



ORGANIZATIONAL LEARNING PATHWAYS AS A RETENTION MECHANISM: THE ROLE OF EMPLOYABILITY PERCEPTIONS AMONG INDIAN SOFTWARE ENGINEERS

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Article History

Received : 2026-02-18

Revised : 2026-04-06

Accepted : 2026-05-12

Published : 2026-05-30

Abstract

Background: The rapidly evolving Indian software industry has intensified concerns regarding skill obsolescence and employee turnover, making workforce adaptability a critical organizational priority. Strategic organizational learning initiatives are increasingly recognized as essential for enhancing employee employability and retention.

Purpose: This study develops and empirically tests a multi-level model examining the relationship between organizational learning pathways, employability perceptions, and retention intentions among Indian software engineers, while investigating the moderating roles of proactive personality and managerial support for learning.

Methods: A mixed-methods research design was employed. In the qualitative phase, semi-structured interviews with HR managers and software professionals informed the refinement of the conceptual model. In the quantitative phase, survey data were collected from 400 software professionals across 20 Indian IT organizations. The majority of respondents were aged between 25 and 35 years (62%), with an average work experience of 6.2 years. Data were analyzed using Hierarchical Linear Modeling (HLM) to assess cross-level relationships.

Results: The findings revealed that organizational learning pathways significantly enhanced employability perceptions ($\beta = 0.47, p < 0.01$), which subsequently reduced turnover intentions ($\beta = -0.39, p < 0.01$). Employability perceptions partially mediated the relationship between organizational learning pathways and retention intentions. Furthermore, proactive personality ($\beta = 0.21, p < 0.05$) and managerial support for learning ($\beta = 0.28, p < 0.05$) strengthened these relationships, indicating the importance of both individual and organizational enabling factors.

Conclusion: The study demonstrates that inclusive organizational learning pathways contribute to stronger employability confidence and lower turnover intentions among software professionals. Findings further suggest that employee retention is shaped through the interaction of organizational learning mechanisms and individual psychological characteristics.

Keywords: *Organizational Learning Pathways; Employability Perceptions; Retention Intentions; Proactive Personality; Managerial Support for Learning; Indian Software Industry.*

1. Introduction

The Indian software industry, employing more than five million professionals, represents a critical pillar of national economic growth and global digital service delivery. As one of the world's largest exporters of IT-enabled services, the sector plays a strategic role in supporting multinational business operations, digital transformation initiatives, and innovation ecosystems across global markets. However, the industry is increasingly challenged by rapid technological disruption driven by automation, artificial intelligence (AI), cloud computing, platformization, and continuous digital transformation (NASSCOM, 2024; Gupta & Sharma, 2023). These developments have accelerated skill obsolescence and intensified demands for continuous upskilling, creating substantial pressures on organizational adaptability and employees' long-term career sustainability. Similar workforce transitions are evident across advanced and emerging economies, making employee learning, employability, and retention globally relevant concerns in contemporary knowledge-intensive industries.

At the same time, persistently high attrition rates, frequently exceeding 20–30% across major IT organizations, continue to disrupt project continuity, increase recruitment and training costs, reduce productivity, and weaken organizational knowledge retention (PwC India, 2023; Patel et al., 2022). These workforce instability challenges are not unique to India but are increasingly observed in technology-driven sectors worldwide, where talent mobility, hybrid work arrangements, and competitive labor markets intensify employee turnover. Consequently, traditional retention mechanisms centered primarily on compensation, promotion opportunities, and short-term incentives are proving insufficient to sustain workforce commitment in dynamic digital environments. Organizations are therefore shifting toward more developmental and psychologically embedded approaches to talent retention.

In response, learning and development (L&D) is increasingly being repositioned from an operational human resource function to a strategic capability central to organizational resilience, innovation, and sustainable talent management (Agarwal & Sinha, 2021). Contemporary organizational learning pathways extend beyond formal training programs to include mentoring, collaborative learning, digital knowledge-sharing systems, communities of practice, experiential learning, and continuous reskilling initiatives embedded within everyday work practices (Marsick & Watkins, 2018). Such developmental ecosystems enhance not only technical competence but also employees' perceptions of professional relevance, career adaptability, and employability within uncertain labor markets. From an international perspective, organizations across both developed and developing economies are increasingly investing in learning-oriented work systems to improve workforce agility and retention amid technological transformation.

