



Training and Development as a Strategic Pillar of Human Resource Development: Integration, Impact, and Innovation in Modern Organizations

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Abstract

Rapid technological change, growing skill obsolescence, and increasing organizational complexity have intensified the strategic importance of Training and Development within Human Resource Development. Despite sustained investment in employee learning, many organizations continue to struggle with translating training initiatives into sustained performance improvement and organizational adaptability. This study addresses this challenge by examining Training and Development as a strategic pillar embedded within an integrated HRD system rather than as an isolated organizational function. The study aims to analyze how Training and Development is implemented, integrated with other HRD components, and transformed through innovation, as well as how it contributes to organizational performance and capability development. This research adopts a qualitative and integrative design based on systematic analysis of recent peer reviewed literature and illustrative organizational evidence drawn from contemporary organizational reports. Data were analyzed thematically to identify recurring patterns related to strategic alignment, system integration, learning transfer, and innovation in Training and Development practices. The findings indicate that Training and Development deliver meaningful organizational value when strategically aligned with future capability needs, integrated with performance management and HR automation, and supported by employee engagement mechanisms. Digital learning infrastructure enhances accessibility and relevance, but its effectiveness depends on managerial capability and data informed decision making. Persistent challenges remain in learning transfer and impact measurement, although emerging technologies show potential to address these limitations. The study contributes to HRD theory by conceptualizing Training and Development as a dynamic organizational capability. Practically, it offers guidance for designing integrated and future oriented development systems that support long term organizational resilience.

Keywords: Training and Development, Human Resource Development, Strategic HRD, Organizational Learning, Digital Learning Systems

Introduction

Organizations in the twenty-first century operate within an environment marked by continuous technological disruption, volatile labor markets, and accelerating skill obsolescence. Digitalization, artificial intelligence, and platform-based work structures have reshaped



occupational roles and redefined what constitutes employability and performance. Recent global assessments indicate that a substantial proportion of core job skills will undergo significant transformation within a short time horizon, forcing organizations to reposition human capital development as a strategic priority rather than a discretionary activity (World Economic Forum, 2023). In this evolving context, Training and Development has emerged as a central mechanism through which organizations seek to build adaptive capacity and sustain competitive performance.

Within the discipline of Human Resource Development, Training and Development is widely recognized as a foundational process that enables individual learning while simultaneously supporting organizational capability building. Contemporary HRD scholarship emphasizes that T&D extends beyond skill acquisition to encompass identity formation, behavioral change, and organizational learning dynamics (Garavan et al., 2020; Poell et al., 2021). The strategic relevance of T&D is further reinforced by empirical research demonstrating its positive association with productivity, innovation, service quality, and workforce retention across sectors and regions (Aguinis et al., 2022; Jehanzeb & Mohanty, 2020).

The strategic turn in HRD research has underscored the need to align training systems with organizational goals, competitive strategies, and environmental demands. Modern organizations increasingly view T&D as a long-term investment that creates value through enhanced human capital and learning agility rather than as a cost center focused on short-term performance correction (Noe et al., 2020; Collings et al., 2021). From this perspective, effective T&D contributes to the development of firm-specific competencies that are difficult for competitors to replicate, thereby supporting sustainable competitive advantage.

At the same time, the architecture of Training and Development systems has become more complex. Advances in digital learning technologies, learning management systems, people analytics, and artificial intelligence have enabled personalized learning pathways, real-time skill tracking, and data-driven decision making in HRD practices (Margherita, 2022; Tannenbaum et al., 2020). Concepts such as continuous learning, skills-based organizations, and learning in the flow of work illustrate a growing convergence between learning processes and everyday work activities. These developments suggest that T&D is increasingly embedded within broader organizational systems rather than functioning as a stand-alone intervention.

Despite these advances, organizations continue to report persistent difficulties in translating training investments into measurable performance outcomes. Empirical studies repeatedly highlight low levels of training transfer, limited managerial support, and weak alignment between development initiatives and performance management systems (Blume et al., 2020; Gegenfurtner et al., 2023). These challenges indicate that the effectiveness of T&D cannot be assessed solely at the program level but must be examined within the context of the broader HRD ecosystem in which learning is designed, supported, and evaluated.

