

Impact of Training Environment and Training Motivation on Training Effectiveness in the Banking Industry of Bangladesh: The Mediating Role of Knowledge Management

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Abstract: *The paper explore the impact of organizational training environment and training motivation on training effectiveness of the Bangladesh banking industry considering knowledge management as the potential mediating variable. The study of the 420 employees of commercial banks was conducted with the assistance of a quantitative research design, SPSS 25 of Partial Least Squares Structural Equation Modeling and SmartPLS 4 were employed to identify the reliability, validity, and the relationships described in the hypothesis. The outcomes of the research indicate that training environment and motivation to training positively affect the training effectiveness, and this conclusion is material, which implies that good training environment and motivated employees are significant factors in the success of learning. There is also an influence of organization training environment and training motivation on knowledge management, but the results have shown no direct influence of knowledge management on training effectiveness, and no intermediate influence between training environment, motivation and training effectiveness. The study confirms that the training performance in the Bangladesh banks is primarily determined by the environmental and motivational factors and not the knowledge management processes. Theoretically, the research upholds the Social Learning Theory and Self-Determination Theory because it emphasizes the significance of the environment and motivation with regard to the outcomes of training. Practically, the findings point out that designing the training, motivating the employees and the design of the knowledge management systems are important so that one can be able to capture and utilize the knowledge to the advantage of the organizational performance over the long run.*

Keywords: Training effectiveness, training motivation, training environment, knowledge management, banking industry, Bangladesh.

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1. Introduction

The world banking sector has experienced radical transformations in the recent past with the pace in technological changes and shifting customer preferences. This change highlights the importance of efficient training conditions and increased training motivation of employees as key factors determining the effectiveness of training and the overall performance of employees in the banking industry (Ibrahim et al., 2020). Having the banking sector as one of the key drivers of economic growth and financial stability in Bangladesh, organizations are under more pressure to develop employee competencies and organizational performance by conducting specific training programs (Sang, 2024). In particular, it is important to comprehend the relationship between training motivation, training climate, and training efficiency to maximize the learning processes and improve the performance of an employee to high standards (Blake, 2025).

The connection between an environment where the training is supportive and employee motivation is well-documented (Ahmed et al., 2020). The conducive environment established by training programs and intrinsic motivation among the employees are more likely to achieve good learning outcomes otherwise known as training effectiveness. Employees are intrinsically motivated, which results in their active position in training activities that improve their overall experience of learning and knowledge retention (Bahluli et al., 2021). Furthermore, with the rising diversity of the workforce and its technological orientation, a specific training environment promoting the specified dimensions becomes the key to achieving a competitive edge in the banking industry (Islam et al., 2024; Johny, 2024). The analysis of the literature on the topic is that the effectiveness of training in organizations is multi-faceted and explored. Indicatively, research has established that the supportive managerial behaviors have a strong impact on the efficiency of on-the-job training, which highlights the importance of management in improving the learning experiences of employees (Ibrahim et al., 2020).

The concept of knowledge management (KM) has also become a very crucial element in training effectiveness. Knowledge management plays the role of facilitating acquisition, sharing, and making use of knowledge and is the mediator between training activities and the performance of an organization (Ravaghi et al., 2020). KM effectively leveraged in banking, where knowledge is one of the main assets, can be used to improve the result of training because employees should not only learn but also use their competencies in practice (Karsikas et al., 2023). However, even though there is a lot of literature on training effectiveness, there has been limited research on the actual case of the banking sector in Bangladesh. This gap creates a chance to explore the intersection of training environments and motivation with the knowledge management that improves the effectiveness of training in this distinct socio-economic setting (Milzer et al., 2023).

The literature can give an idea about the general factors affecting the effectiveness of training; however, there are considerable gaps in the research that will focus on the banking sector in Bangladesh. First, little research is devoted to the interaction between different training settings and employee motivation to determine their impact on the results of training (Fil et al., 2020; Tafvelin and Stenling, 2020). Second, the moderating effect of KM is often ignored in the framework of training in Bangladesh banking, although it can be used to close the gap between the training and practice (Muhani, 2023; Vadla et al., 2022). Lastly, most of the current literature is given out of the western context, which is a matter of concern regarding the generalizability of such findings to the cultural and operational realities of Bangladeshi banks (Alan et al., 2023; Ahmed et al., 2020). Thus, it is justified to conduct a specific research that aims at studying these dynamics in the framework of Bangladeshi banking sector.

The overall aim of the study is to investigate the effect of training environment and training motivation on training performance, but the mediating role played by the knowledge management

among employees at the Bangladeshi banks. The study will cover the following specific objectives in order to do so:

1. To explore the effect of training climate on employee motivation and further training performance.
2. To determine how intrinsic and extrinsic training motivation affects training interventions effectiveness.
3. To examine a mediating position of knowledge management in the association between training environments and training effectiveness.
4. To make practical suggestions to the banking institutions in Bangladesh to improve the training results by means of better training environments and knowledge management practices.

This study tries to make a contribution in both theoretical and practical fields. It is an academic piece that seeks to address the gap in the literature by offering empirical results regarding the relationships between training environment, motivation, and knowledge management in the banking industry in Bangladesh (Aly et al., 2023). In practice, it seeks to provide practical recommendations that banking organizations can use to improve the effectiveness of training employees by exploiting the understanding of motivational models and knowledge management (Elekeh et al., 2022). Also, the results can be of importance to policymakers and educational institutions as they demonstrate the necessity to match the training programs to the modern requirements of the labor force and technological progress (Sang, 2024).

The remaining part of this paper is structured in the following fashion: Section 2 is dedicated to the Literature Review and Hypothesis Development. The third section is the Research Methodology. Section 4 provides the Results and Analysis. Section 5 is the Discussion. Finally, the paper will be summarized in Section 6, the limitations will be determined, and the new research direction recommendations will be given.