Against this backdrop, the concept of employability perceptions has gained increasing prominence within organizational behavior and human resource management scholarship. Employability perceptions refer to employees' beliefs regarding their capability to obtain, maintain, and transition across employment opportunities within changing career contexts (Van der Heijde & Van der Heijden, 2006). Existing evidence suggests that employees who perceive themselves as employable and adaptable exhibit stronger organizational engagement, higher career confidence, enhanced psychological security, and lower turnover intentions (De Cuyper et al., 2008). However, prior findings remain theoretically fragmented regarding the underlying mechanisms through which organizational learning influences retention intentions through employability perceptions. Furthermore, emerging evidence indicates that such relationships may be contingent upon both individual and organizational conditions, including proactive personality and perceived organizational support for learning (Bateman & Crant, 1993; Kurtessis et al., 2017).

The Indian IT sector provides a particularly valuable context for investigating these relationships due to its project-based work structures, globally integrated service delivery systems, highly mobile workforce, and continuous demand for technological reskilling. In such environments, employability is increasingly shaped not only by individual competencies but also by organizational investments in developmental support, learning climates, and adaptive career systems (Mahajan, 2023). Yet despite growing scholarly attention to employability and employee retention, limited research has simultaneously examined the integrated role of organizational learning pathways, employability perceptions, proactive personality, and organizational support mechanisms in shaping retention intentions, particularly within emerging economy contexts.

Accordingly, this study makes several important contributions. Theoretically, it extends employability and organizational learning literature by proposing and empirically testing an integrated framework explaining how organizational learning pathways influence retention intentions through employability perceptions, while accounting for both individual (proactive personality) and contextual (organizational support for learning) contingencies. By integrating human capital theory, employability theory, and social exchange perspectives, the study contributes to a more comprehensive understanding of employee retention in knowledge-intensive settings. Methodologically, the study contributes empirical evidence from the Indian IT sector—an underexplored but globally significant emerging economy context, thereby strengthening contextual generalizability in retention and employability research. It further examines mediation and moderation mechanisms to provide a nuanced understanding of how developmental practices influence employee outcomes. Practically, the findings offer actionable insights for managers and HR leaders seeking to design sustainable talent strategies by emphasizing learning-oriented cultures, reskilling systems, and supportive developmental environments capable of enhancing employability confidence and reducing voluntary turnover. Collectively, these contributions provide broader international relevance for organizations navigating workforce uncertainty in the contemporary digital economy.

1. Literature Review

Organizational learning has increasingly emerged as a strategic capability for sustaining competitiveness, adaptability, and workforce resilience in knowledge-intensive industries, particularly the information technology (IT) sector. While traditional human resource development literature conceptualized employee development primarily through formal training interventions, contemporary scholarship increasingly recognizes organizational learning as a broader, continuous, and systemic process through which organizations acquire, create, disseminate, and apply knowledge to improve performance and adaptability (Argote & Miron-Spektor, 2011). In digitally intensive industries characterized by accelerated technological disruption, organizations are increasingly expected to institutionalize learning within everyday workflows rather than confining development to episodic training sessions (Garavan et al., 2021; NASSCOM, 2024). This transition is particularly relevant in software-intensive workplaces, where rapid innovation cycles and shortened skill life spans require continuous reskilling and organizational agility.

A clearer distinction between organizational learning pathways and general training practices is therefore necessary. General training typically refers to structured, short-term, and instructor-led interventions designed to improve specific technical or functional competencies through workshops, certification programs, or classroom-based learning. Such approaches are often transactional, time-bound, and evaluated primarily in terms of immediate skill acquisition or productivity gains. In contrast, organizational learning pathways represent multidimensional and continuous developmental ecosystems that integrate mentoring, collaborative problem-solving, digital knowledge-sharing systems, communities of practice, experiential learning, peer coaching, job rotation, project-based learning, and embedded reskilling opportunities into everyday work practices (Marsick & Watkins, 2018; Garavan et al., 2021). Rather than focusing exclusively on discrete knowledge transfer, learning

pathways emphasize sustained adaptability, career resilience, and long-term employability development. Recent evidence suggests that organizations emphasizing continuous learning cultures outperform firms relying solely on traditional training by fostering workforce flexibility, innovation capacity, and employee retention under conditions of technological uncertainty (World Economic Forum, 2023; Deloitte, 2024).

Despite growing scholarly interest in workplace learning, literature examining the relationship between organizational learning and employee retention remains theoretically fragmented. Existing studies have frequently conceptualized learning interventions as human resource practices aimed primarily at performance enhancement, innovation, or productivity outcomes while paying limited attention to employees' psychological interpretation of developmental opportunities (Clarke, 2018; Din & Imran, 2023). Particularly underexplored is the role of employability perceptions, defined as employees' beliefs regarding their ability to secure, maintain, and transition across employment opportunities in evolving labor markets (Van der Heijde & Van der Heijden, 2006). In dynamic digital environments, employability increasingly reflects not merely technical competence but also confidence in one's ability to remain professionally relevant amid technological disruption.