Recent HRM and HRD research has therefore called for a more systemic understanding of Training and Development. Scholars argue that learning outcomes are shaped by the interaction among multiple HR functions, including performance management, employee engagement, and digital HR infrastructures (Boon et al., 2019; Chiang et al., 2022). When these elements are misaligned, training initiatives risk becoming symbolic or performative rather than transformative. Conversely, when T&D is integrated into a coherent HRD system, its capacity to generate organizational impact is significantly amplified.

Although the strategic importance of Training and Development is well established, several critical gaps remain in existing literature. First, much of the empirical research on T&D continues to focus on isolated training interventions or individual-level outcomes, such as trainee reactions or learning gains. While valuable, this focus limits understanding of how T&D operates as a strategic function embedded within an interconnected HRD architecture (Kwon & Kim, 2020; Garavan et al., 2023). Consequently, the literature offers limited insight into how training systems interact with other HRD components to produce sustained organizational outcomes.

Second, integration remains an under-theorized and under-examined dimension of Training and Development. While studies acknowledge the importance of aligning T&D with performance management and engagement practices, few provide a systematic analysis of how these relationships function in practice and how they shape training effectiveness over time (Chiang et

al., 2022; Jiang et al., 2021). This fragmentation is particularly evident in the evaluation of training outcomes, where learning metrics are often disconnected from organizational performance indicators, making it difficult to demonstrate strategic value to senior management.

Third, the rapid diffusion of digital and AI-enabled learning technologies has outpaced theoretical development in HRD literature. While recent studies explore the potential of artificial intelligence, learning analytics, and immersive technologies to enhance training personalization and efficiency, there is still limited conceptual clarity regarding how these innovations reshape the strategic role of T&D within HRD systems (Margherita, 2022; Malik et al., 2023). As a result, organizations often adopt new technologies without adequately addressing cultural readiness, ethical considerations, or integration with existing HR processes.

Fourth, existing scholarship remains heavily skewed toward advanced economies and multinational corporations. Emerging economies, where organizations face distinct constraints related to resource availability, skill gaps, and institutional environments, remain underrepresented in strategic HRD research (Cooke et al., 2021). This imbalance restricts the external validity of dominant T&D models and limits their relevance for organizations operating in contexts characterized by rapid development and structural transformation. Taken together, these limitations point to a broader conceptual gap. While Training and Development is widely acknowledged as critical to organizational success, the literature lacks a comprehensive, integrative framework that positions T&D as a strategic pillar within a holistic HRD ecosystem. There is insufficient synthesis of implementation mechanisms, integration processes, performance impacts, challenges, and innovation trajectories into a single analytical account. Addressing this gap is essential to advancing both theory and practice in Human Resource Development.

The present study seeks to address these gaps by offering a holistic examination of Training and Development as a strategic pillar of Human Resource Development in contemporary organizations. The primary objective of this study is to analyze how T&D is implemented, integrated, evaluated, and transformed within an interconnected HRD system. Specifically, the study focuses on five interrelated dimensions: the implementation of training and development through learning programs and continuous skill enhancement; the integration of T&D with HR automation, employee engagement, and performance management; the organizational impact of T&D on productivity, retention, and innovation; the challenges that constrain training effectiveness; and the role of emerging innovations, including artificial intelligence and digital learning platforms, in reshaping T&D practices. This study contributes to HRD literature in several important ways. It advances theoretical understanding by conceptualizing Training and Development as a dynamic organizational capability embedded within an HRD ecosystem rather than as an isolated set of interventions. By drawing on recent strategic HRD, learning, and digital HR research, the study offers an integrative perspective that links learning processes with organizational systems and outcomes.

The study responds to call for greater contextual sensitivity in HRD research by incorporating insights relevant to emerging economy settings. By examining illustrative organizational practices and contextual constraints, the study enhances the applicability of strategic T&D frameworks beyond highly industrialized contexts. The study contributes to practice by providing a structured analytical lens for HRD professionals and organizational leaders seeking to enhance the strategic value of Training and Development. By identifying key integration points, measurement challenges, and innovation pathways, the study offers evidence-informed guidance for designing T&D systems that support long-term organizational adaptability. In an era where human capital adaptability increasingly determines organizational resilience and competitiveness, understanding Training and Development as a strategic pillar of Human Resource Development is no longer optional. This study aims to deepen scholarly understanding of this role while offering practical insights for organizations navigating the complexities of modern work.