2. Literature Review

Theoretical Foundation

The theoretical basis of this research is supported by a number of the established theories which explain the impact of the training environment, employee motivation and knowledge management on training effectiveness in the organization.

To begin with, the importance of the organization training environment (OTE) can be explained based on the Social Learning Theory (Bandura, 1986). This theory also focuses on the fact that learning is based on observation, modeling as well as on imitation in a social environment. Within the banking sector, without the encouragement of the supporting training environment, whereby managerial support, systematic programs and interactive learning opportunity exist, the observational learning and acquisition of skills can take place, and thus, increase training effectiveness (TE). Employees are able to internalize knowledge and replicate best practices through the presence of a conducive training environment and this supports the idea that environmental factors are essential in successful learning outcome.

Second, the Self-Determination Theory (SDT) (Deci and Ryan, 2000) is the concept that supports the influence of training motivation (TM) on TE. SDT assumes that the more intrinsic and extrinsic needs are met in autonomy, competence, and relatedness, the more people are likely to participate in learning and be continued with it. Motivated employees are more attentive, proactive and determined to apply the skills learned and this increases training effectiveness. Incidentals, appreciation and career growth opportunities can be used to encourage motivation in the banking scenario, further enhancing the connection between TM and TE.

2.1 Training Environment and Training Effectiveness

Surveys of the Bangladeshi banking industry have repeatedly emphasized the need to have a good training environment in influencing employee performance. As an example, Hasan and Chowdhury (2023) have found that by implementing private banks with structured and engaging training programs, they established value-added experience to employees, which allowed them to grow professionally and be committed to the organization.

The quality and approach through which training is delivered is as well a decisive factor in ascertaining its effectiveness. Aktar (2023) stressed that this combination of training approaches and work assignments increases employee satisfaction and performance which explains the need to make training design relevant and practical. Because technology keeps transforming the banking field, Arshad et al. (2023) emphasized the importance of electronic human resource management (e-HRM) systems in providing flexible and interactive training modules at a personalized level.

The concept of continuous professional development by means of organized training channels is also becoming a key to organizational excellence. The authors of Islam et al. (2023) have noted that employee willingness to undergo change has a huge impact on the financial performance of a bank, noting that dynamic training programs contribute to the development of adaptability and resilience. Rahman and Akhter (2021) also showed that training human capital has quantifiable effects on the performance of a bank, supporting the idea of training as a strategic competitiveness and innovation tool. Moreover, training perception also has a strong impact on the motivation and satisfaction of employees. On the one hand, as Tazin and Binte (2022) have claimed, structured training programs have a positive effect on performance and commitment, and, on the other hand, Mohona et al. (2021) have discovered that the communication of training outcomes and its effectiveness increases organizational loyalty and value of the program.

The strategic value of training is not limited to the enhancement of the performance of an individual, but also to the development and sustainability of the organization. Dima (2022) stressed that training contributes to the creation of new knowledge and problem-solving skills which are necessary to solve the problems specific to the industry, whereas Begum et al. (2023) found the effective training to be one of the main determinants of job satisfaction among employees in the Bangladeshi banks. A positive direct relationship between staff training and the stability of the bank was also determined by Testa et al. (2023), and it is important to note that financial institutions inherently rely on human resources to remain stable. Mehreen and Ali (2022) also explained that employee development and organization commitment are interrelated to promote high performance results. In line with this perception, Khan et al. (2022) affirmed that a strategic investment in training is positively linked to an improved employee productivity and operation performance.

H1: Training environment positively affects training effectiveness.

2.2 Training Motivation and Training Effectiveness

It is important to know the contribution of training motivation to the growth of training effectiveness especially in the banking industry of Bangladesh where the skills of employees, innovativeness, and quality of service offered to clients are critical determinants of organizational success. Training motivation can be defined as those internal and external stimuli that motivate employees to take training programs seriously. Raharjo (2023) discovered that motivation, job satisfaction, and performance of Bangladeshi banks are improved when properly designed training is conducted. In the same manner, Yusuf et al. (2021) showed that motivated employees have higher chances of implementing new skills acquired, enhancing the quality and productivity of the service. Training motivation can be classified into intrinsic and extrinsic forms, in which intrinsic motivation comes about as a result of personal growth and satisfaction of learning as well as extrinsic motivation that comes about as a result of tangible rewards such as promotions or recognition. Al-Kharabsheh et al. (2023) demonstrated that the process of digital training and job performance is mediated by motivation, and both types of motivation should be promoted.

The training motivation is determined by several organizational factors. This is because a supportive work environment and commitment of the leaders makes employees willing to participate in learning. Jaya and Nasution (2024) observed that motivation is dramatically intensified in case of professional support systems and that Setiabudi et al. (2021) discovered that high learning-oriented culture encourages continuous improvement. Training motivation is also influenced by emotional intelligence: the higher the emotional intelligence of the employees, the more they are engaged and flexible, and the better they perform (D'Amato et al., 2024). Also, the training programs designed in accordance with the goals and needs of the employees are more effective. Testa et al. (2023) related structured training to the stability of the bank, and Khan et al. (2023) emphasized the need to design programs to fit the job circumstances. Bendable studying approaches, such as blended or e-learning approaches, additionally contribute to the interaction and provide freedom and convenience (Prianto & Handayani, 2024).

