

Artificial Intelligence in Training and Development: A Study on Its Impact on Employee Satisfaction in Tamil Nadu

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Abstract:

Artificial Intelligence (AI) is rapidly reshaping the way organizations design, deliver and evaluate employee training and development (T&D) programmes. Adaptive learning platforms, AI-based skill-gap analytics, chatbot-driven coaching, virtual simulations and algorithmic performance feedback are gradually replacing or supplementing conventional, trainer-led instruction across sectors. This paper examines the impact of AI-enabled training and development practices on employee satisfaction, with specific reference to organizations operating in Tamil Nadu, a state that hosts a dense concentration of information technology, manufacturing, banking and public-sector establishments. The study adopts a descriptive-analytical design based entirely on secondary data drawn from peer-reviewed journal articles, industry reports, government case studies and Organisational surveys published between 2021 and 2026. The paper traces the conceptual evolution of AI in human resource development, reviews existing empirical literature situated in Tamil Nadu and comparable Indian contexts, and synthesizes the recurring benefits — personalization, accessibility, scalability, real-time feedback and cost efficiency — as well as the persistent concerns — algorithmic opacity, data privacy, reduced human interaction and employee apprehension about job security. The analysis suggests that AI-enabled training, when paired with adequate managerial support, transparent communication and hybrid human-AI delivery, is positively associated with employee satisfaction, engagement and perceived career growth, whereas poorly governed or purely automated implementations tend to generate scepticism and disengagement. The paper concludes with practical recommendations for HR practitioners and policymakers in Tamil Nadu and outlines directions for future primary research.

Keywords: Artificial Intelligence, Training and Development, Employee Satisfaction, Human Resource Management, Tamil Nadu, Secondary Data

1. Introduction

The nature of workplace learning has changed more in the last decade than in the preceding fifty years, and Artificial Intelligence sits at the centre of that change. Traditional training and development functions relied on fixed classroom schedules, generic curricula and post-training feedback forms that offered limited insight into whether learning actually translated into performance. AI-enabled learning systems reverse this logic: they diagnose individual skill gaps, recommend content matched to a learner's pace and role, track progress continuously, and adjust difficulty in real time. Industry surveys confirm that this shift is no longer experimental — worker access to AI tools rose sharply through 2025, and organizations increasingly treat structured up skilling, rather than role redesign alone, as their primary response to the AI-driven skills gap (Deloitte, 2026).

Human resource development scholars have long argued that the effectiveness of a training programme should be judged not only by measurable performance outcomes but also by how satisfied employees feel with the learning experience itself. Satisfaction shapes whether an employee re-engages with future learning opportunities, recommends the programme to peers, and ultimately stays with the organization. As AI increasingly mediates this experience — through personalized learning paths, algorithmic feedback and Chabot-based coaching — it becomes important to ask whether employees perceive these systems as empowering or alienating.

Tamil Nadu offers a particularly relevant setting for this inquiry. The state is among India's leading hubs for information technology and IT-enabled services, automobile and engineering manufacturing, and a large public administration workforce, all of which have begun piloting AI-based learning management systems, e-learning platforms and government-run digital training portals (Tamil Nadu Government HRM Case Study, n.d.). This paper draws together secondary evidence from these sectors to build a coherent picture of how AI is reshaping training delivery and, in turn, employee satisfaction, in the Tamil Nadu context.

The remainder of the paper is organized as follows: Section 2 reviews existing literature on AI in HR and training and development; Section 3 identifies the research gap; Section 4 states the objectives; Section 5 describes the secondary-data methodology; Sections 6 and 7 present the conceptual framework and sector-wise analysis; Section 8 discusses challenges; Section 9 presents findings; and the paper closes with recommendations, future scope and conclusion.

2. Review of Literature

A growing body of research has examined how AI is reshaping human resource functions generally, and training and development specifically. Behera and colleagues (2023) studied the relationship between AI adoption and skill-development training in India and found that AI-enabled diagnostic tools help identify precise competency gaps, though they cautioned that unsupervised use of intelligent systems in vocational education can widen inequities between digitally literate and less literate learners.