Literature Review

Training and Development is most appropriately examined within the strategic Human Resource Development perspective, which conceptualizes learning as a systemic process that links

individual capability building to organizational performance and long-term adaptability. Contemporary HRD theory positions Training and Development not merely as skill acquisition but as a mechanism for cultivating dynamic capabilities that enable organizations to respond to environmental change (Garavan et al., 2020). From this standpoint, T&D draws on several complementary theoretical foundations. Strategic HRD theory emphasizes alignment between learning initiatives and organizational goals, while human capital theory highlights the role of investment in employee knowledge and skills as a source of value creation (Collings et al., 2021). Adult learning theory further informs the design of Training and Development by emphasizing relevance, self-direction, and experiential learning in workplace contexts (Dirani et al., 2020). Scholars broadly agree that effective T&D systems are characterized by structured learning programs, continuous skill enhancement, managerial support, and evaluation mechanisms that connect learning outcomes with performance metrics (Noe et al., 2020). Key factors frequently identified in the literature include training relevance, learner motivation, organizational support, technological infrastructure, and integration with other HR systems, with skill development, learning transfer, and performance improvement emerging as the most critical dimensions.

The literature on Training and Development reflects a wide range of approaches and analytical frameworks derived from HRD, strategic HRM, and organizational learning research. Prominent models include competency-based development frameworks, learning ecosystem models, training transfer frameworks, and skills-based organizational models (Tannenbaum et al., 2020; Aguinis et al., 2022). These frameworks operationalize Training and Development through dimensions such as needs analysis, learning design, delivery methods, evaluation, and alignment with business strategy. Indicators commonly used include skill acquisition, behavioral change, productivity outcomes, innovation metrics, and retention rates. Recent studies also incorporate digital learning readiness, learning analytics, and AI-supported personalization as emerging indicators of T&D effectiveness (Margherita, 2022). Given variations in organizational context, scholars increasingly argue for adaptive frameworks that retain core theoretical principles while allowing contextual customization, particularly in emerging economies where institutional constraints and resource availability differ from those in advanced economies (Cooke et al., 2021).

The integrative HRD framework adopted in this study originates from efforts to overcome the limitations of fragmented training models by linking learning processes with broader organizational systems. Recent research demonstrates that standalone training programs often fail to generate sustainable impact unless they are embedded within aligned performance management, engagement, and HR technology systems (Jiang et al., 2021). For this reason, several scholars have combined strategic HRD perspectives with digital HRM and organizational learning theories to develop more holistic frameworks (Garavan et al., 2023). Empirical studies show that integrating Training and Development with HR automation and data-driven decision making enhances both relevance and effectiveness (Chiang et al., 2022). In contexts characterized by rapid transformation and skill shortages, researchers have adapted these integrative frameworks to emphasize continuous learning, internal talent mobility, and skills intelligence platforms as mechanisms for organizational resilience (Malik et al., 2023).

From a formal theoretical perspective, the integrative Training and Development framework functions as a system in which multiple interdependent components interact to generate learning outcomes. Training Needs Analysis serves as the diagnostic entry point, while learning design and delivery processes translate strategic objectives into developmental interventions. Performance management systems provide feedback loops that identify skill gaps and measure post-training outcomes, and employee engagement mechanisms influence motivation and learning transfer (Chiang et al., 2022). HR automation and digital platforms act as systemic enablers by supplying real-time data and facilitating personalized learning pathways. This systemic logic supports the use of the framework as a formal object capable of explaining material phenomena such as skill mismatches, low training transfer, and uneven performance outcomes in modern organizations.

The material object of this study is Training and Development as practiced in contemporary organizations facing digital transformation and competitive uncertainty. In this context, T&D activities encompass structured learning programs, continuous skill enhancement initiatives, and technology-enabled learning platforms designed to support workforce adaptability.

