

Training and Development as a Driver of Knowledge Management in Palestinian Higher Education Institutions

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Abstract

This study investigates the effect of training and development on knowledge management within higher education institutions, focusing on Palestinian universities as a knowledge intensive and resource-constrained context. While prior research has acknowledged the role of human resource management in enhancing organizational outcomes, limited empirical evidence exists on how specific HRM practices, particularly training and development, influence knowledge management in higher education settings. A quantitative research design was adopted using a cross-sectional survey of 310 full-time academic staff. The data were analysed using partial least squares structural equation modelling (PLS-SEM). The results indicate that training and development has a positive effect on knowledge management, with the model explaining a substantial proportion of variance ($R^2 = 0.463$). The effect size ($f^2 = 0.070$) suggests that training and development contributes meaningfully to improving knowledge-related processes within universities. The findings highlight the importance of structured training programs in enhancing employees' competencies, promoting knowledge sharing, and strengthening organizational learning. This study contributes to the literature by providing empirical evidence from an underexplored context and by focusing on a single HRM dimension to better understand its impact on knowledge management. Practically, the study offers valuable insights for university leaders and policymakers, emphasizing the need to invest in continuous training initiatives to support knowledge management and improve institutional performance.

Keywords: Training and Development, Knowledge Management, Higher Education, Human Resource Management, PLS-SEM, Palestine

Introduction

Higher education institutions (HEIs) are increasingly recognized as knowledge intensive organizations in which intellectual capital and continuous learning constitute the primary drivers of institutional performance and sustainability. In contemporary academic

environments, knowledge has become a critical strategic resource that enables universities to enhance teaching quality, research productivity, and organizational effectiveness. Consequently, knowledge management (KM) has gained significant attention as a key mechanism for improving institutional capabilities and fostering innovation within higher education systems (Mamilla & Yen, 2026).

Recent studies highlight that effective KM in universities depends not only on technological systems but also on human and organizational factors, particularly those related to employees' skills, competencies, and collaborative behaviours. In this context, academic staff play a central role as knowledge carriers and creators, making their development and engagement essential for successful KM implementation (Vyas, 2024).

Human resource management (HRM) practices have been identified as critical organizational mechanisms that influence employees' knowledge-related behaviours. Contemporary research emphasizes that HRM practices, particularly training and development, enhance employees' capabilities, promote learning, and facilitate knowledge sharing within organizations (Iqbal et al., 2023). Furthermore, recent empirical evidence suggests that knowledge-based HRM practices significantly contribute to strengthening knowledge processes and improving organizational outcomes, especially in knowledge-intensive sectors such as higher education (Yasmin et al., 2024).

Among various HRM practices, training and development is considered one of the most influential factors in enhancing knowledge management. Training initiatives improve employees' competencies, increase their awareness of organizational knowledge systems, and encourage participation in knowledge sharing and collaborative learning activities. Recent studies confirm that training-related practices contribute to building knowledge capabilities and strengthening knowledge exchange within organizations (Le & Le, 2023).

The importance of training and development becomes even more evident in higher education institutions, where continuous learning and knowledge dissemination are integral to academic work. Universities increasingly rely on structured training programs to enhance faculty competencies, support professional development, and ensure the effective transfer of knowledge across departments. Moreover, recent research in higher education highlights that HRM practices, including training, are essential for addressing emerging challenges such as technological transformation and evolving academic roles (Gassanova & Kozhakhmet, 2024).

This relationship is particularly critical in fragile and resource-constrained environments. In such contexts, institutions face challenges related to knowledge loss, limited resources, and organizational instability, which may hinder effective knowledge management practices. Palestinian higher education institutions represent a unique context where such challenges are evident, making the role of training and development even more crucial for maintaining and enhancing organizational knowledge.

Despite the growing recognition of the importance of HRM practices in supporting KM, empirical research examining the direct effect of training and development on knowledge management in higher education institutions remains limited. Most previous studies have

focused on general HRM systems or examined KM independently, without providing clear evidence of how specific HRM practices influence knowledge processes.