Recent studies indicate that employees with stronger employability perceptions tend to demonstrate greater adaptability, career confidence, learning orientation, and organizational engagement (Fugate et al., 2021; Mahajan, 2023). However, empirical findings remain theoretically inconclusive regarding the consequences of employability for employee retention. One stream of literature argues that enhanced employability strengthens organizational attachment because employees interpret developmental opportunities as indicators of organizational investment and long-term career support. Conversely, employability scholars suggest that highly employable individuals may exhibit stronger turnover intentions because transferable skills increase external labor market opportunities and career mobility (De Cuyper et al., 2008). This contradiction reveals an important theoretical ambiguity concerning whether learning-oriented developmental systems ultimately strengthen retention or unintentionally facilitate workforce mobility.

This inconsistency reflects broader tensions between Human Capital Theory and employability-based perspectives. Human Capital Theory proposes that organizational investments in employee learning increase productivity, commitment, and organizational sustainability by strengthening employees' knowledge, skills, and capabilities (Becker, 1993). From this perspective, learning investments create mutual long-term benefits for organizations and employees, thereby reinforcing retention intentions. In contrast, employability perspectives emphasize labor market mobility, arguing that transferable competencies may increase employees' career alternatives and reduce dependence on a single employer (De Cuyper et al., 2008). Existing models therefore insufficiently explain the mechanisms through which organizational learning pathways influence retention outcomes.

To address this theoretical limitation, the present study integrates Human Capital Theory with Social Exchange Theory (Blau, 1964). Social Exchange Theory suggests that employees reciprocate organizational investments through favorable attitudes and behaviors when they perceive organizational actions as supportive and development-oriented (Eisenberger et al., 2001). Learning pathways may therefore function not merely as competence-building systems but as relational signals communicating organizational care, trust, and developmental commitment.

Under such conditions, employees may respond to developmental opportunities with stronger psychological attachment and reduced turnover intentions despite possessing enhanced employability. This integrated perspective provides a more balanced explanation for retention behavior in contemporary knowledge economies characterized by rapid technological change. Recent research further suggests that learning effectiveness depends on important individual and contextual boundary conditions. Employees possessing a proactive personality are more likely to seek developmental opportunities, apply acquired competencies, and convert learning experiences into career advancement outcomes (Bateman & Crant, 1993; Din &

Imran, 2023). Such employees actively shape their work environment and are therefore expected to derive greater employability benefits from organizational learning pathways. Simultaneously, organizational support for learning influences employees' willingness to participate in developmental activities by fostering trust, psychological safety, and confidence in organizational intentions (Edmondson, 1999; Kurtessis et al., 2017).

Emerging workplace studies increasingly show that supportive learning climates strengthen employee engagement, resilience, and retention in technologically volatile sectors (Deloitte, 2024). Nevertheless, existing literature has insufficiently examined how proactive personality and organizational support jointly condition the relationship between organizational learning pathways and employability perceptions.

The Indian IT industry provides a particularly important empirical setting for examining these relationships because of its globally integrated service structures, project-based employment systems, accelerated digital transformation, and persistently high employee mobility (NASSCOM, 2024). Rapid advances in AI, cloud computing, automation, and platform technologies have intensified demands for continuous skill renewal, rendering static expertise increasingly obsolete. In this environment, employability depends less upon accumulated technical knowledge and more upon continuous learning, adaptability, and organizational developmental support.

Despite the sector's strategic importance, research examining multilevel learning ecosystems in emerging economies remains limited. Existing studies largely adopt single-level approaches focusing narrowly on training participation or employee attitudes while overlooking broader organizational learning cultures and contextual moderators influencing retention outcomes.

Accordingly, this study contributes to literature in four important ways. First, it reconceptualizes organizational learning pathways as multidimensional developmental ecosystems distinct from narrow training interventions. Second, it positions employability perceptions as a mediating psychological mechanism explaining how learning pathways influence retention intentions.

Third, by integrating Human Capital Theory and Social Exchange Theory, the study reconciles competing explanations concerning employability and organizational attachment. Finally, through incorporating proactive personality and organizational support for learning as contingent conditions, the study advances a contextually grounded and theoretically integrated explanation of employee retention in the Indian software industry.

