

A STUDY ON THE ROLE OF ARTIFICIAL INTELLIGENCE IN EMPLOYEE TRAINING AND DEVELOPMENT

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Abstract

Employee training and development is increasingly shaped by digital technologies, and Artificial Intelligence (AI) is emerging as a significant enabler of personalized, data-driven learning. AI is increasingly being incorporated into employee training and development to personalize learning, improve training effectiveness, identify skill gaps, automate routine activities, and support continuous learning. This study examines the role and perceived impact of AI in employee training and development, with particular attention to benefits, employee readiness, implementation challenges, and future expectations. A quantitative research approach was adopted using a structured questionnaire. A total of 125 responses were collected and analyzed using frequency and percentage analysis. The results show a generally favorable perception of AI-enabled training. Across 16 Likert-scale statements, 76.40% of recorded responses were Agree or Strongly Agree. Respondents particularly recognized AI's ability to support self-paced learning, improve training effectiveness, save time, and provide better learning opportunities. At the same time, data privacy and security and lack of technical knowledge were identified as the leading challenges. Overall, 78.40% of respondents described the use of AI in employee training and development as Positive or Very Positive. The study concludes that organizations should combine AI-enabled learning with employee training, privacy and security safeguards, human support, and continuous evaluation to ensure effective and responsible adoption of AI in the workplace.

Keywords: Artificial Intelligence, Employee Training, Employee Development, Personalized Learning, Skill Gaps, AI-enabled Learning

1. Introduction

Employee training and development is a critical component of Human Resource Management because organizations depend on continuous learning to maintain employee capabilities, productivity, adaptability, and competitiveness. Traditional training approaches often rely on standardized content, fixed schedules, and significant administrative effort. The increasing availability of digital learning technologies has created opportunities to make training more flexible and data-driven.

Artificial Intelligence has emerged as an important technology within this transformation. AI-enabled learning systems can analyze learner information, recommend relevant content, provide conversational support, identify potential skill gaps, and support personalized learning experiences. Recent research on AI in HRM identifies learning and development among important application areas, while also emphasizing ethical issues such as transparency, privacy, bias, and human oversight.

The present study investigates how respondents perceive the role of AI in employee training and development, focusing on effectiveness, self-paced and personalized learning, skill improvement, skill-gap identification, engagement, time savings, employee comfort, technical readiness, privacy and security, employee resistance, organizational investment, and future expectations.

1.1 Research Gap

Existing literature discusses AI across several HR functions, but empirical evidence focused specifically on employee perceptions of AI-enabled training and development remains important. This study addresses that need by examining perceived benefits, employee readiness, technical challenges, privacy concerns, resistance, and overall perceptions using primary survey data.

1.2 Objectives of the Study

- To examine the perceived role of AI in employee training and development.
- To assess whether AI improves training effectiveness and quality.
- To examine perceptions of personalized and self-paced learning.
- To identify the major benefits of AI-based employee training.
- To identify the major challenges associated with AI-based employee training.
- To assess overall perceptions of AI in employee training and development.
- To suggest measures for effective and responsible AI use in employee training.

2. Literature Review

Tambe, Cappelli, and Yakubovich (2019) highlighted the opportunities and organizational challenges associated with AI in HRM, emphasizing that effective adoption requires data and organizational capabilities as well as appropriate human judgment.

Bujold et al. (2024) reviewed empirical research on responsible AI in HRM and identified privacy, transparency, bias, perceived justice, and the human role as important principles. These concerns are directly relevant to AI-enabled learning systems that process employee information.

Mori, Sasseti, and Cavaliere (2024) demonstrated that AI in HR-related processes involves a balance between efficiency and ethical considerations. Gong, Fan, and Bartram (2025) further described AI-HRM as a rapidly developing research area requiring attention to both technological value and organizational conditions.

Overall, the literature supports a balanced view: AI can improve efficiency and personalization, but organizations need governance, employee readiness, privacy protection, transparency, and human oversight.

3. Research Methodology

Research Design: Quantitative and descriptive.

Sample Size: 125 responses.

Data Source: Primary data collected through a structured online questionnaire.

Measurement: Questions 6–21 used a five-point Likert scale; Questions 1–5 captured respondent characteristics; Questions 22–24 captured benefits, challenges, and overall perception; Question 25 collected suggestions.

Analysis: Frequency and percentage analysis were used to summarize the collected responses. The study does not claim causal relationships.

4. Results and Discussion

The analysis is based on 125 responses.

4.1 Age Group

Response	Frequency	Percentage
Below 25 years	86	68.80%
25–35 years	34	27.20%
36–45 years	3	2.40%
Above 45 years	2	1.60%

4.2 Gender

Response	Frequency	Percentage
Male	66	52.80%
Female	59	47.20%

4.3 Educational Qualification

Response	Frequency	Percentage
Undergraduate	60	48.00%
Postgraduate	45	36.00%
Other	11	8.80%
Diploma	9	7.20%

4.4 Work Experience

Response	Frequency	Percentage
Less than 1 year	71	56.80%
1–5 years	40	32.00%
More than 10 years	7	5.60%
6–10 years	7	5.60%