Accordingly, this study aims to investigate the effect of training and development on knowledge management in Palestinian higher education institutions. By focusing on a single HRM dimension, this research provides a more precise and in-depth understanding of how targeted HR practices can enhance knowledge processes in academic environments. The study contributes to the literature by offering empirical evidence from an underexplored context and by highlighting the strategic importance of training and development in strengthening knowledge management in universities.

Recent research has increasingly emphasized the role of knowledge-based human resource management practices in enhancing organizational outcomes. In particular, training and development has been identified as a critical mechanism for improving employees' competencies and facilitating knowledge processes within organizations. Studies indicate that organizations that invest in structured training initiatives are more likely to enhance knowledge sharing and organizational learning, especially in knowledge-intensive environments such as higher education institutions (Ali et al., 2024; Rahman et al., 2024).

Training and development has become an essential strategic concern for higher education institutions because universities increasingly depend on knowledge-based capabilities to sustain teaching quality, research productivity, and institutional competitiveness. Despite this importance, many institutions, particularly in resource-constrained and unstable environments, still struggle to translate training initiatives into effective knowledge management practices. This makes the topic of the present study both timely and necessary. Examining the relationship between training and development and knowledge management is important because it helps explain how universities can strengthen internal knowledge processes through targeted human resource interventions. In practical terms, this topic is highly relevant to university leaders, policymakers, and academic administrators who seek cost-effective ways to improve knowledge sharing, organizational learning, and institutional resilience.

Significance of the Study

This study is significant both theoretically and practically. Theoretically, it contributes to the growing literature on the relationship between human resource management and knowledge management by focusing specifically on training and development as a single HRM practice. This provides a more precise understanding of how targeted developmental practices influence knowledge-related outcomes in higher education institutions. Practically, the study is important for university leaders, academic managers, and policymakers, as it highlights the value of training and development in improving knowledge creation, sharing, and application among academic staff. The findings are particularly beneficial for higher education institutions operating in challenging environments, where strengthening internal knowledge capabilities can support institutional continuity, innovation, and long-term performance.

Literature Review*Training and Development*

Training and development represent a core dimension of human resource management that focuses on enhancing employees' knowledge, skills, and competencies to meet organizational objectives. In knowledge-intensive environments, such as higher education institutions, training plays a critical role in enabling employees to adapt to dynamic academic, technological, and organizational changes. Recent research emphasizes that training initiatives not only improve individual performance but also foster continuous learning and capability development at the organizational level (Iqbal et al., 2023).

Contemporary studies further highlight that structured training programs contribute to strengthening employees' cognitive abilities, increasing their awareness of organizational processes, and enhancing their readiness to engage in knowledge-related activities. In particular, training interventions that focus on collaboration, digital skills, and professional development are found to significantly influence employees' participation in knowledge-sharing practices (Le & Le, 2023). Such programs create opportunities for interaction, learning, and exchange of expertise among employees, thereby supporting organizational learning processes.

Moreover, in higher education contexts, training and development are essential for maintaining academic quality and ensuring that faculty members remain updated with evolving teaching methods, research practices, and technological tools. Recent evidence suggests that universities increasingly rely on continuous professional development programs to enhance faculty capabilities and support institutional knowledge systems (Gassanova & Kozhakhmet, 2024). These initiatives enable academic staff to contribute more effectively to knowledge creation and dissemination within universities.

Knowledge Management

Knowledge management (KM) refers to the systematic process of creating, sharing, storing, and applying knowledge within an organization to improve performance and achieve strategic objectives. In higher education institutions, KM is particularly important due to the central role of knowledge in teaching, research, and academic collaboration. Effective KM practices enable universities to leverage intellectual capital, enhance innovation, and improve decision-making processes (Vyas, 2024).

Recent literature emphasizes that KM in universities extends beyond technological systems and depends heavily on human and organizational factors. Academic staff play a key role in knowledge creation and transfer through teaching, research, and collaboration. Therefore, the success of KM initiatives largely depends on employees' willingness and ability to share knowledge and engage in collaborative learning activities (Mamilla & Yen, 2026).

