates the importance of structured training and development to improve employees' performance.

11.3. KEY CONTRIBUTIONS

This research is a significant contribution in several ways:

- It is based on the primary data collected from Indian organisations, which gives empirical evidence in support of the strong impact of training and development on employee performance.
- The study emphasises the correlation between training, confidence, skill implementation and career progression.
- It adds to the body of knowledge with context-specific feedback on the Indian workforce, with emphasis on early career workers.
- The research also helps to bring together theory and practice as it shows examples of how training programmes lead to tangible results in the real organisational context

REFERENCES

- [1] M. A. Binmlafikh and S. R. B. A. Wahab, "Is training and development imperative? A bibliometric and systematic literature review," *Edelweiss Applied Science and Technology*, vol. 9, no. 6, pp. 1193–1204, June 2025, doi: 10.55214/25768484.v9i6.8060.
- [2] A. Bandura, *Social Foundations of Thought and Action*. Prentice Hall, 1986.
- [3] A. Yahiya, Sukhavasi Santha Kumari, MahabubBasha S, Shouvik Kumar Guha, A. Gehlot, and B. Pant, "Blockchain Implementation in Financial Sector and Cyber Security System," Jan. 2023, doi: 10.1109/aisc56616.2023.10085045.
- [4] M. B. Shaik, M. Kethan, T. Jaggaiah, and Mohammed Khizerulla, "Financial Literacy and Investment Behaviour of IT Professional in India," *East Asian Journal of Multidisciplinary Research*, vol. 1, no. 5, pp. 777–788, June 2022, doi: 10.55927/eajmr.v1i5.514.
- [5] S. Janani, M. Sivarathinabala, R. Anand, S. Ahamad, M. A. Usmani, and S. M. Basha, "Machine Learning Analysis on Predicting Credit Card Forgery," *Lecture notes in networks and systems*, pp. 137–148, Jan. 2023, doi: 10.1007/978-981-99-3010-4_12.
- [6] S. M. Basha, M. Kethan, and M. A. Aisha, "A study on digital marketing tools amongst the marketing professionals in Bangalore City," *JAC: A Journal of Composition Theory*, vol. 14, no. 9, pp. 17-23, 2021.
- [7] Venkateswarlu Karumuri et al., "Optimizing Financial Outcomes: An Analysis of Individual Investment Decision Factors," *Indian Journal of Information Sources and Services*, vol. 15, no. 1, pp. 83–90, Mar. 2025, doi: 10.51983/ijiss-2025.ijiss.15.1.13.
- [8] N. Raji , V. George, R. S. Iyer, S. Sharma, and B. S. Mahabub , "REVOLUTIONIZING RECRUITMENT: THE ROLE OF ARTIFICIAL INTELLIGENCE IN TALENT ACQUISITION," *ShodhKosh Journal of Visual and Performing Arts*, vol. 5, no. 1, Jan. 2024, doi: 10.29121/shodhkosh.v5.i1.2024.2141.
- [9] Dr. V. Jalaja et al., "Maximizing Marketing Value: An Empirical Study on the Framework for Assessing AI and ML Integration in Marketing Management," *Indian Journal of Information Sources and Services*, vol. 14, no. 3, pp. 64–70, Sept. 2024, doi: 10.51983/ijiss-2024.14.3.09.
- [10] M. Basha, and A.P. Singh, "An Empirical Study of Relationship between Pharma Industry and Indian Capital Market, Sustainable finance for Better World," vol. 362, 2021.
- [11] Kafila, N. B. Kalyan, K. Ahmad, F. Rahi, C. Shelke, and S. Mahabub Basha, "Application of Internet of Things and Machine learning in improving supply chain financial risk management System," *2023 IEEE 2nd International Conference on Industrial Electronics: Developments & Applications (ICIDEA)*, pp. 211–216, Sept. 2023, doi: 10.1109/icidea59866.2023.10295182.
- [12] G. Caire and G. S. Becker, "Human Capital, A Theoretical and Empirical Analysis with Special Reference to Education," *Revue économique*, vol. 18, no. 1, p. 132, Jan. 1964, doi: 10.2307/3499575.
- [13] P. M. Blau, *Exchange and Power in Social Life*. Editorial: Routledge, 2017.
- [14] J. A. Colquitt, J. A. LePine, and R. A. Noe, "Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research," *Journal of Applied Psychology*, vol. 85, no. 5, pp. 678–707, 2000, doi: 10.1037/0021-9010.85.5.678.
- [15] Amir Elnaga, and Amen Imran, "The effect of training on employee performance. *European Journal of Business and Management*, vol. 5, no. 4, pp. 137–147, 2013.
- [16] I. L. Goldstein, and J. K. Ford, *Training in organisations: Needs assessment, development, and evaluation*, 4th ed., Wadsworth, 2002.
- [17] D. L. Kirkpatrick, "Techniques for evaluating training programmes," *Journal of the American Society of Training Directors*, vol. 13, pp. 3–26, 1959.
- [18] R. A. Noe, *Employee training and development*, 8th ed., McGraw-Hill Education, 2020.
- [19] J. Rodriguez, and K. Walters, "The importance of training and development in employee performance and evaluation," *World Wide Journal of Multidisciplinary Research and Development*, vol. 3, no. 10, pp. 206–212, 2017.
- [20] S. I. Tannenbaum, and G. Yukl, "Training and development in work organisations," *Annual Review of Psychology*, vol. 43, no. 1, pp. 399–441, 1992.
- [21] M. Tukiran and Lisa Chandrasari Desianti, "The Role of Training and Development in Enhancing Employee Engagement: A Systematic Literature Review," *Feedforward: Journal of Human Resource*, pp. 77–95, Sept. 2025, doi: 10.19166/ff.v5i2.10268.
- [22] Z. Y. Yalabik, P. Popaitoon, J. A. Chowne, and B. A. Rayton, "Work engagement as a mediator between employee attitudes and outcomes," *The International Journal of Human Resource Management*, vol. 24, no. 14, pp. 2799–2823, Feb. 2013, doi: 10.1080/09585192.2013.763844.