Motivation plays a major role in the extent to which employees can apply the acquired skills in their work places. Lestari et al. (2020) and Hasan and Chowdhury (2023) confirm by research that motivated workers have a better performance change when the training programs are pertinent to them and are appreciated. The system of recognition and rewards is another important contributor to the maintenance of motivation since recognition of effort supports participation in learning (Akinsola et al., 2023). Nevertheless, there are various obstacles to effective training motivation in the banking industry of Bangladesh such as bureaucratic attitudes towards training, insufficient resources, and obsolete curricula (Rahmawati et al., 2021). Training initiatives are further limited by external pressures, including economic instability, regulatory complexities, and the like (Afif et al., 2022).

H2: Training motivation positively affects training effectiveness.

2.3 Training Environment and Knowledge Management

It is well-known that training is an essential aspect to improve employee performance, satisfaction and retention in the banking market. Many research findings demonstrate that proper training programs can dramatically enhance the productivity and lower turnover intentions of employees (Hasan and Chowdhury, 2023; Begum et al., 2023; Aktar, 2023). Hasan and Chowdhury (2023) proved that skill-based training programs lead to positive working experiences and increased employee engagement, whereas Aktar (2023) showed that the new training approaches directly lead to the increase in the levels of satisfaction and performance in the employees of commercial banks. Islam et al. (2023) observed that training environments with high-involvement work practices allow developing employee loyalty and engagement, which is why participatory and interactive learning systems must be implemented in banks.

Knowledge management (KM) is the complementary element that enhances the success of the training programs. Gupta et al. (2024) emphasized that human capital and practices of sharing knowledge are the major contributors to employee performance and satisfaction in their work. In the same manner, Rubel et al. (2021) stated that organizational learning and innovation in banks is promoted by a high culture of knowledge-sharing. As Arshad et al. (2023) discovered, e-training platforms will be able to offer tailor-made learning, which increases employee productivity and flexibility in a fast-changing financial environment.

Nevertheless, there are a number of issues that the banking sector in Bangladesh experiences in adopting effective training and KM practices. Akther and Rahman (2021) noted that most training programs are based on the old materials, which do not correspond to the new digital competencies. A further issue is that bureaucracies in banks impede the innovation and reduce flexibility in the implementation of training (Mia et al., 2024). Uddin et al. (2023) also noted that to ensure the greatest impact of the training programs, it is important to align them with the organizational goals and the career aspirations of the employees who will be able to develop positive service behaviors.

Akther (2020) found that authentic leadership enhances training effectiveness by fostering trust, empowerment, and engagement among employees. Technological and environmental changes have also influenced training content and approaches.

H3: Training environment positively affects knowledge management.

2.4 Training Motivation and Knowledge Management

Motivation to train is an important factor that defines the effectiveness of employee development initiative within the banking industry because the transfer and practical implementation of new skills directly depends on it. Motivated workforce leads to a better performance, both at individual and organizational level as a result of improved training programs. Andoh et al. (2023) discovered that employees who are more motivated to transfer learning have a higher level of proficiency in applying new skills, and thus banks need to develop intrinsic and extrinsic motivation by creating conducive working environments. Equally, Raharjo (2023) emphasized that the quality of leadership and job satisfaction have a profound influence on the readiness of employees to training, which indicates that the quality of managerial practices and recognition systems can increase the use of training and the final performance results.

The complement to training motivation is knowledge management (KM) that makes possible the retention, sharing, and application of knowledge by the employee. As Ibrahim et al. (2020) have discovered, the managerial assistance in organized KM platforms improves the abilities and objective orientation of employees. Arshad et al. (2023) showed in the framework of Bangladesh that employees working under continuous knowledge improvement programs can perform better, which means that training programs need to introduce the components of KM to facilitate innovation and flexibility. Organizational culture is also significant in determining the training motivation. As noted by Negi and Dangwal (2021), the culture of innovation, teamwork, and its appreciation motivates the employees to engage in training and knowledge-sharing processes.

The combination of engagement in training and KM will result in long term employee engagement and organizational excellence. Rahman et al. (2020) also discovered that motivated employees have better retention and utilization of knowledge leading to better job performance. Similarly, Khadka et al. (2024) also highlighted the importance of correct alignment of training goals with the KM strategies in order to develop a learning organization that is able to innovate and remain competitive. Furthermore, Dedzo et al. (2020) underscored that strong governance and managerial commitment are vital for sustaining training motivation and KM practices.

H4: Training motivation positively affects knowledge management.

2.5 Knowledge Management and Training Effectiveness

The concept of Knowledge Management (KM) has become a crucial factor of operational excellence and strategic sustainability in the banking sector. Amaliawiati and Aam (2022) note that KM is the key in organizational missions, especially in Islamic banking, where it promotes innovation, customer satisfaction, and stakeholder engagement. The efficient use of knowledge also helps banks to use internal expertise, improve product development, and other factors of operational efficiency that are critical in remaining competitive in a dynamic financial environment (Alomari et al., 2020). There is empirical evidence that strong KM practices can contribute to better performance and competitive advantage of the organization, particularly during technological and market disruptions (Zuhairi and Ussein, 2023). Systematic use of knowledge enables banks to be innovative, make cost savings, and provide better customer experiences (Hidayat et al., 2023; Soud et al., 2023).

Sari and Sukarno (2023) and Imran et al. (2021) affirm that training performance and KM are complementary when it comes to enhancing the performance of employees in financial institutions. Nonetheless, managerial support, organizational culture, and alignment of training goals with organizational objectives are key factors that define the success of training (Yu, 2024). However, the adoption of KM and training performance is complicated in the banking industry of Bangladesh by lack of resources, lack of managerial desire, and old IT systems (Hidayat et al., 2023; Abdullah et al., 2021). The existing cultural barriers and insufficient motivation among employees to share knowledge are an additional hindrance factor (Alam et al., 2020; Papua et al., 2024).