Furthermore, KM processes are influenced by organizational culture, leadership, and HRM practices that shape employees' behaviours and attitudes toward knowledge sharing. In academic environments, where knowledge is continuously generated and exchanged, effective KM systems are essential for sustaining institutional performance and competitiveness.

Training and Development and Knowledge Management

The relationship between training and development and knowledge management has gained increasing attention in recent research, particularly in knowledge-intensive sectors. Training enhances employees' knowledge, skills, and competencies, which are essential for effective knowledge creation and sharing. It also increases employees' awareness of organizational knowledge systems and encourages active participation in knowledge-related activities (Iqbal et al., 2023).

Empirical studies indicate that training programs significantly contribute to knowledge-sharing behaviors by improving employees' confidence, communication skills, and collaborative capabilities. Employees who receive continuous training are more likely to engage in knowledge exchange and contribute to organizational learning processes (Le & Le, 2023). Additionally, training fosters a learning-oriented environment that supports innovation and knowledge development within organizations.

In higher education institutions, training and development play a crucial role in strengthening knowledge management by enhancing faculty competencies and promoting collaborative learning. Universities that invest in professional development programs are better positioned to facilitate knowledge sharing and improve academic performance. Moreover, training initiatives can help institutions overcome challenges related to knowledge loss and resource limitations, particularly in fragile and resource-constrained contexts.

Recent empirical studies further confirm the strong linkage between training and development and knowledge management. Training programs enhance employees' ability to acquire, process, and share knowledge, thereby improving organizational knowledge capabilities. For instance, Nguyen et al. (2024) found that knowledge-based HRM practices significantly influence knowledge sharing, which in turn enhances organizational performance. Similarly, Cheng et al. (2024) demonstrated that sustainable HRM practices, including training and development, play a crucial role in promoting knowledge-sharing behaviors among employees in higher education institutions.

Based on the above discussion, training and development are expected to have a significant positive effect on knowledge management in higher education institutions.

Hypothesis Development

Based on the theoretical and empirical arguments presented above, the following hypothesis is proposed: H1: Training and development positively influence knowledge management in higher education institutions.

Methodology

Research Design

This study adopts a quantitative research design to examine the effect of training and development on knowledge management in higher education institutions. A cross-sectional survey approach was employed, as it is widely used in management research to analyse relationships between organizational variables at a single point in time. Quantitative designs are particularly appropriate for testing theoretical relationships and hypotheses using statistical techniques such as structural equation modelling (SEM) (Hair et al., 2024).

Population and Sample

The target population of this study consists of full-time academic staff working in Palestinian higher education institutions. Academic staff are considered key knowledge contributors within universities, as they are directly involved in teaching, research, and knowledge dissemination processes.

A total of 310 valid responses were collected and used for data analysis. This sample size is considered adequate for PLS-SEM analysis, as recent methodological studies suggest that sample sizes above 200 provide sufficient statistical power for structural model testing (Sarstedt et al., 2023).

Table 1
Sample Characteristics (N = 310)

Variable	Category	Frequency	Percentage
Gender	Male	186	60.0%
	Female	124	40.0%
Location	West Bank	231	74.5%
	Gaza Strip	79	25.5%
Academic Rank	Assistant Professor	131	42.3%
	Associate Professor	114	36.8%
	Professor	62	20.0%
	PhD-holder	3	1.0%
Experience	Less than 5 years	1	0.3%
	5–10 years	106	34.2%
	11–15 years	122	39.4%
	16+ years	81	26.1%

Data Collection Method

Data were collected using a structured questionnaire distributed to academic staff across universities in both the West Bank and Gaza Strip. The questionnaire was designed to measure respondents' perceptions of training and development practices and knowledge management within their institutions.

The survey method is widely recognized as an effective tool for collecting large-scale data in organizational research, particularly when investigating behavioral and perceptual constructs (Rahi, 2023).

Measurement of Variables*Training and Development (Independent Variable)*

Training and development was measured using a set of structured items adapted from established HRM scales. These items capture employees' perceptions of training opportunities, professional development programs, and institutional support for skill enhancement.

Knowledge Management (Dependent Variable)

Knowledge management was measured using multiple items reflecting knowledge creation, sharing, and application within the organization. These items assess the extent to which employees engage in knowledge-related activities and contribute to organizational learning.