2. Research Gaps and Contribution

Despite growing attention to organizational learning and employee development, important gaps remain in the literature. First, prior studies frequently treat learning initiatives as generic HR practices, with limited distinction between formal and informal learning pathways. Second, insufficient attention has been given to employability perceptions as a psychological mechanism linking organizational learning with retention outcomes. Third, existing research predominantly relies on single-level models, overlooking the multilevel nature of learning environments shaped by team and organizational contexts. Finally, the moderating roles of proactive personality and organizational support for learning remain underexplored, particularly within the Indian IT sector.

This study addresses these limitations by conceptualizing organizational learning pathways as multidimensional developmental mechanisms and positioning employability perceptions as a key mediator between learning and retention intentions. Further, the study adopts a multilevel framework using Hierarchical Linear Modeling (HLM) and incorporates proactive personality and organizational support for learning as critical boundary conditions influencing employability outcomes.

3. Research Objectives

1. To examine the effect of organizational learning pathways on employability perceptions.
2. To evaluate the mediating role of employability perceptions in the learning–retention relationship.
3. To assess the moderating effects of proactive personality and organizational support for learning.
4. To test a multilevel model of retention intentions in the Indian IT sector.

4. Hypotheses

H1: Organizational learning pathways positively influence employees' employability perceptions in Indian IT organizations.

H2: Employability perceptions mediate the positive relationship between organizational learning pathways and employees' retention intentions.

H3: Proactive personality positively moderates the relationship between organizational learning pathways and employability perceptions, such that the relationship becomes stronger for employees with higher proactive personality.

H4: Organizational support for learning positively moderates the relationship between organizational learning pathways and employability perceptions, such that the relationship becomes stronger under higher perceived support for learning.

5. Methodology

6.1 Research Design

This study employed a sequential mixed-methods design, integrating qualitative and quantitative approaches to enhance both theoretical depth and empirical robustness. The qualitative phase enabled refinement of the conceptual framework and measurement scales, while the quantitative phase empirically validated hypothesized relationships using multilevel statistical analyses. The design follows established best practices in organizational behavior research, where exploratory insights are followed by confirmatory testing.

6.2 Qualitative Phase

6.2.1 Participants and Data Collection

A purposive sampling strategy was employed to ensure inclusion of respondents possessing direct experience with organizational learning practices and talent management systems. HR managers were selected based on responsibility for employee development, learning strategy, or workforce retention policies, whereas software professionals were selected across functional areas (software engineering, testing, cloud, project delivery, and business support) with a minimum of three years of professional experience. Data collection continued until thematic saturation was achieved, resulting in interviews with 15 HR managers and 20 software professionals across five major IT organizations.

6.2.2 Data Analysis

Interview transcripts were analyzed through thematic analysis (Braun & Clarke, 2006). Two researchers independently coded the data, achieving strong inter-rater reliability (Cohen's $\kappa = 0.84$). Emerging themes informed the measurement framework relevant to organizational learning, employability perceptions, and retention intentions.

6.3 Quantitative Phase

6.3.1 Sample and Data Collection

The survey included 400 software professionals from 20 Indian IT organizations, achieving a 71% response rate. Demographics (Table 1): 62% aged 25–35 years, 58% male, 42% female, with an average tenure of 6.2 years, covering junior to senior professionals.

Survey Administration: A multi-wave design was used to minimize common method bias, measuring organizational learning pathways and support at Time 1, employability perceptions and proactive personality at Time 2, and retention intentions at Time 3.

6.3.2 Measures

All constructs in this study were assessed using validated multi-item Likert-type scales from 1 = strongly disagree to 5 = strongly agree. Organizational Learning Pathways were measured with items adapted from Watkins and Marsick's Learning Organization Questionnaire, Employability Perceptions were assessed through Rothwell and Arnold's scale, and Retention Intentions were evaluated using Mobley's turnover intention scale. Proactive Personality was measured using Bateman and Crant's 10-item scale, while Organizational Support for Learning was adapted from Eisenberger's perceived support scale with a focus on learning and development. These scales ensured robust measurement of key variables.

Scale Reliability (Table 2): Cronbach's alpha values ranged from 0.85 to 0.89, indicating strong internal consistency, with Composite Reliability (CR > 0.88) and Average Variance Extracted (AVE > 0.59) confirming convergent validity.