In order to eliminate these constraints, banks ought to incorporate digital solutions like the Artificial Intelligence and data analytics to enhance knowledge-sharing ecosystems (Shaikh and Bhutto, 2021; Vedapradha et al., 2024). Further studies should be aimed at creating unified knowledge management models that resonate training results with strategic goals and involve the feedback system to assess the level of knowledge utilization after training (Mishra et al., 2021; Worku and Amentie, 2024).

H5: Knowledge management positively affects training effectiveness.

2.6 Knowledge Management Mediates the Relationship between Training Environment and Training Effectiveness

Knowledge Management (KM) is a key factor in the improvement of the organizational performance, especially in such dynamically developing industries as banking. It is a methodical action of recognizing, recording, sharing, and applying knowledge to enhance decision making and sustain a competitive position (Akther and Rahman, 2021). The banking sector is no exception, and introducing KM principles into the setting of the training process improves the capacity of employees to retain and use the newly gained skills, which in turn increases the effectiveness of the training process (Chapagain et al., 2022; Appiah and Aheto, 2021).

The training environment includes organizational culture, support by the management, collaboration among peers, and the availability of learning resources which make it possible to deliver the training (Choi et al., 2024; Unar, 2023). It has been shown that positive climate promotes cooperation and motivation, which enhance the performance of employees and their ability to retain knowledge (Chapagain et al., 2022). Appiah and Aheto (2021) highlight that a good training climate should be able to incorporate managerial participation and the possibility of constant learning to maintain the interest.

According to studies, KM provides a solution to the discrepancy between the knowledge acquisition and its application, making information circulate, collaborate, and reinforced during the process of learning (Arabi and Garza, 2022; Danirmala, 2022). When training programs incorporate the principles of KM, workers are more engaged and have better performance results. Nafukho et al. (2022) also state that KM implementation in the training design promotes motivation and knowledge transfer since workers find more relevance in their learning process.

The integration of KM into training systems in the banking sector has barriers that include lack of managerial support, resources, as well as lack of systematic feedback systems (Unar, 2023; Grech and Grech, 2021).

KM has been shown to mediate between building trust and collaboration and the ongoing learning in organizations empirically (Choi et al., 2024; Sonnenfeld et al., 2023). According to the study conducted the effectiveness of training is catalyzed by KM as institutions that focus on KM attain a higher rate of employee performance and engagement (Arabi and Garza, 2022; Huda et al., 2021). According to Hidayat and Aziz (2022), the introduction of knowledge-sharing cultures and adaptive training practices is a key to implementing sustainable organizational growth and innovation.

H6: Knowledge management mediates the relationship between training environment and training effectiveness.

2.7 Knowledge Management Mediates the Relationship between Training Motivation and Training Effectiveness

Knowledge management (KM) describes the organizations operating with systematic approaches and strategies to identify, create, share, and use knowledge in an efficient manner (Imran et al., 2021). KM is also important in knowledge-based industries like banking to bring about innovation, constant learning and operational excellence. KM can be effectively used to improve decision-making, foster co-operation and facilitate customer satisfaction through collective expertise (Alibegović and Mešanović, 2022).

Training motivation is the internal and external forces that determine the willingness of the employees to engage and enjoy training programs. A study shows that employees who are motivated show higher engagement, use of skills and overall performance (Andriany et al., 2022). According to Tan et al. (2022), the inclusion of motivational theories in the design of training improves the level of participation and retention of learning.

KM systems that facilitate open communication, collective learning, and performance feedback have the potential to increase the motivation of the employees to participate in training (Hosseinifard et al., 2020; Tenório et al., 2020).

The mediation of KM between training motivation and effectiveness is proved in empirical research. Arguello and Gonzales-Prida (2024) also discovered that knowledge sharing leads to higher levels of training transfer and job performance in motivated employees. On the same note, Rismita and Bunyamin (2022) demonstrate that KM improves the use of training because it builds a positive learning environment. In the case of Bangladeshi banks, KM integration with motivational approaches can enhance the training results and employee participation to a considerable extent (Goi et al., 2024). The next steps of the research should be aimed at determining the most efficient KM practices to maintain the long-term success of training based on the empirical and qualitative analysis (Stashkevych, 2023; Chernova and Chernova, 2020).

H7: Knowledge management mediates the relationship between training motivation and training effectiveness.

2.8 Research Gap

The evidence of effectiveness of training in the banking sector of Bangladesh indicates the important roles played by the training environment and training motivation, but it lacks a major research gap in terms of the mediating impact of knowledge management (KM) in the latter. Although there is research like that of Akther and Rahman (2021) that emphasize that an appealing training environment leads to greater performance of employees, they fail to discuss how KM can help in putting to practice the skills learnt in the training. Moreover, it is admitted that training motivation is a key to the maximum effectiveness of training programs, which is illustrated (Zainol et al., 2022). However, the opportunities of KM in improving this relationship are scarcely researched regarding the banking sphere. The post-training environment, as it is suggested by Appiah and Aheto (2021), plays a crucial role in determining the application of the newly learned skills, which means that there is a necessity to conduct research that will explore how KM practices may be used to facilitate and enhance their usage by creating the environment that will help to share and retain the knowledge. Thus, there is an urgent necessity of the conduction of empirical studies that would incorporate these dimensions to offer insights on how an integrated strategy that involves the utilization of KM can enhance the result of training in the banking sector of Bangladesh.

2.9 Conceptual Framework

The conceptual framework depicts the impact of training environment and training motivation on training effectiveness and in the example of the banking industry of Bangladesh, knowledge management (KM) was used as a mediating variable. An encouraging training climate and engaged staff improve learning performance, and KM enables to capture, disseminate, and utilize learned knowledge, which reinforces the connection between training and performance. Therefore, good KM practices will turn personal learning into corporate competency, which guarantees a long-term performance increase. The model assumes that training environment, motivation, and training effectiveness are connected via KM, which facilitates a culture of novel learning and knowledge dissemination in financial institutions.