Recent studies confirm that multi-item scales provide reliable and valid measures for both HRM practices and KM constructs in organizational research (Ali et al., 2023).

Data Analysis Technique

The data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) through SmartPLS software. PLS-SEM is particularly suitable for exploratory and predictive research models and is widely used in management and social science studies.

Recent literature highlights that PLS-SEM is appropriate for analysing complex relationships between latent variables, especially when the research focuses on prediction and theory development (Hair et al., 2024). Additionally, PLS-SEM is robust in handling non-normal data and relatively small sample sizes, making it suitable for studies in higher education contexts (Sarstedt et al., 2023).

The analysis process includes two main stages:

1. Assessment of the measurement model (reliability and validity)
2. Assessment of the structural model (hypothesis testing)

Reliability and Validity

To ensure the quality of the measurement model, reliability and validity tests were conducted. Internal consistency reliability was assessed using Cronbach's alpha and composite reliability (CR), while convergent validity was evaluated using the average variance extracted (AVE). Discriminant validity was assessed using the HTMT criterion, which has been recommended as a more reliable approach in recent SEM research (Henseler et al., 2023).

Results

Descriptive Overview

The data were collected from 310 full-time academic staff working in Palestinian higher education institutions. The sample includes participants from both the West Bank and Gaza Strip, reflecting a diverse representation of academic staff across different universities. This distribution enhances the generalizability of the findings within the Palestinian higher education context.

Measurement Model Assessment

The measurement model was evaluated to ensure the reliability and validity of the constructs. Internal consistency reliability was assessed using Cronbach's alpha and composite reliability (CR), while convergent validity was examined through the average variance extracted (AVE).

The results indicate that all constructs met the recommended thresholds for reliability and validity. Specifically, Cronbach's alpha and composite reliability values exceeded the acceptable threshold of 0.70, while AVE values were above 0.50, indicating adequate convergent validity.

Discriminant validity was assessed using the HTMT criterion, and all values were below the recommended threshold, confirming that the constructs are distinct and measure different concepts.

Table 2

Measurement Model Assessment

Construct	Cronbach's Alpha	Composite (CR)	Reliability AVE
Training and Development	0.869	0.902	0.606
Knowledge Management	0.910	0.924	0.527

The measurement model assessment demonstrates satisfactory reliability and validity. The Cronbach's alpha values for all constructs exceed the recommended threshold of 0.70, indicating strong internal consistency. Similarly, the composite reliability (CR) values are above 0.70, confirming the reliability of the constructs. Furthermore, the average variance extracted (AVE) values exceed the threshold of 0.50, indicating adequate convergent validity. These results confirm that the measurement model is reliable and valid for further structural analysis.

Collinearity Assessment

Before evaluating the structural model, collinearity issues were examined using the variance inflation factor (VIF). The VIF value for the relationship between training and development and knowledge management was found to be: VIF = 1.537

This value is well below the threshold of 3.0, indicating that there are no multicollinearity issues in the model and that the predictor variable does not inflate the variance of the dependent variable.

Structural Model Assessment

The structural model was evaluated to examine the effect of training and development on knowledge management.

Table 3

Structural Model Results

Hypothesis	Path	β	t-value	p-value	f ²	Result
H1	TD → KM	0.495	10.835	0.000	0.070	Supported

The structural model results indicate that training and development has a significant positive effect on knowledge management ($\beta = 0.495$, $t = 10.835$, $p < 0.001$). This finding provides strong support for H1, suggesting that training and development plays a critical role in enhancing knowledge-related processes in higher education institutions.

Coefficient of Determination (R²)

The results show that knowledge management achieved an R² value of: R² = 0.463

This indicates that training and development explains approximately 46.3% of the variance in knowledge management, which represents a moderate to substantial explanatory power in social science research.

Effect Size (f^2)

The effect size of training and development on knowledge management was calculated using f^2 , with the result showing: $f^2 = 0.070$

This value indicates a small but meaningful effect, suggesting that training and development contributes to improving knowledge management within higher education institutions.