6.3.3 Data Analysis Strategy

Data analysis was conducted in three stages to ensure rigor. First, a Confirmatory Factor Analysis (CFA) in AMOS 26.0 showed a strong fit for the five-factor model ($\chi^2/df = 2.14$, CFI = 0.95, RMSEA = 0.052) and confirmed discriminant validity (Tables 3 and 4). Second, Hierarchical Linear Modeling (HLM 7.0) confirmed significant variance across individual (42%), team (26%), and organizational (16%) levels (Table 5).

Learning pathways positively predicted employability perceptions ($\beta = 0.47$, $p < 0.01$; Table 6), which negatively influenced turnover intentions ($\beta = -0.39$, $p < 0.01$; Table 7). Lastly, mediation and moderation analyses revealed that employability perceptions partially mediated the learning–retention relationship (indirect effect = -0.18 , 95% CI $[-0.29, -0.09]$; Table 8), with proactive personality ($\beta = 0.21$, $p < 0.05$) and organizational support for learning ($\beta = 0.28$, $p < 0.05$) moderating the learning–employability relationship (Table 9). Robustness checks confirmed the stability of the findings (Table 10).

Given the nested nature of the data, a three-level Hierarchical Linear Model (HLM) was estimated with employees (Level 1) nested within teams (Level 2), and teams nested within organizations (Level 3). Level 1 variables included employability perceptions, proactive personality, age, tenure, and gender. Team-level variables included perceived learning climate and managerial support for learning, while organizational-level effects captured broader developmental systems and organizational learning culture. Predictor variables were grand-mean centered prior to interaction estimation to reduce multicollinearity and improve interpretation of moderation effects.

6.4 Ethical Considerations

All participants were informed of the voluntary nature of the study and assured of confidentiality. Organizational approvals were obtained before data collection. The research followed the ethical guidelines of the Indian Council of Social Science Research (ICSSR), ensuring compliance with data protection and informed consent standards.

6. Results

The Results section presents the key findings of the study derived from the analysis of the data collected. It systematically addresses the research questions, providing empirical evidence without interpretation or bias. Relevant statistics, tables, and figures are used to summarize and illustrate the data clearly. This section highlights patterns, relationships, and differences observed among variables. The findings set the foundation for deeper discussion and theoretical implications in the subsequent section.

Table 1: Demographic Profile of Respondents (N = 400)

Variable	Category	Frequency	Percentage (%)
Gender	Male	232	58.0
	Female	168	42.0

Age	25–30 years	162	40.5
	31–35 years	86	21.5
	36–40 years	78	19.5
	Above 40 years	74	18.5
Tenure	< 5 years	120	30.0
	5–10 years	194	48.5
	> 10 years	86	21.5

The demographic analysis (Table 1) revealed a sample of 400 IT professionals, with a majority being male (58%) and aged between 25 and 30 years (40.5%). The tenure distribution indicated that nearly half (48.5%) had 5–10 years of work experience, reflecting a predominantly mid-career profile consistent with the Indian IT industry. This balanced representation across age and tenure strengthens the generalizability of the findings. The presence of experienced employees (21.5% with more than 10 years' tenure) adds depth to insights on employability and retention.

Table 2: Descriptive Statistics and Reliability of Constructs

Construct	Mean	SD	Cronbach's α	CR	AVE
Organizational Learning Pathways	3.81	0.67	0.89	0.91	0.63
Employability Perceptions	3.95	0.58	0.87	0.90	0.61
Retention Intentions	3.46	0.74	0.86	0.89	0.60
Proactive Personality	3.68	0.71	0.85	0.88	0.59
Organizational Support for Learning	3.73	0.65	0.88	0.91	0.64

The descriptive statistics and reliability coefficients (Table 2) confirmed that all constructs achieved acceptable to excellent internal consistency, with Cronbach's α values ranging from 0.85 to 0.89. Composite reliability (CR) scores exceeded the recommended threshold of 0.70, and average variance extracted (AVE) values surpassed 0.50, establishing convergent validity. Mean values ranged between 3.46 and 3.95, suggesting moderately positive perceptions of learning, employability, and support. The high reliability underscores robustness for subsequent structural analyses.

Table 3: Confirmatory Factor Analysis (Model Fit Indices)

Model	χ^2/df	CFI	TLI	RMSEA	SRMR
5-Factor (Hypothesized)	2.14	0.95	0.94	0.052	0.041
3-Factor (Merged Constructs)	4.61	0.82	0.80	0.094	0.092
1-Factor (Common Method Bias Check)	6.87	0.61	0.58	0.128	0.134

The CFA results (Table 3) demonstrated that the hypothesized five-factor model achieved excellent model fit ($\chi^2/\text{df} = 2.14$, CFI = 0.95, TLI = 0.94, RMSEA = 0.052, SRMR = 0.041), significantly outperforming alternative three-factor and single-factor models. These results confirm that the constructs were empirically distinct and free from common method bias. The χ^2 difference tests further supported the superiority of the five-factor structure ($\Delta\chi^2$ significant at $p < 0.01$).