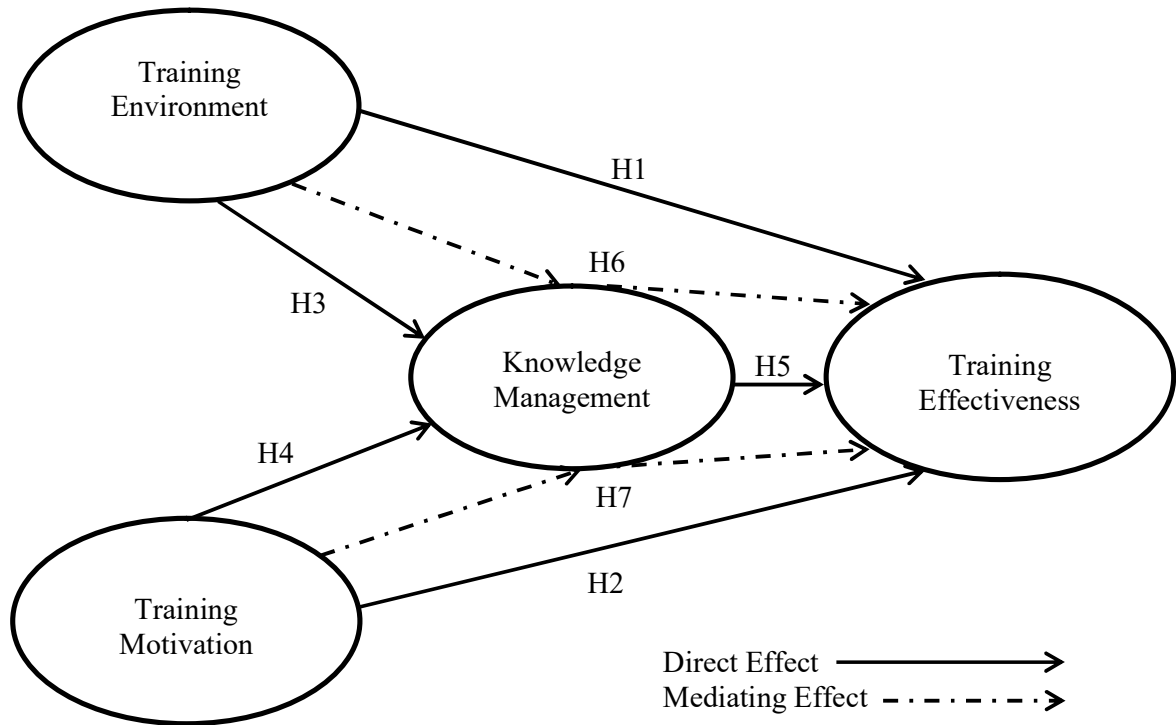


Figure 1: Conceptual Framework

3. Research Methodology

3.1 Research Design

This paper will follow the quantitative research approach with descriptive and explanatory approach to investigate the effects of training environment and training motivation on training effectiveness with knowledge management (KM) as a mediating variable in Bangladesh banking industry. The design was selected due to its ability of testing hypotheses as well as defining causal relationships between variables (Creswell and Creswell, 2018). The explanatory dimension contributes to the comprehension of how KM moderates the relationship between training variables and effectiveness, which is consistent with the related HRM literature in the South Asian contexts (Islam et al., 2023; Arshad et al., 2023).

3.2 Research Population

The sample of this research is employees of the commercial banks(both state and non-state) in Bangladesh. This group will consist of officers, middle managers, and HR/training professionals that have attended a formal training program in the last two years. The choice of the banking sector

is explained by the fact that it is a knowledge-intensive sector, in which training employees, development of skills, and the management of knowledge are highly important factors to ensure the quality of the services offered and remain competitive (Rahman & Akhter, 2021; Hasan & Chowdhury, 2023).

3.3 Sampling Technique

The stratified random sampling method is adopted to achieve representative sample participation of the different categories of the banks, such as state-owned commercial banks, commercial banks that are privately owned and foreign commercial banks. Such stratification provides a proportional sample of the various types of banks and hierarchical levels and minimizes sampling bias (Sekaran & Bougie, 2020).

3.4 Sample Size

The sample is calculated with the help of the table of calculating the sample size made by Krejcie and Morgan (1970). Since the number of employees in all the commercial banks in Bangladesh is large, the sample size which must be used is 385 respondents to give a 95% confidence level. Nevertheless, to analyze non-responses or incompleteness of the data 450 questionnaires were distributed with an expectancy of a valid response of 420.

3.5 Data Collection

A structured questionnaire is the tool of data collection used in the study. The questionnaire will consist of five parts namely: demographic data, training environment, training motivation, knowledge management, and training effectiveness. The collection of data will be done face-to-face by passing the questionnaires to sampled banks to ensure sufficient respondents. A pilot test will be done on 30 respondents before the main survey to determine the validity in terms of clarity, reliability and internal consistency at a level of 0.70 and above (Cronbachs 0.70) (Nunnally & Bernstein, 1994).

3.6 Measures

All constructs will be measured using previously validated scales from established literature, modified slightly to fit the Bangladeshi banking context.

- **Training Environment (TE):** A 5-item scale created by Kuvaas and Dysvik (2009) and modified by Rahman et al. (2020) and is based on the aspects of resource adequacy, trainer quality, and learning support.
- **Training Motivation (TM):** Assessed on a 6-item scale created by Noe and Schmitt (1986) to determine the willingness of the employees, focus, and interest in the training sessions.
- **Knowledge Management (KM):** Evaluated using 7-item scale by Gold, Malhotra, and Segars (2001) and includes knowledge acquisition, sharing and application practices.
- **Training Effectiveness (TEF):** Operationalized by Velada et al. (2007) and measured by a scale of 6 items in terms of learning outcomes, behavior change, or job performance improvement, which is a part of the training evaluation model by Kirkpatrick (1998).