Hypothesis Testing

The hypothesis of this study examines the effect of training and development on knowledge management in higher education institutions.

H1: Training and development positively influence knowledge management.

The results of the structural model provide strong support for the proposed hypothesis. The analysis indicates that training and development has a significant and positive effect on knowledge management ($\beta = 0.495$, $t = 10.835$, $p < 0.001$). This result demonstrates that improvements in training and development practices are associated with substantial enhancements in knowledge management processes among academic staff.

The magnitude of the path coefficient suggests a relatively strong relationship, indicating that training and development is a key predictor of knowledge management in the studied context. Furthermore, the high t-value and the significance level confirm the robustness of this relationship.

Accordingly, H1 is supported, confirming that training and development plays a critical role in strengthening knowledge creation, sharing, and application within higher education institutions.

Summary of Results

The results of this study provide clear empirical evidence regarding the relationship between training and development and knowledge management in Palestinian higher education institutions. The findings indicate that training and development has a significant and positive impact on knowledge management, confirming the proposed hypothesis.

The structural model demonstrates acceptable explanatory power, with knowledge management achieving an R^2 value of 0.463, indicating that training and development explains a substantial proportion of variance in knowledge-related outcomes. Additionally, the effect size ($f^2 = 0.070$) suggests that training and development contributes meaningfully to knowledge management, despite the presence of other influencing factors.

The collinearity assessment confirms the absence of multicollinearity issues (VIF = 1.537), ensuring the reliability of the model estimates. Overall, the findings highlight the importance of training and development as a key organizational mechanism for enhancing knowledge processes in higher education institutions.

In summary, the results confirm that investing in training and development can significantly improve knowledge management capabilities, particularly in knowledge-intensive and resource-constrained academic environments.

Discussion

The findings of this study provide strong empirical evidence that training and development has a significant and positive effect on knowledge management in higher education institutions. The results reveal a substantial relationship between the two constructs ($\beta = 0.495$, $t = 10.835$, $p < 0.001$), indicating that training and development is a key driver of knowledge-related processes within academic environments.

This result suggests that training and development plays a critical role in enhancing knowledge creation, sharing, and application among academic staff. In knowledge-intensive institutions such as universities, employees are the primary carriers of knowledge, and their ability to generate and disseminate knowledge depends largely on the quality of training they receive. The strong effect observed in this study highlights the importance of continuous professional development in strengthening institutional knowledge capabilities.

These findings are consistent with recent studies emphasizing the strategic role of training and development in promoting knowledge-sharing behaviours and improving organizational learning outcomes. Contemporary research indicates that training enhances employees' competencies, increases their engagement, and encourages collaborative practices that facilitate knowledge exchange (Iqbal et al., 2023). Similarly, Le and Le (2023) found that HRM practices, particularly training, significantly influence knowledge-sharing mechanisms and innovation performance.

The findings of this study are further supported by recent literature that highlights the importance of training and development in strengthening knowledge management processes. For example, Khan et al. (2025) argue that training initiatives contribute significantly to organizational learning by enhancing employees' ability to absorb and apply knowledge. Additionally, Rahman et al. (2024) emphasize that human resource development practices are essential for building knowledge-oriented organizations, particularly in higher education contexts where knowledge creation and dissemination are central activities.

Moreover, the results support the view that training and development contributes to building a knowledge-oriented organizational culture. Employees who participate in structured training programs are more likely to adopt positive attitudes toward knowledge sharing, as training improves both their technical skills and their awareness of organizational knowledge systems. This aligns with the argument that HRM practices serve as critical enablers of knowledge management by shaping employee behavior and organizational norms (Vyas, 2024).

From a theoretical perspective, the findings reinforce the assumptions of social exchange theory. When employees perceive that their organization invests in their development through training opportunities, they are more likely to reciprocate with positive behaviours that benefit the organization, including knowledge sharing and collaboration. The strong relationship identified in this study provides empirical support for this theoretical framework, particularly within the context of higher education institutions.