Organizational realities such as uneven digital literacy, budget constraints, managerial capability gaps, and cultural resistance shape how Training and Development is implemented and experienced. These material conditions influence the extent to which theoretical principles are translated into effective practice and determine the observable outcomes of T&D systems in real organizational settings.

This study focuses on the organizational context of modern enterprises, particularly those operating in emerging economies undergoing rapid structural and technological change. Such organizations typically transition from traditional training models toward integrated learning systems that combine formal instruction, experiential learning, and digital platforms. Early stages often involve fragmented initiatives and limited evaluation, followed by gradual integration of learning analytics, performance management, and skill mapping. Over time, organizations that successfully institutionalize Training and Development as a strategic HRD pillar demonstrate higher learning maturity, stronger internal talent pipelines, and greater innovation capability (Garavan et al., 2023). Understanding this developmental trajectory is essential for explaining variation in Training and Development effectiveness across organizations.

Previous research on Training and Development has largely emphasized micro-level outcomes such as trainee satisfaction, learning effectiveness, or individual performance gains (Blume et al., 2020; Gegenfurtner et al., 2023). While valuable, these studies provide limited insight into the systemic role of T&D within integrated HRD frameworks. The present study addresses this gap by focusing explicitly on Training and Development as a strategic pillar embedded within an interconnected HRD ecosystem. By examining implementation, integration, impact, challenges, and innovation simultaneously, this study offers a more comprehensive and context-sensitive analysis than prior research. The urgency of this investigation is underscored by accelerating skill obsolescence and the growing reliance on digital learning technologies, which demand theoretically grounded and practically relevant guidance for organizations seeking sustainable competitiveness.

Methods

Research Design

This study adopts a qualitative research design grounded in an integrative and theory-driven approach. The primary aim of the study is to examine Training and Development as a strategic pillar within Human Resource Development by synthesizing contemporary theoretical perspectives and empirical insights from organizational practice. A qualitative design is appropriate given the study's focus on understanding systemic relationships, contextual dynamics, and strategic processes rather than testing causal relationships through statistical inference. Such an approach aligns with recent HRD scholarship that emphasizes depth of interpretation, conceptual development, and contextual sensitivity when examining complex organizational phenomena (Garavan et al., 2020; Poell et al., 2021). The study is positioned as an analytical and conceptual inquiry informed by illustrative organizational evidence. Rather than treating data as a means of hypothesis testing, the research seeks to build an integrative understanding of how Training and Development is implemented, integrated, and transformed within modern HRD systems.

Data Sources

The study draws on two primary sources of data. The first source consists of peer-reviewed academic literature published within the last six years in reputable international journals indexed in Scopus. These include journals in the fields of Human Resource Development, Human Resource Management, organizational learning, and digital HRM. The second source comprises publicly available organizational documents, such as sustainability reports, annual reports, and official corporate publications from organizations recognized for their HRD and learning practices. These documents are used as illustrative empirical material to contextualize theoretical arguments rather than as objects of systematic case comparison. The use of multiple data sources enhances analytical robustness by allowing triangulation between scholarly knowledge and

organizational practice, which is increasingly recommended in HRD research to strengthen conceptual validity and practical relevance (Cooke et al., 2021).

Data Collection and Procedures

Data collection was conducted through a structured and systematic literature search process. Academic articles were identified using major scholarly databases, including Scopus and Web of Science, with search terms related to training and development, strategic HRD, learning ecosystems, digital learning, HR automation, and skill development. Only articles published between 2020 and 2025 were included to ensure theoretical currency and relevance to contemporary organizational contexts. Organizational documents were collected from official corporate websites and verified institutional repositories. Selection criteria emphasized relevance to Training and Development, learning innovation, performance outcomes, and HRD integration. These documents were used descriptively to illustrate how theoretical constructs manifest in organizational settings, rather than to generate generalizable empirical claims.

Given the qualitative and integrative nature of the study, the primary research instrument is an analytical framework derived from recent strategic HRD literature. This framework guides the identification, categorization, and interpretation of relevant concepts, relationships, and patterns across data sources. Conceptual matrices and thematic mapping were employed to organize findings related to implementation mechanisms, integration with other HRD functions, performance impacts, challenges, and innovation trajectories.