3.7 Data Analysis

The proposed mediation model is verified using SPSS 25 and SmartPLS 4 programs of data analysis and determining the relations among various variables with descriptive statistics, correlation analysis, and Structural Equation Modeling (SEM) (Hair et al., 2019).

4. Data Analysis and Result

4.1 Demographic Profile of the Respondents

The demographic information indicates that 70.7 percent of the respondents are men whereas 29.3 percent are women implying that the banking industry population is relatively male dominated. Regarding marital status, majority of the respondents (86.7 percent) are married, 13.1 percent are single and only 0.7 percent are separated. In regards to age composition, most of the respondents are in the mid-level professional age population (52.2 percent), showing that the largest number of the sample population is married. On the part of education, 90.2 percent of all the respondents have post-graduate degrees showing the choice of the industry to hire highly educated employees. On the aspect of job responsibility, 86.2 percent are general employees with 6.4 percent and 7.4 percent holding the position of branch manager and operations manager respectively. In this composition, there is a balanced quantity of employees at various degrees of responsibility in the banking industry.

Table 01: Demographic Profile of the Respondents

Description	Frequency	Percentage
Gender		
Male	297	70.7
Female	123	29.3
Marital Status		
Single	55	13.1
Married	362	86.7
Separated	3	0.7
Age		
Below 30	36	8.6
30-34	92	21.9
35-39	110	26.2
40-44	109	26.0
45-49	50	11.9
50 and above 50	23	5.5
Education		
HSC	3	0.7
Graduation	38	9.0
Post-Graduation	379	90.2
Responsibility		
Branch Manager	27	6.4
Operations Manager	31	7.4
General Employee	362	86.2

Source: Field Survey

4.2 Assessment of Measurement Model

Table 02: Analysis of Indicators' and Constructs' Reliability and Convergent Validity

Constructs	Items	Loading	Cronbach's Alpha	rho_A	CR	AVE
Organization Training Environment (OTE)	OTE10	0.851	0.943	0.944	0.951	0.660
	OTE11	0.805				
	OTE12	0.772				
	OTE2	0.776				
	OTE3	0.819				
	OTE4	0.762				

	OTE5	0.83				
	OTE6	0.804				
	OTE8	0.834				
	OTE9	0.866				
Training Motivation (TM)	TM3	0.737	0.887	0.889	0.914	0.640
	TM4	0.794				
	TM5	0.818				
	TM6	0.84				
	TM7	0.798				
	TM8	0.808				
Knowledge Management (KM)	KM2	0.878	0.910	0.919	0.936	0.786
	KM3	0.908				
	KM4	0.902				
	KM5	0.859				
Training Effectiveness (TE)	TE2	0.781	0.900	0.905	0.921	0.626
	TE3	0.841				
	TE4	0.815				
	TE5	0.746				
	TE6	0.761				
	TE7	0.802				
	TE8	0.789				

Source: Field Survey

4.2.1 Indicators Reliability

In this research we determined the reliability of the indicators that are included in each measurement scale to guarantee the stability of measurement of various items that make up a construct and this is consistent (Cronbach, 1951).

As the Table 02 of the analysis of indicator reliability shows, all constructs OTE, TM, KM, and TE have high internal consistency and convergent validity. There is an indication that all the indicator loadings are above the suggested threshold of 0.70 which validates the fact that each of these items is a reliable measure of the corresponding construct (Hair et al., 2019). The alpha values of Cronbach (0.887-0.943) and rho A values (0.889-0.944) provide high internal reliability (Nunnally & Bernstein, 1994; Dijkstra & Henseler, 2015). In the same vein, composite reliability (CR) coefficients with all values above 0.90 also confirm the accuracy and consistency of measurement. These findings confirm that the constructs are reliable and valid to further structural model analysis of the Bangladeshi banking industry, in evaluating the effects of training environment and training motivation on training effectiveness via knowledge management.

4.2.2 Constructs' Reliability

I have evaluated the dependability of the latent constructs as the scales of measurement in the current study because they were required to ensure that the measurement scale is internally consistent and consistent across different indicators (Hair et al., 2019). Alpha coefficient of Cronbach is typically employed in the testing of the internal consistency of the items of a construct (Cronbach, 1951). Indeed, an alpha (Cronbach) of over 0.70 is typically one whose construct reliability is good (Nunnally, 1978; Hair et al., 2010).

Table 03: Analysis of Constructs' Reliability

Constructs	Cronbach's Alpha	Composite Reliability
Organization Training Environment (OTE)	0.943	0.951
Training Motivation (TM)	0.887	0.914
Knowledge Management (KM)	0.910	0.936
Training Effectiveness (TE)	0.900	0.921

Source: Field Survey

When studying the constructs, reliability illustrates that all the constructs, OTE, TM, KM and TE demonstrate high levels of internal consistency and reliability. The results show that the values of Cronbach alpha are 0.887 to 0.943 and composite reliability (CR) are 0.914 to 0.951, which is also greater than the recommended value of 0.70 (Nunnally & Bernstein, 1994). These findings are supportive of the fact that the items that each constructs tests are strongly correlated and they are constantly testing the same underlying dimension. The high reliability scores also indicate that the constructs are effective to evaluate the concepts of training environment, motivation, knowledge management, and training effectiveness hence to give high measurement accuracy in the study of their relationship in the Bangladeshi banking industry.