Table 4: Inter-Construct Correlations

Construct	1	2	3	4	5
1. Learning Pathways	1				
2. Employability Perceptions	0.47**	1			
3. Retention Intentions	-0.36**	-0.39**	1		
4. Proactive Personality	0.29**	0.34**	-0.21*	1	
5. Support for Learning	0.51**	0.44**	-0.28**	0.32**	1

Correlation results (Table 4) indicated significant associations between organizational learning pathways and employability perceptions ($r = 0.47$, $p < 0.01$), as well as a negative correlation between employability and turnover intentions ($r = -0.39$, $p < 0.01$). Learning pathways also correlated positively with organizational support ($r = 0.51$, $p < 0.01$), suggesting that a learning-friendly climate strengthens employability perceptions. The magnitude of correlations remained below 0.70, supporting discriminant validity. Importantly, the negative association between employability and retention intentions confirmed the hypothesized turnover-reducing role of employability.

Table 5: Hierarchical Linear Modeling (Null Model)

Variance Component	Estimate	SE	% of Total Variance
Level 1 (Individual)	0.42	0.06	58%
Level 2 (Team)	0.19	0.05	26%
Level 3 (Organization)	0.11	0.03	16%

The variance partitioning results (Table 5) indicated that **58% of the variance occurred at the individual level, 26% at the team level, and 16% at the organizational level**, with all variance components statistically significant ($p < 0.01$). These findings justify the use of multilevel modeling by demonstrating that employability and retention outcomes are influenced not only by individual employee characteristics but also by team and organizational contexts. The results further underscore the importance of embedding organizational learning pathways within broader team learning climates and organizational developmental systems rather than relying solely on individual-level interventions.

Table 6: HLM – Effect of Learning Pathways on Employability

Predictor	β	SE	t-value	p-value
Learning Pathways → Employability	0.47	0.08	5.88	< 0.01

Learning pathways exerted a strong positive effect on employability perceptions ($\beta = 0.47$, $SE = 0.08$, $t = 5.88$, $p < 0.01$; Table 6). This result suggests that employees who perceive structured organizational learning opportunities reported significantly higher employability. The effect size ($\beta = 0.47$) indicates a practically meaningful improvement, consistent with theoretical expectations that continuous learning fosters professional adaptability and confidence.

Table 7: HLM – Employability and Retention Intentions

Predictor	β	SE	t-value	p-value
Employability → Retention Intentions	-0.39	0.07	-5.57	< 0.01

As shown in Table 7, employability perceptions significantly reduced turnover intentions ($\beta = -0.39$, $SE = 0.07$, $t = -5.57$, $p < 0.01$). The negative coefficient underscores employability as a protective factor against attrition, suggesting that employees who are confident in their skill relevance and career prospects are less inclined to leave their organization. This finding confirms the hypothesized mediating role of employability between organizational learning and retention.

Table 8: Mediation Analysis (Bootstrapping, 5,000 resamples)

Path	Indirect Effect	95% CI (LL–UL)	Result
Learning → Employability → Retention	-0.18	[-0.29, -0.09]	Partial Mediation

The mediation analysis (Table 8) revealed a significant indirect effect of organizational learning pathways on retention intentions through employability perceptions (indirect effect = -0.18 , 95% CI $[-0.29, -0.09]$). Since the confidence interval excluded zero, partial mediation was confirmed. This indicates that while learning pathways directly enhance retention, a substantial portion of their impact operates indirectly by improving employees' perceptions of employability.

Table 9: Moderation Analysis

Moderator	Interaction Term	β	t-value	p-value	Interpretation
Proactive Personality	Learning Proactive	0.21	2.41	0.02	Stronger effect for proactive employees
Support for Learning	Learning Support	0.28	2.97	0.01	Stronger effect under supportive organizations

Moderation results (Table 9) confirmed that both proactive personality and organizational support for learning strengthened the positive relationship between learning pathways and employability. Specifically, the learning $\times$ proactive interaction was significant ($\beta = 0.21$, $t = 2.41$, $p = 0.02$), indicating that proactive employees derived greater employability benefits from learning opportunities. Similarly, the learning $\times$ support interaction was significant ($\beta = 0.28$, $t = 2.97$, $p = 0.01$), highlighting that organizations emphasizing learning support further amplified employability gains. These moderating effects reinforce the boundary conditions under which learning pathways are most effective.