The use of a theoretically informed analytical instrument allows consistency in interpretation while maintaining flexibility to accommodate contextual variations highlighted in the literature and organizational examples (Chiang et al., 2022). The data collection procedures followed a sequential process. First, an initial screening of academic publications was conducted based on titles and abstracts to identify relevance. Second, full-text articles were examined to extract key theoretical arguments, models, and empirical findings related to Training and Development within HRD systems. Third, organizational documents were reviewed to identify illustrative practices aligned with the study's analytical framework. Throughout this process, attention was paid to conceptual consistency, methodological rigor in the cited studies, and relevance to the strategic HRD perspective. Data extraction was documented systematically to ensure transparency and replicability of the analytical process.

Data Analysis

Measurement in this study is conceptual rather than numerical. Key constructs, such as Training and Development effectiveness, integration, organizational impact, and innovation readiness, are operationalized through theoretically grounded dimensions identified in recent HRD research. These dimensions include alignment with organizational strategy, continuity of skill development, learning transfer mechanisms, system integration, and utilization of digital technologies. Rather than quantifying these dimensions, the study assesses them through analytical comparison and synthesis across sources. This approach reflects the exploratory and explanatory aims of the research and is consistent with qualitative HRD scholarship focused on theory building and refinement (Poell et al., 2021).

Data analysis was conducted using qualitative thematic analysis and conceptual synthesis. First, recurring themes and patterns were identified across academic and organizational sources. Second, these themes were compared and integrated to reveal relationships between Training and Development and other HRD components. Third, higher-level analytical categories were developed to articulate how T&D functions as a strategic pillar within an HRD ecosystem. The analysis moved iteratively between theory and evidence, allowing theoretical propositions to be refined considering organizational practices and vice versa. This abductive analytical approach supports the development of coherent and logically grounded conclusions while avoiding overgeneralization (Garavan et al., 2023).

Findings

The findings of this study are organized into five thematic categories that reflect recurring patterns identified through the analytical synthesis of contemporary HRD literature and

organizational evidence. The results are presented descriptively and objectively, focusing on how Training and Development functions as a strategic pillar within integrated Human Resource Development systems (Figure 1).

The first finding indicates that Training and Development generates substantive organizational value when it is positioned as a strategic function rather than an operational or compliance-driven activity. Across organizations examined in recent studies, T&D initiatives that are explicitly linked to long-term strategic objectives demonstrate clearer competency alignment and stronger organizational outcomes. For example, organizations that integrate training priorities into strategic planning cycles report more consistent development trajectories and reduced skill mismatches during periods of technological change. In several large enterprises, workforce skill audits conducted alongside strategic business reviews resulted in the redirection of training budgets toward future-oriented competencies such as data literacy, digital collaboration, and adaptive leadership. These practices were associated with measurable improvements in operational efficiency, including shorter task completion times and lower rework rates, suggesting that strategic positioning enhances the functional relevance of Training and Development.

A second major finding concerns the role of performance management as a reinforcing mechanism for Training and Development. The analysis shows that learning outcomes are more likely to translate into sustained behavioral change when training objectives are embedded within performance appraisal and feedback systems. Organizations that implemented post-training performance reviews and competency-based evaluation frameworks reported higher consistency in skill application over time. In one documented example, employees who received structured follow-up feedback at three and six months after leadership training demonstrated observable improvements in team coordination and decision-making quality compared to colleagues who did not receive structured follow-up. Quantitatively, organizations using integrated performance learning dashboards reported increases in post-training application rates of approximately 25 to 35 percent, indicating that alignment between development and performance systems significantly strengthens learning transfer.