4.2.3 Convergent Validity

Convergent validity also evaluates the level to which various scales of measurement that are intended to quantify the same construct yield similar and consistent scores (Hair et al., 2019). The items that relate to self-esteem should in this case show some significant correlations with each other. A correlation coefficient greater than 0.70 has been considered as a well-regarded benchmark (Nunnally, 1978).

Table 04: Analysis of Convergent Validity

Constructs	Cronbach's Alpha	CR (rho a)	CR (rho C)	Average variance extracted (AVE)
Organization Training Environment (OTE)	0.943	0.943	0.943	0.943
Training Motivation (TM)	0.944	0.944	0.944	0.944
Knowledge Management (KM)	0.951	0.951	0.951	0.951
Training Effectiveness (TE)	0.660	0.660	0.660	0.660

Source: Field Survey

In the convergent validity analysis, it is shown that all constructs OTE, and TE have the satisfactory rates of construct validity and internal consistency. According to the result, the Cronbach alpha, the rho A, and composite reliability (CR) of OTE (0.943), TM (0.944), and KM (0.951) exceed the value of 0.70, which ought to be considered as the recommended values of internal reliability and consistency of the measurement items (Hair et al., 2019; Nunnally and Bernstein, 1994). In addition, the values of the Average Variance Extracted (AVE) of this constructs are above the level of 0.50 acceptance that more than 50 percent of the variance of the indicators has been explained by the latent constructs (Fornell and Larcker, 1981). Overall, these findings are a confirmation that all measurement items are strong predictors of their constructs and therefore the validity of the measurement model in establishing the effects of training environment and training motivation on training effectiveness through knowledge management in the Bangladeshi banking industry.

4.2.4 Discriminant Validity

Discriminant validity evaluates the level at which various measurement scales that measure different constructs are not too closely correlated with one another (Hair et al., 2019). In particular, I tested the relationships between these constructs in terms of whether they were lower than the square root of their average variance extracted (Fornell & Larcker, 1981).

Table 05: Discrimination Validity (HTMT)

Constructs	EB	EI	EJS	JS
Knowledge Management (KM)				
Organization Training Environment (OTE)	0.084			
Training Effectiveness (TE)	0.088	0.848		
Training Motivation (TM)	0.184	0.858	0.815	

Source: Field Survey

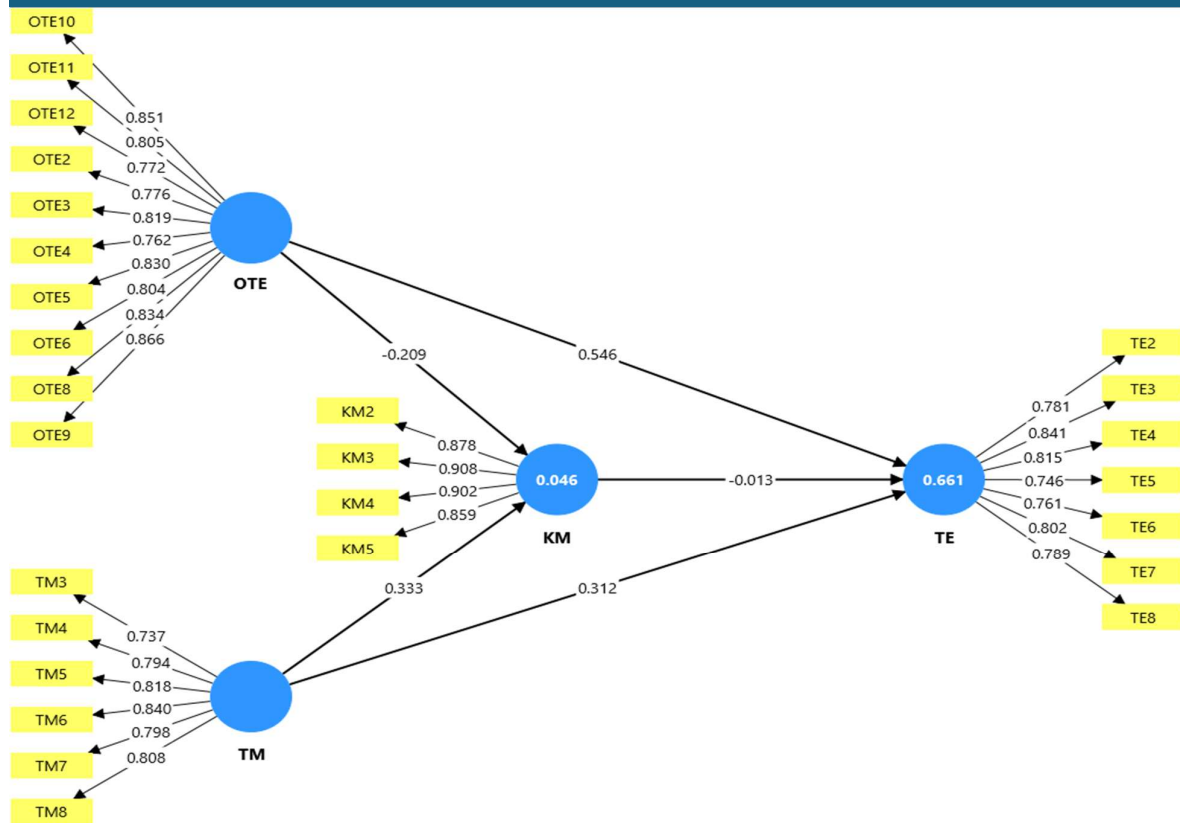
The result of assessing the discriminant validity of the study through the Heterotrait-Monotrait Ratio (HTMT) criterion demonstrates that all constructs of the study OTE, TM, KM and TE are empirically differentiated between each other. As presented in the outcomes, all the values of HTMT lie between 0.084 and 0.858, which are considerably lower than the conservative 0.85 (Henseler et al., 2015) and the more lenient 0.90. This shows that every construct is a measure of a different dimension of concept hence reducing the chances of multicollinearity or concept overlap of the variables. These findings confirm that the constructs have adequate discriminant validity which means that the Organization Training Environment, Training Motivation, Knowledge Management and Training Effectiveness are statistically and theoretically different in terms of measuring their interrelations in the Bangladeshi banking industry.