4.5 Participation in AI/Technology-enabled Training

Response	Frequency	Percentage
NO	61	48.80%
YES	56	44.80%
NOT SURE	8	6.40%

4.6 Likert-scale Analysis

Q	Statement	SA	A	N	D	SD	Positive %
6	AI makes employee training more effective.	40	66	8	0	11	84.80%
7	AI-based training helps employees learn at their own pace.	34	74	9	0	8	86.40%
8	AI can provide personalized training according to individual employee needs.	22	66	24	2	11	70.40%
9	AI-based training improves employees' skills and knowledge	23	77	15	1	9	80.00%
10	AI can help organizations identify employee skill gaps.	15	81	20	2	7	76.80%
11	AI makes training programs more engaging and interactive.	16	77	20	4	8	74.40%
12	AI-based training can save time for employees and organizations.	28	75	12	1	9	82.40%
13	AI can improve the overall quality of employee training and development.	20	72	24	2	7	73.60%
14	I feel comfortable using AI-based tools for learning and development.	21	76	15	3	1	77.60%
15	AI-based training provides employees with better learning opportunities.	23	78	14	0	1	80.80%
16	Employees require adequate technical knowledge to use AI-based training systems effectively.	13	78	25	2	7	72.80%
17	Lack of technical skills can be a major challenge in adopting AI-based training.	19	69	25	2	1	70.40%
18	Data privacy and security are important concerns when using AI for employee training.	24	70	18	4	9	75.20%
19	Employee resistance can affect the successful implementation of AI-based training.	9	84	21	3	8	74.40%
20	Organizations should invest more in AI-based employee training and development.	16	68	28	3	1	67.20%
21	AI will play an increasingly important role in employee training and development in the future.	20	74	17	4	1	75.20%

Across the 16 Likert statements, 76.40% of recorded responses were Agree or Strongly Agree. Self-paced learning received the highest positive response (86.40%), while the statement on increased organizational investment received the lowest positive response (67.20%).

4.7 Biggest Benefit of AI in Employee Training

Response	Frequency	Percentage
Time Saving	39	31.20%
Better Learning Experience	32	25.60%
Personalized Learning	20	16.00%
Improved Training Quality	21	16.80%
Skill Gap Identification	13	10.40%

4.8 Biggest Challenge of AI-based Employee Training

Response	Frequency	Percentage
Lack of Technical Knowledge	45	36.00%
Data Privacy and Security	48	38.40%
Employee Resistance	14	11.20%
Implementation Cost	13	10.40%
Lack of Infrastructure	5	4.00%

4.9 Overall Perception of AI in Employee Training and Development

Response	Frequency	Percentage
Positive	62	49.60%
Very Positive	36	28.80%
Neutral	25	20.00%
Negative	2	1.60%

4.10 Open-ended Suggestions

Responses emphasize technical training, personalized learning paths, privacy and security, continuous evaluation, updated AI tools, and maintaining human support.

4.11 Major Findings

- The sample contains 125 respondents, with 68.80% below 25 years and 27.20% between 25 and 35 years.
- Male respondents constituted 52.80% and female respondents 47.20% of the sample.
- 48.00% of respondents were undergraduates and 36.00% were postgraduates.
- 56.80% had less than one year of work experience, while 32.00% had 1–5 years.
- 44.80% reported participating in an AI-based or technology-enabled training program, while 48.80% reported no participation.
- The overall positive response rate across the 16 Likert items was 76.40%.
- Self-paced learning received the highest positive response (86.40%), followed by improved training effectiveness (84.80%).
- Time saving was identified as the biggest benefit by 31.20% of respondents, followed by better learning experience at 25.60%.

- Data privacy and security was identified as the biggest challenge by 38.40%, followed by lack of technical knowledge at 36.00%.
- Overall, 78.40% of respondents rated AI use in employee training as Positive or Very Positive.
- Open-ended responses emphasize technical training, privacy and security, personalization, continuous evaluation, and human support.

4.12 Discussion

The findings indicate a generally favorable perception of AI in employee training and development. High positive responses for self-paced learning and training effectiveness suggest that respondents see AI as a useful mechanism for flexible and effective learning.

Time saving was the most frequently selected benefit, indicating that respondents value AI for efficiency as well as learning quality. At the same time, lack of technical knowledge and data privacy/security were the leading challenges.

The results suggest that organizations should prepare employees to use AI tools, communicate clearly about AI use, protect employee data, and retain human support. This balanced approach is consistent with responsible AI principles identified in the literature.

4.13 Suggestions and Recommendations

- Provide AI-literacy and technical training before introducing AI-based learning systems.
- Personalize learning paths while retaining human trainers and HR support.
- Establish clear data privacy and security policies.
- Regularly evaluate AI-generated recommendations and learning outcomes.
- Use AI for just-in-time learning support where appropriate.
- Involve employees in AI-training design and implementation.
- Update AI tools and training content regularly.
- Maintain human oversight for important employee development decisions.

4.14 Limitations of the Study

- The study is based on 125 survey responses and should not automatically be generalized to all employees or organizations.
- The analysis is descriptive and does not establish causal relationships.
- The study relies on self-reported perceptions.
- The questionnaire captures perceptions at one point in time and does not measure long-term changes.

5. Conclusion

This study concludes that AI has considerable potential to strengthen employee training and development. Based on 125 responses, participants generally perceive AI as useful for improving training effectiveness, supporting self-paced learning, improving learning opportunities, saving time, and addressing skill needs.

However, technical capability, privacy and security, and employee acceptance remain important concerns. AI should therefore be integrated as a support mechanism within a broader learning strategy that includes employee preparation, human interaction, ethical safeguards, and continuous evaluation.

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