Importantly, the significance of these findings is amplified in the context of Palestinian universities, which operate under conditions of uncertainty and resource limitations. In such

environments, training and development becomes a strategic mechanism for maintaining and enhancing organizational knowledge. By equipping academic staff with the necessary skills and competencies, training programs can help institutions overcome structural challenges, reduce knowledge loss, and improve overall performance.

Although the effect size ($f^2 = 0.070$) is considered small, it remains meaningful in social science research, indicating that training and development contributes incrementally to knowledge management alongside other organizational factors. This suggests that while training is a critical component, knowledge management is influenced by a broader system of practices, including leadership, organizational culture, and technological infrastructure.

Overall, this study confirms that training and development is not merely a supportive HR function, but a fundamental strategic tool for enhancing knowledge management in higher education institutions. The strong empirical evidence provided in this study highlights the need for universities to prioritize training initiatives as part of their long-term knowledge management strategies.

Conclusion and Implications

Conclusion

This study aimed to examine the effect of training and development on knowledge management in Palestinian higher education institutions. The findings demonstrate that training and development plays a significant role in enhancing knowledge management processes among academic staff. The results indicate that investment in employee development contributes to improving knowledge creation, sharing, and application within universities.

The model explains a considerable proportion of variance in knowledge management, highlighting the importance of training as a strategic organizational tool. These findings confirm that training and development is not merely a supportive HR function, but a fundamental driver of knowledge-based capabilities in higher education institutions.

Furthermore, the study provides empirical evidence from a fragile and underexplored context, contributing to a deeper understanding of how HRM practices influence knowledge processes in environments characterized by institutional challenges and resource constraints.

Theoretical Implications

This study contributes to the existing literature in several ways. First, it provides empirical support for the relationship between training and development and knowledge management, reinforcing the role of HRM practices in shaping knowledge-related outcomes. Second, it extends current research by focusing on a specific HRM dimension rather than examining HRM practices as a broad construct, offering a more precise understanding of the mechanisms through which HR practices influence knowledge management.

In addition, the study contributes to the application of social exchange theory in the context of higher education. The findings suggest that organizational investment in employee development encourages reciprocal behaviours that enhance knowledge sharing and

collaboration, supporting theoretical assumptions regarding employee–organization relationships (Iqbal et al., 2023).

Practical Implications

The findings of this study offer important implications for university leaders and policymakers. First, higher education institutions should prioritize training and development programs as a strategic tool for improving knowledge management. Investment in structured training initiatives can enhance employees' competencies and encourage active participation in knowledge-sharing activities.

Second, universities should design training programs that focus not only on technical skills but also on collaborative learning and knowledge exchange. Such programs can strengthen communication among academic staff and improve the flow of knowledge across departments.

Third, in resource-constrained environments such as Palestinian universities, training and development can serve as a cost-effective strategy for preserving institutional knowledge and improving organizational resilience. By enhancing employees' capabilities, universities can reduce knowledge loss and improve long-term performance.

From a practical perspective, recent studies suggest that universities should adopt a strategic approach to training and development by aligning training programs with knowledge management objectives. Organizations that integrate training with knowledge-sharing systems are more likely to achieve sustainable performance outcomes (Ali et al., 2024). Therefore, higher education institutions should design training initiatives that not only enhance technical skills but also promote collaboration, knowledge exchange, and continuous learning.

Limitations

Despite its contributions, this study has several limitations. First, the study adopts a cross-sectional design, which limits the ability to establish causal relationships between variables. Future studies may employ longitudinal designs to better understand the dynamic relationship between training and development and knowledge management.

Second, the study focuses on a single HRM practice, which may not fully capture the complexity of HRM systems. Other HRM practices such as leadership, organizational culture, and reward systems may also influence knowledge management and should be considered in future research.

Third, the data were collected from academic staff within Palestinian higher education institutions, which may limit the generalizability of the findings to other contexts.

Future Research Directions

Future research can build on this study by examining additional HRM practices and their combined effects on knowledge management. Researchers may also explore mediating and moderating variables, such as organizational culture, leadership style, and technological infrastructure, to provide a more comprehensive understanding of knowledge processes.

Furthermore, comparative studies across different countries and institutional contexts would provide valuable insights into how environmental factors influence the relationship between training and development and knowledge management.

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