Table 10: Robustness Checks (Alternative Specifications)

Specification	Key Predictor (β)	R ²	Model Fit
Full Model (All Variables)	0.47	0.42	Good
Without Controls	0.46	0.39	Good
With Demographics Only	0.44	0.38	Acceptable

Robustness tests (Table 10) confirmed the stability of results across different model specifications. Key predictor effects remained consistent ($\beta = 0.44$ – 0.47), and R² values ranged from 0.38 to 0.42 across models, with fit indices remaining within acceptable thresholds. The persistence of results across alternative models suggests that findings are not an artifact of specific analytical choices, but reflect stable underlying relationships.

7. Testing of Hypothesis

The proposed hypotheses were tested using Hierarchical Linear Modeling (HLM) and mediation–moderation analysis. Table X summarizes the statistical evidence for the direct, mediating, and moderating relationships among organizational learning pathways, employability perceptions, and retention intentions. Overall, the findings support the proposed conceptual framework.

Hypothesis	Relationship Tested	Statistical Evidence	Result
H1	Learning pathways $\rightarrow$ Employability	$\beta = 0.47$, $p < 0.01$ (Table 6)	Supported
H2	Employability mediates learning $\rightarrow$ retention	Indirect effect = 0.18 , 95% CI $[0.09, 0.29]$ (Table 8)	Supported
H3	Learning $\times$ proactive personality $\rightarrow$ employability	$\beta = 0.21$, $p = 0.02$ (Table 9)	Supported
H4	Learning $\times$ support for learning $\rightarrow$ employability	$\beta = 0.28$, $p = 0.01$ (Table 9)	Supported

The findings provide support for all four hypotheses. **H1** confirmed that organizational learning pathways positively influence employability perceptions ($\beta = 0.47, p < 0.01$; **Table 6**), suggesting that continuous learning opportunities strengthen employees' career confidence and adaptability. **H2** demonstrated that employability perceptions mediate the relationship between learning pathways and retention intentions (indirect effect = 0.18, 95% CI [0.09, 0.29]; **Table 8**), indicating that learning contributes to retention through enhanced employability confidence. **H3** showed that proactive personality strengthens the relationship between learning pathways and employability perceptions ($\beta = 0.21, p = 0.02$; **Table 9**), implying that proactive employees benefit more from developmental opportunities. Similarly, **H4** confirmed that organizational support for learning positively moderates this relationship ($\beta = 0.28, p = 0.01$; **Table 9**), emphasizing the importance of supportive learning environments. Collectively, the findings highlight that employee retention in the IT sector is shaped by organizational learning systems, individual initiative, and contextual support mechanisms (**Tables 5–9**).

8. Findings and Discussion

The findings provide strong support for the role of organizational learning pathways in shaping employability perceptions and retention intentions among employees in the Indian IT sector. Consistent with Human Capital Theory, organizational learning pathways significantly enhanced employability perceptions ($\beta = 0.47, SE = 0.08, t = 5.88, p < 0.01$; **Table 6**), indicating that employees exposed to structured developmental opportunities reported stronger confidence in their career adaptability and professional relevance. The moderate positive correlation between learning pathways and employability perceptions ($r = 0.47, p < 0.01$; **Table 4**) further reinforces that continuous learning systems contribute to workforce resilience and long-term employability.

These findings align with prior research demonstrating that workplace learning and talent development improve employee adaptability, skill relevance, and professional confidence in dynamic industries (Garavan et al., 2021; Mahajan, 2023). Similarly, studies in technology-intensive organizations have shown that reskilling and developmental learning systems positively influence employees' confidence in career sustainability and organizational commitment (Agarwal & Sinha, 2021; Clarke, 2018). Thus, organizational learning pathways extending beyond conventional training appear particularly important in technology-driven environments characterized by rapid skill obsolescence and career uncertainty (Becker, 1993). The study further demonstrates that employability perceptions mediate the relationship between organizational learning pathways and retention intentions (indirect effect = 0.18, 95% CI [0.09, 0.29]; **Table 8**). Employability perceptions also showed a significant positive relationship with retention intentions ($\beta = 0.39, SE = 0.07, t = 5.57, p < 0.01$; **Table 7**), suggesting that employees who perceive themselves as professionally adaptable and employable are more likely to remain committed to the organization.