Devi, Das, Kumar, Keerthana, Ram and Rakesh (2024) surveyed graduates in Andhra Pradesh and reported that AI-based skill-development training positively influenced employability by strengthening critical thinking and communication competencies alongside technical skill acquisition, using structured questionnaires analysed through SPSS.

Focusing specifically on Chennai's information technology workforce, Gayathiri and Prabu (2025) surveyed 323 employees and found that AI-enabled training and development, along with AI-supported performance appraisal and reduced administrative workload, significantly and positively predicted employee engagement, which in turn improved overall employee well-being. Similarly, a study of 274 IT employees in Chennai reported that AI adoption in HR practices — through accuracy, computing power, real-time responsiveness and personalization — reduced administrative time and cost while improving the overall employee experience, thereby supporting satisfaction and better work-life integration (Malik et al., as cited in the Science Direct HRM adoption study, 2024).

Sameena (2026), writing in the *International Journal on Research and Development*, examined AI-driven personalization of training material, AI-based performance evaluation and AI-enabled learning support systems as predictors of employee professional development, treating career advancement, skill improvement and training efficacy as outcome measures; the study found that personalized, data-driven AI training experiences meaningfully improved perceived professional growth.

At the state level, a large cross-sectional study surveyed 392 HR professionals across 70 information technology firms in Tamil Nadu using the Ability-Motivation-Opportunity (AMO) framework and found that AI adoption positively influenced core HRM practices including training, recruitment and performance appraisal, although the motivational dimension of AI-enabled practices did not translate automatically into stronger employee engagement — underscoring that technology alone is insufficient without complementary motivational design (Tamil Nadu IT-sector AMO study, Science Direct, 2026).

A related qualitative and survey-based study of AI-enabled companies in Tamil Nadu explored employee relations outcomes, including how AI-based sentiment analysis and grievance-processing tools affect trust and communication, concluding that a blended approach combining automation with human judgment produced the most favorable employee relations outcomes (AI in Employee Relations, ResearchGate, 2025).

Kandasamy and colleagues (2025) examined the IT industry in Tamil Nadu and found that professional development opportunities, alongside relationships with supervisors and co-workers, were among the strongest

motivators of job satisfaction, reinforcing the centrality of training quality — AI-enabled or otherwise — to overall workforce contentment.

A systematic literature review conducted by researchers at SRM Valliammai Engineering College in Kattankulathur, Tamil Nadu, synthesized 78 peer-reviewed articles published between 2018 and 2025 using the PRISMA methodology and bibliometric mapping; it identified more tailored learning and improved employee engagement as consistent themes, while flagging transparency, fairness, data privacy and employee trust as unresolved governance concerns (Hema Sundari et al., 2025).

Beyond Tamil Nadu, a Bengaluru-based study on AI, performance and job satisfaction found that AI improved task accuracy, productivity and efficiency, but that its relationship with job satisfaction was more nuanced: some employees valued reduced workload and improved decision support, while others expressed concern about job relevance and role security, with training and role clarity acting as mediating factors (IJRASET, 2025). A broader literature review spanning 2015–2025 concluded that AI has become a transformative force in employee training, generating both strategic opportunities such as adaptive learning and scalability, and ethical challenges including algorithmic bias and diminished human oversight (IJSMS, 2025).

Industry-level evidence corroborates these academic findings. LinkedIn's 2025 Workplace Learning Report found that organizations which pair AI-enabled learning with structured career-development systems — described as "career development champions" — are substantially more likely to be advanced adopters of generative AI, and that learning professionals broadly view AI as strategically important even though routine integration into daily practice remains limited (LinkedIn Learning, 2025). D2L's 2025 Up skill With Purpose report found that while a majority of organizations now provide AI tools, only a minority of employees feel their employer has articulated a clear vision for how AI should be used in their specific role, revealing a persistent gap between provision and perceived clarity (D2L, 2026). LearnUpon's inaugural State of Learning and Development Report similarly found that employee well-being, AI-powered learning and micro learning have emerged as the three most influential forces shaping training strategy, even as a notable share of learning leaders express concern about AI's implications for their own professional roles (Learn Upon, 2025).