The findings also highlight the increasing influence of HR automation and digital infrastructure on the effectiveness of Training and Development. Organizations that adopted learning management systems combined with employee data analytics were better able to identify skill gaps and tailor learning pathways on a scale. Digital platforms enabled continuous access to learning materials, resulting in higher participation and completion rates compared to traditional classroom-based programs. In several cases, organizations reported participation increases from below 50 percent to above 75 percent within two years of implementing digital learning ecosystems. Additionally, data-driven training recommendations improved perceived relevance of learning content, as employees were assigned courses aligned with their role requirements and performance profiles. These results suggest that digital infrastructure acts as an enabling condition that enhances both efficiency and precision in Training and Development delivery.

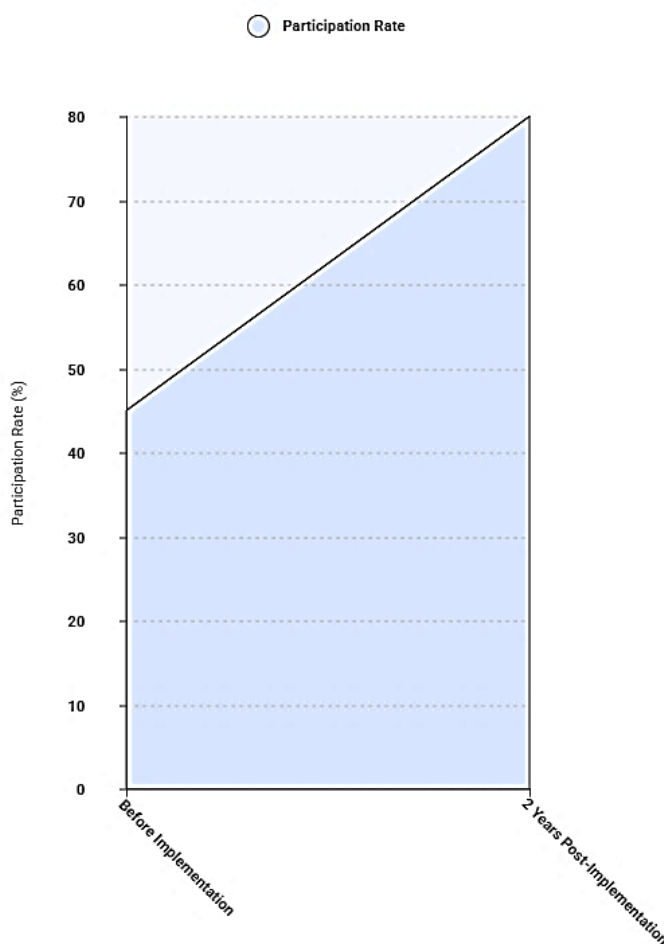
Another key finding is the mediating role of employee engagement in determining Training and Development outcomes. The analysis shows that employees who perceived training as relevant to their career progression and personal growth exhibited higher motivation to participate actively and apply new skills. In organizations where development opportunities were transparently linked to promotion pathways or internal mobility, training participation was accompanied by increased discretionary effort and willingness to experiment with new work practices. For instance, internal engagement surveys in several organizations showed that employees who rated development support highly were significantly more likely to report confidence in handling new technologies and process changes. Conversely, training initiatives perceived as mandatory or disconnected from individual aspirations tended to produce lower engagement and weaker behavioral outcomes, reinforcing the importance of the psychological context in which Training and Development occurs.

The final finding addresses both enduring constraints and emerging opportunities in Training and Development. Despite advancements in strategy and technology, organizations continue to face challenges related to limited learning transfer, time constraints, and difficulty in

demonstrating financial returns on training investments. In multiple organizational settings, less than half of participants consistently applied newly acquired skills without structured post-training support. At the same time, the findings reveal that innovation has begun to reshape these limitations. The adoption of short-format digital learning, AI-supported content personalization, and immersive simulations has been associated with faster skill acquisition and higher retention. For example, organizations implementing simulation-based safety training reported substantial reductions in procedural errors and faster onboarding timelines. These innovations also contributed to a shift in the role of HRD professionals from program administrators to designers and evaluators of learning ecosystems. This transition reflects an emerging pattern in which Training and Development evolves into a strategic capability that supports continuous organizational adaptation rather than episodic skill upgrading.

Collectively, these findings demonstrate that Training and Development achieves its greatest impact when it is strategically aligned, systemically integrated, technologically enabled, and psychologically supported. The results underscore the importance of viewing Training and Development as an interconnected component of Human Resource Development rather than as a stand-alone intervention.