This finding extends previous studies by clarifying the psychological mechanism through which organizational learning contributes to employee retention. Prior literature has reported mixed findings, with some scholars arguing that employability increases external mobility due to enhanced market opportunities (De Cuyper et al., 2009), while others suggest employability fosters organizational attachment when developmental support is perceived positively (Van der Heijde & Van der Heijden, 2006).

The present findings support the latter perspective, indicating that employability, under supportive organizational conditions, strengthens retention rather than turnover. Similar observations have been reported in HRM research emphasizing that employees reciprocate developmental investment with stronger organizational commitment and lower attrition intentions (Kurtessis et al., 2017; Budhwar & Varma, 2011).

The moderating effects further strengthen the explanatory framework. Proactive personality significantly moderated the relationship between organizational learning pathways and

employability perceptions ($\beta = 0.21$, $t = 2.41$, $p = 0.02$; Table 9), suggesting that proactive employees derive greater developmental value from organizational learning opportunities.

This finding is consistent with the work of Bateman and Crant (1993) and more recent evidence by Din and Imran (2023), who argue that proactive individuals actively seek developmental opportunities, transform learning into career advantages, and demonstrate greater adaptability in changing work contexts. Likewise, organizational support for learning significantly strengthened the relationship between organizational learning pathways and employability ($\beta = 0.28$, $t = 2.97$, $p = 0.01$; Table 9), reinforcing Social Exchange Theory, which proposes that employees reciprocate perceived organizational support through greater loyalty, engagement, and retention intentions (Blau, 1964; Eisenberger et al., 2001). Similar studies have shown that supportive learning climates and developmental trust improve employee engagement, commitment, and employability confidence in knowledge-intensive workplaces (Kurtessis et al., 2017; Edmondson, 1999).

Multilevel findings (Table 5) further revealed that employability and retention outcomes are shaped by both individual and contextual factors, with 58% of variance at the individual level, 26% at the team level, and 16% at the organizational level ($p < 0.01$). These findings demonstrate that learning and retention are not solely individual phenomena but are influenced by team learning climates and organizational developmental systems. Similar multilevel perspectives in organizational learning research emphasize the importance of team psychological safety, collaborative learning cultures, and institutional support in strengthening workforce adaptability and retention (Edmondson, 1999; Saini & Budhwar, 2020). Additionally, robustness checks (Table 10) confirmed model stability across alternative specifications, with key predictor effects remaining stable ($\beta = 0.44$ – 0.47) and explanatory power ranging from $R^2 = 0.38$ – 0.42 . Collectively, the findings suggest that IT firms should move beyond episodic training and invest in integrated learning ecosystems involving mentoring, reskilling, peer learning, managerial support, and knowledge-sharing systems to enhance employability confidence and reduce attrition.

9. Conclusion

This study demonstrates that organizational learning pathways are critical for workforce sustainability in the Indian IT sector by strengthening employability perceptions and enhancing retention intentions. The findings indicate that employability functions as a key psychological mechanism through which learning investments influence employee retention, thereby extending Human Capital Theory and Social Exchange Theory in explaining workforce sustainability. The study further reveals that proactive personality amplifies the benefits of organizational learning, while organizational support for learning strengthens employees' confidence in applying developmental opportunities.

The findings also highlight that employability and retention are shaped not only by individual factors but also by team and organizational contexts, emphasizing the importance of supportive learning cultures and multilevel developmental systems. From a managerial perspective, IT firms should move beyond isolated training programs toward continuous learning ecosystems incorporating mentoring, reskilling, knowledge sharing, and managerial support to improve employability confidence and reduce attrition.

Despite these contributions, the study has certain limitations. The findings are based on Indian IT organizations and may limit generalizability to other industries or national settings. Further, reliance on self-reported survey measures may introduce perceptual bias despite methodological safeguards. Future research may adopt longitudinal and cross-country designs to examine causal relationships and explore additional contextual factors such as leadership style, digital learning readiness, and team learning climate in shaping employability and retention outcomes.

10. Acknowledgement

The authors gratefully acknowledge the valuable participation of employees and managerial professionals from Indian IT organizations whose experiences and perspectives contributed significantly to this study. We extend our appreciation to the faculty and institutional support provided by Pilley College, Mumbai University, for facilitating an enabling academic environment and access to research-related resources throughout the study. The authors also wish to thank academic peers, mentors, and colleagues for their insightful suggestions, encouragement, and constructive feedback, which strengthened the quality and direction of this research.

11. Funding Statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

12. Conflicts of Interest

The authors declare that there are no conflicts of interest, either financial or personal, that could have appeared to influence the research reported in this paper.

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