3. Research Gap

Existing studies establish, fairly consistently, that AI adoption in HR functions improves efficiency, personalization and, under favorable conditions, engagement. However, most Tamil Nadu-specific studies concentrate on the information technology sector and on HR-process outcomes such as recruitment or engagement broadly defined, rather than isolating training and development as a distinct AI application and examining its specific link to employee satisfaction across a wider set of sectors, including manufacturing, banking and public administration. Very few studies consolidate secondary evidence across sectors to build a state-level picture. This paper attempts to address that gap by synthesising secondary data specifically on AI-enabled training and development and its bearing on employee satisfaction within Tamil Nadu.

4. Objectives of the Study

- To examine the conceptual evolution and key applications of Artificial Intelligence in employee training and development.
- To analyses, on the basis of secondary data, the extent to which AI-enabled training practices has been adopted across key sectors in Tamil Nadu.
- To assess the impact of AI-driven training and development initiatives on employee satisfaction, engagement and perceived professional growth.
- To identify the principal challenges and limitations associated with AI adoption in workplace training.
- To suggest practical measures for HR practitioners and policymakers in Tamil Nadu to maximize employee satisfaction while implementing AI-enabled training systems.

5. Research Methodology

This study follows a descriptive and analytical research design based entirely on secondary data. No primary survey or interview was conducted; instead, the paper synthesizes findings from peer-reviewed journal articles, conference papers, systematic literature reviews, industry survey reports (LinkedIn, Deloitte, D2L, Learn Upon) and a published government case study, most of which were released between 2021 and 2026. Sources were identified through academic databases and publisher repositories and were selected on the basis of thematic relevance to AI, training and development, human resource management, and employee satisfaction, with deliberate emphasis on studies set in Tamil Nadu or comparable Indian industrial contexts. The collected evidence was thematically organized under conceptual, sector-wise and challenge-related headings and interpreted narratively rather than through statistical meta-analysis, consistent with the descriptive-analytical approach common in secondary-data-based management research.

6. Artificial Intelligence in Training and Development: A Conceptual Framework

Within human resource development, AI applications in training and development can be broadly grouped into five categories. First, adaptive learning platforms use algorithms to sequence content according to a learner's demonstrated proficiency, adjusting pace and difficulty automatically rather than following a fixed curriculum. Second, AI-based skill-gap analytics compare an employee's current competencies against role requirements using performance and assessment data, enabling more targeted training assignment than generic annual training calendars. Third, intelligent tutoring and Chabot-based coaching tools provide on-demand, conversational support outside formal classroom hours, extending the reach of scarce trainer expertise. Fourth, AI-enabled simulations and virtual or augmented reality modules allow experiential, low-risk practice for technical and safety-critical tasks. Fifth, algorithmic performance feedback systems generate continuous, data-driven evaluation rather than the traditional single annual appraisal, allowing training interventions to be triggered close to the point of need.

Sameena (2026) organizes much of this literature around three AI-driven components — personalization of training content, AI-based performance evaluation and feedback, and AI-enabled learning support systems — treating professional development outcomes such as career advancement, skill improvement, knowledge gain, training efficacy and job performance as the dependent variables of interest. This framework is adopted, with minor adaptation, as the conceptual anchor for the sector-wise analysis that follows.

7. AI-Enabled Training and Development and Employee Satisfaction: Evidence from Tamil Nadu

7.1 Information Technology and ITES Sector

Tamil Nadu's IT and IT-enabled services sector, concentrated in Chennai, Coimbatore and Trichy, has been the earliest and most extensive adopter of AI-enabled training tools. The Chennai-based study of 323 employees found that AI-enabled training and development was among the strongest positive predictors of employee engagement, alongside AI-assisted performance appraisal and reduced administrative workload, with engagement in turn improving employee well-being (Gayathiri & Prabu, 2025). Complementing this, the 392-responder, 70-firm AMO-framework study across Tamil Nadu's IT industry found that AI positively shaped core HR practices, including training, though it cautioned that the motivational aspect of AI-enabled practices did not automatically convert into stronger engagement, implying that satisfaction gains depend on how AI-based training is communicated and supported by managers rather than on the technology alone (Science Direct, 2026). The 274-employee Chennai study similarly found that AI-driven personalization and real-time responsiveness in HR processes, including learning, supported time and cost efficiency that indirectly benefited the employee experience (Science Direct, 2024).