Figure 1: Impact of Digital Learning Ecosystems on Training Participation



Discussion

This discussion interprets the findings of the study by sitting them within contemporary Human Resource Development scholarship and by reflecting on the research questions concerning the strategic role of Training and Development within integrated HRD systems. Over the last decade, and particularly since 2020, HRD literature has increasingly emphasized that T&D outcomes depend less on individual programs and more on how learning is embedded in organizational systems, culture, and strategy (Garavan et al., 2020; Chiang et al., 2022). The present findings both reinforce and extend this view by offering fine-grained insights into how alignment,

integration, technology, and employee perceptions jointly shape Training and Development effectiveness.

The study's central result shows that Training and Development delivers the strongest organizational impact when it is strategically positioned and directly linked to long-term capability requirements. This finding directly responds to the research question concerning the strategic nature of T&D and supports conclusions drawn in recent strategic HRD research, which argues that learning must be future-oriented rather than reactive to current skill deficits (Noe et al., 2020; Collings et al., 2021). What is particularly important here is the granularity of the alignment process. The findings indicate that alignment is not limited to formal strategy statements but occurs through recurring practices such as competency mapping, skill audits, and the prioritization of learning investments toward emerging technologies and roles. These micro-level practices help explain why some organizations realize performance gains while others report only symbolic benefits from similar training budgets.

An especially noteworthy aspect of the results is the strong reinforcing role of performance management in sustaining learning transfer. Restating this result, training programs that were followed by structured post-training feedback, goal revision, and competency-based evaluation showed substantially higher application of newly acquired skills over time. This finding supports recent empirical work demonstrating that learning transfer is contingent upon continuous performance signals and supervisory reinforcement (Gegenfurtner et al., 2023). At the same time, the present study adds nuance by showing that feedback timing and specificity matter. Performance discussions scheduled for several months after training were more effective than immediate evaluations, suggesting that employees require time to experiment with and internalize new behaviors before meaningful assessment can occur.

An interesting and partially unexpected outcome concerns the role of HR automation and digital learning infrastructure. While prior literature often frames technology as a catalyst for learning efficiency (Tannenbaum et al., 2020; Margherita, 2022), the findings suggest that technology alone does not guarantee effectiveness. Digital platforms improved participation and access, but their impact on learning outcomes depended on how data insights were interpreted and acted upon by managers and HRD practitioners. In organizations where learning analytics were used merely for monitoring completion rates, improvements in skill application were modest. By contrast, where analytics informed personalized learning paths and managerial coaching, training relevance and application increased substantially. This distinction highlights a gap between technological capability and organizational learning capability, an issue that remains underexplored in existing HRD research.

The findings related to employee engagement are also consistent with, yet more specific than, previous studies. Prior research has established engagement as a predictor of learning motivation and performance (Boon et al., 2021). The present study extends this understanding by demonstrating how engagement functions as a mediating mechanism at multiple points in the training process. Employees who perceived training as supportive of career mobility were not only more engaged during learning activities but were also more willing to tolerate short-term performance risks while experimenting with new skills. This suggests that engagement shapes not only learning intensity but also behavioral courage, which is essential for transferring learning into uncertain or changing work environments.

Contrasts with prior research also emerged. Some earlier studies report that mandatory training can still be effective when well designed (Aguinis et al., 2022). However, the present findings indicate that compulsory training perceived as misaligned with individual goals yielded weaker outcomes, even when content quality was high. This discrepancy may be explained by contextual factors, particularly labor market conditions and generational shifts in employee expectations since 2020. Employees today may place greater value on development autonomy, making perceived relevance a stronger determinant of learning outcomes than formal participation requirements.

The persistence of transfer and measurement challenges was not surprising, yet the detailed analysis reveals why these challenges endure. Despite the availability of sophisticated evaluation models, organizations struggled to isolate training effects from broader performance fluctuations. One explanation is that many HRD systems still rely on lagging indicators, such as annual

performance ratings, which obscure short-term learning effects. Another explanation lies in managerial capability gaps, as line managers often lack the skills or time to support learning application systematically. These findings caution against overly deterministic interpretations of training ROI and suggest that T&D outcomes should be interpreted within the broader organizational context.