7.2 Public Administration

A published case study of the Tamil Nadu state government's Human Resource Management Department illustrates the shift from a purely in-person training model — constrained by high coordination costs, limited accessibility for a large and dispersed workforce, and slow policy dissemination — toward a scalable, AI-powered training solution designed to make learning accessible, trackable and adaptable for government

employees (Tamil Nadu Government HRM Case Study, n.d.). This example suggests that AI-enabled training can be particularly valuable in large, geographically dispersed public-sector workforces where traditional classroom delivery struggles to scale, though sustained employee satisfaction in this setting still depends on adequate digital literacy support for a diverse workforce.

7.3 Manufacturing and Allied Sectors

While Tamil Nadu-specific secondary data on AI-enabled training in manufacturing remains comparatively limited, broader Indian evidence indicates that AI-based skill-development training strengthens employability-relevant competencies such as critical thinking and communication in technical and engineering contexts (Devi et al., 2024), and national-level analysis of AI and vocational skill development highlights both productivity gains and the risk of widening gaps between digitally proficient and less proficient workers if AI-based training is deployed without adequate support (Behera et al., 2023). Given Tamil Nadu's substantial automotive and engineering manufacturing base, these findings are broadly indicative of the opportunities and risks likely to accompany AI-enabled up skilling in the state's industrial workforce.

7.4 Employee Relations and Retention Linkages

Employee satisfaction with training does not operate in isolation from broader HR outcomes. Research on employee relations in AI-enabled Tamil Nadu companies found that a blended approach — combining AI-based sentiment monitoring and grievance processing with continued human intervention — produced more favorable outcomes for trust and communication than fully automated approaches (Research Gate, 2025). Separately, a study of employee retention in Tamil Nadu's IT industry identified professional development opportunities, alongside relationships with supervisors and peers, as key motivators of job satisfaction (Kandasamy et al., 2025), reinforcing that the quality and perceived fairness of training — whether AI-mediated or conventional — has direct implications for retention, not merely short-term engagement.

8. Benefits of AI-Enabled Training and Development for Employee Satisfaction

- **Personalization:** Training content and pace are matched to individual skill levels and learning preferences, reducing the frustration associated with generic, one-size-fits-all programmes.
- **Accessibility and scalability:** On-demand, digitally delivered training allows large and geographically dispersed workforces, including government employees across districts, to access consistent learning content without repeated in-person coordination (Tamil Nadu Government HRM Case Study, n.d.).
- **Real-time feedback:** Continuous, algorithm-generated feedback allows employees to track progress and correct gaps promptly rather than waiting for annual appraisals.
- **Reduced administrative burden:** Automated scheduling, content creation and reporting free HR teams and line managers to focus on coaching and career conversations (Gayathiri & Prabu, 2025).
- **Career development signaling:** AI-enabled learning platforms that are paired with structured career-development systems are associated with stronger employee confidence in retention and internal mobility (LinkedIn Learning, 2025).

9. Challenges and Limitations

Despite these benefits, the secondary evidence consistently surfaces a set of recurring concerns. Algorithmic transparency and fairness remain unresolved: the SRM Valliammai systematic review found that governance frameworks for long-term employee welfare have not kept pace with AI adoption in HR, despite improvements in recruitment and learning personalization (Hema Sundari et al., 2025). Data privacy is a related concern, since AI-based training and performance-evaluation systems depend on continuous collection of individual performance and behavioral data.