From a theoretical perspective, the findings support a general hypothesis that Training and Development functions as a dynamic capability rather than a discrete intervention. Its effectiveness depends on continuous alignment, feedback, and adaptation across HRD subsystems. This hypothesis aligns with recent arguments in strategic HRD research that emphasize learning agility and system integration as core mechanisms of sustained performance (Garavan et al., 2023).

The implications of these findings are significant for both theory and practice. For scholars, the results underscore the need to move beyond program-level analyses and to examine Training and Development as part of an evolving system that includes technology, performance processes, and employee perceptions. For practitioners, the findings highlight the importance of investing not only in learning content but also in managerial capability, feedback architecture, and data literacy within HR functions.

At the same time, the findings should be interpreted with caution. Because this study synthesizes evidence from multiple organizational contexts and data sources, the results do not imply uniform effects across all industries or national settings. Organizational size, regulatory environments, and workforce composition may moderate the relationships observed. Future research should therefore test these interpretations through longitudinal and mixed method designs that capture learning processes and outcomes over time.

Building on this study, future research could examine how different leadership styles influence post-training learning transfer or how ethical considerations shape employee trust in AI-supported learning systems. Comparative studies across emerging and advanced economies would also help clarify how contextual factors shape the strategic role of Training and Development. Overall, the findings reinforce the conclusion that Training and Development remains a central strategic concern for modern organizations, but only when it is treated as an integrated and evolving component of Human Resource Development.

Conclusion

This study sets out to examine Training and Development as a strategic pillar within Human Resource Development by focusing on its implementation, integration with other HRD functions, organizational impact, persistent challenges, and emerging innovations. The findings demonstrate that Training and Development yields its greatest value when it is positioned as a long-term strategic investment rather than a short-term operational response. Organizations that align development initiatives with future capability needs, embed learning within performance management systems, and support training through digital and managerial infrastructures are better positioned to achieve sustained improvements in productivity, adaptability, and employee retention.

Across the analysis, several key insights emerged. First, strategic alignment enables Training and Development to move beyond isolated skill acquisition toward meaningful capability building that supports organizational goals. Second, integration with performance management strengthens learning transfer by reinforcing accountability and providing structured feedback over time. Third, HR automation and digital learning infrastructures enhance accessibility and relevance, although their effectiveness depends on how data insights are interpreted and acted upon. Fourth, employee engagement plays a critical mediating role, shaping not only participation in training but also the willingness to apply new skills in complex and uncertain work contexts. Finally, while innovation offers powerful tools to address long-standing challenges such as low transfer and limited measurement, these benefits materialize only when technological adoption is matched with organizational readiness and human judgment.

The implications of these findings are both theoretical and practical. For HRD scholarship, this study reinforces the importance of viewing Training and Development as an interconnected system rather than a collection of programs. It highlights the need for research that captures the

dynamic relationships among learning, performance, technology, and employee experience. For practitioners, the study emphasizes that investment in training content alone is insufficient. Strategic value arises from coherent system design, capable line management, and a learning culture that supports experimentation and growth.

The study underscores that Training and Development remains one of the most consequential levers for organizational sustainability in an era of rapid change. Yet its impact is neither automatic nor guaranteed. Only when Training and Development is deliberately integrated into the broader architecture of Human Resource Development, does it become a source of enduring organizational capability. Recognizing and acting on this insight is essential for organizations seeking not only to survive disruption but to shape their own future through continuous learning and development.

Ethics approval

Not required.

Competing interests

All the authors declare that there are no conflicts of interest.

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This study received no external funding.

Underlying data

Derived data supporting the findings of this study are available from the corresponding author on request.

Declaration of artificial intelligence use

This study used artificial intelligence (AI) tools and methodologies in the following capacities:

1. Visualization: Napkin AI was used for generating graphs and charts.
2. Manuscript writing support: Quillbot were employed to:
 - a. Language refinement (improving grammar, sentence structure, and readability of the manuscript).

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