A second challenge is the risk of diminished human interaction. Even where AI improves task efficiency, the Bengaluru-based study found that its relationship with job satisfaction was uneven — some employees welcomed reduced workload and improved support, while others expressed concern about job relevance and

role security, particularly where training and role clarity were weak (IJRASET, 2025). Industry data reinforces this ambivalence: a substantial share of learning and development leaders in the LearnUpon (2025) survey reported concern that AI could eventually replace aspects of their own professional role, even as they acknowledged its value for learners.

A third challenge concerns Organisational readiness and clarity of purpose. D2L's 2025 report found that although a majority of employers now provide AI tools, only a minority of employees feel their organization has articulated a clear vision for how AI should be used in their specific role — a gap that, left unaddressed, is likely to translate into confusion rather than satisfaction (D2L, 2026). Finally, the AMO-framework study of Tamil Nadu's IT sector found that AI adoption alone did not guarantee stronger engagement outcomes, indicating that motivational and managerial design remain necessary complements to any technological rollout (Science Direct, 2026).

10. Findings and Discussion

- AI adoption in training and development is well established in Tamil Nadu's IT and ITES sector and is emerging in public administration, with comparatively less documented adoption, though plausible relevance, in manufacturing.
- AI-enabled training and development is positively associated with employee engagement and well-being when it reduces administrative burden and is paired with performance appraisal and coaching support, rather than deployed as a stand-alone automation exercise.
- Personalization and accessibility are the most consistently cited satisfaction drivers, while algorithmic opacity, data-privacy concerns and unclear organisational vision are the most consistently cited dissatisfaction drivers.
- The motivational and managerial context surrounding AI-enabled training matters as much as the technology itself; technology adoption without complementary human support does not reliably translate into higher satisfaction.
- Large, dispersed workforces — particularly in public administration — stand to gain disproportionately from AI-enabled training in terms of accessibility, provided adequate digital-literacy support is in place.

11. Suggestions and Recommendations

- Organizations should adopt a hybrid model that combines AI-driven personalization and analytics with continued human coaching, mentoring and grievance-handling touch points rather than pursuing full automation of training delivery.
- HR departments should communicate a clear, role-specific vision for how AI tools are meant to be used in training, addressing the gap between tool provision and perceived clarity identified in industry surveys.
- Organizations, particularly in the public sector, should invest in digital-literacy support so that AI-enabled training genuinely improves accessibility rather than excluding less digitally confident employees.
- Transparent communication about how AI-based performance data is collected and used should be built into training rollouts to address employee concerns about privacy and algorithmic fairness.
- AI-enabled learning should be explicitly linked to structured career-development pathways, since evidence suggests this pairing is associated with stronger perceived Organisational commitment to employee growth.
- Future Organisational surveys in Tamil Nadu should extend beyond the IT sector to manufacturing, banking and healthcare to build a more representative, cross-sectoral evidence base.

12. Future Scope of the Study

This paper is limited to secondary data and therefore cannot establish causal relationships or capture the lived experience of employees directly. Future research could usefully conduct primary, survey-based studies across a

wider range of Tamil Nadu industries — including manufacturing, banking, healthcare and education — using validated employee-satisfaction and technology-acceptance instruments. Longitudinal research tracking employee satisfaction before and after AI-enabled training implementation would also help clarify whether the positive associations reported in cross-sectional studies persist over time, and comparative studies across Indian states could help isolate factors specific to Tamil Nadu's industrial and administrative context.

13. Conclusion

Artificial Intelligence is steadily becoming embedded in how organizations in Tamil Nadu train and develop their employees, from adaptive e-learning platforms in Chennai's IT corridor to scalable digital training portals within state government administration. The secondary evidence reviewed in this paper indicates that AI-enabled training and development is generally associated with higher employee engagement, satisfaction and perceived professional growth, primarily through personalization, accessibility and real-time feedback. However, these benefits are not automatic or uniform: satisfaction gains depend heavily on transparent governance, adequate managerial support, clear communication of purpose, and a hybrid delivery model that preserves meaningful human interaction alongside automation. For HR practitioners and policymakers in Tamil Nadu, the evidence points toward a clear implication — AI should be positioned as a tool that augments, rather than replaces, the human relationships and career-development conversations that ultimately sustain employee satisfaction.

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