Table 06: Discrimination Validity (Fornell&Larcker Criterion)

Constructs	KM	OTE	TE	TM
Knowledge Management (KM)	0.887			
Organization Training Environment (OTE)	0.053	0.813		
Training Effectiveness (TE)	0.069	0.79	0.791	
Training Motivation (TM)	0.17	0.783	0.738	0.8

Source: Field Survey

The discriminant validity test of Fornell and Larcker (1981) criterion portrays that all constructs OTE, TM, KM and TE are satisfactorily discriminant. According to this criterion, the square root of the Average Variance Extracted (AVE) of each of the constructs (represented in the diagonal) should exceed its correlations with the other constructs (off-diagonal values). The results suggest that diagonal values of KM (0.887), OTE (0.813), TE (0.791), and TM (0.800) are found to be larger than the inter-construct correlations, and it justifies that the constructs possess a greater variance with its indicators than its counterparts in the model (Fornell and Larcker, 1981; Hair et al., 2019). This result shows that the measurement model is successful to distinguish among the constructs, and Knowledge Management, Training Motivation, Training Effectiveness, and Organization Training Environment have a conceptual and empirical distinction in the framework of exploring the interrelations among these variables in the Bangladeshi banking industry.



4.2.5 Model Fit

Structural equation modeling (SEM) is a type of evaluation that entails a model fit that is invaluable to determine the fit between the proposed theoretical model and the data at hand (Hair et al., 2019). The coefficient of less than 0.08 represents a good fit (Hu and Bentler, 1999).

Table 07: Model Fit

	Saturated Model	Estimated Model
SRMR	0.055	0.055
d_ULS	1.157	1.157
d_G	0.662	0.662
Chi-square	1494.034	1494.034
NFI	0.833	0.833

Source: Field Survey

Based on the model fit analysis, analysis shows that the measurement model has an acceptable overall goodness-of-fit. Standardized Root Mean Square Residual (SRMR) of both the saturated and estimated model is 0.055 below the recommended value of 0.08 indicating that the model fits well and there are low residual differences between the observed and predicted correlation (Hu and Bentler, 1999; Hair et al., 2019). The d ULS (1.157) and d G (0.662) values also indicate the consistency of the empirical and the model-implied covariance matrices. Also, the Chi-square value (1494.034) and Normed Fit Index (NFI = 0.833) indicate an appropriate model fit, since NFI values over 0.80 are normally taken as satisfactory in the PLS-SEM paradigm. All told, these indices indicate that the suggested model investigating the influence of training environment and training motivation on training effectiveness and mediated by knowledge management are appropriate to the data in the case of the Bangladeshi banking industry.

4.3 Assessment of Structural Model

4.3.1 Coefficient of Determination (R^2)

R^2 is the coefficient of determination is an extremely significant statistic, and it measures the completeness of a regression model (Hair et al., 2019). This is in the current research where I employed the R^2 to quantify the proportion of the variance of the dependent variable that my independent variables in our regression model explained. The R^2 values are between 0 and 1 which is a ratio of the percentage of dependence variable that can be explained by the independent variables.

Table 08: Result of R^2 (Prediction Power)

Constructs	R-square	R-square adjusted
Knowledge Management (KM)	0.046	0.041
Training Effectiveness (TE)	0.661	0.658

Source: Field Survey

The analysis of the R^2 shows that the structural model has a satisfactory predictive ability of the endogenous constructs KM and TE. KM has a R^2 of 0.046 (adjusted $R^2 = 0.041$), indicating that it is explained by its predictor variables by a weak but significant factor, which is probably due to contextual or indirect factors in the model. Conversely, the R^2 value of TE is significantly greater (0.661) (adjusted $R^2 = 0.658$) meaning that OTE, TM and KM explain 66.1 percent of the variance in Training Effectiveness. As stated by Hair et al. (2019), R^2 values of 0.75, 0.50 and 0.25 can be reported as substantial, moderate and weak, respectively; hence, the R^2 of TE can be characterized as strong in terms of explaining the results of training in the Bangladeshi banking sector. Altogether, these findings validate that although the predictive power of KM remains relatively low, the model on the whole has a strong predictive power when it comes to explaining the Research Results Training Effectiveness.

4.3.2 Effect Size (F^2)

F^2 is a value that is utilized to point out the percentage of the variation in the dependent variable that can be attributed to the independent variables in the model. F^2 is one of the measures of effect size that is typically applied to determine the percentage of the variance in the dependent variable that is explained by the independent variable (Cohen, 1988).

Table 09: Result of F^2

Constructs	KM	OTE	TE	TM
Knowledge Management (KM)			0.000	
Organization Training Environment (OTE)	0.018		0.333	
Training Effectiveness (TE)				
Training Motivation (TM)	0.045		0.106	

Source: Field Survey

The results of F^2 show how much the endogenous constructs are affected by the exogenous constructs. Cohen (1988) mentions that the 0.02, 0.15, and 0.35 are small, medium, and large effects corresponding to an F^2 value. The results show that the OTE influences the knowledge management (KM) insignificantly ($F^2 = 0.018$) but the TE significantly ($F^2 = 0.333$). The implications of these results are that although both OTE and TM play a significant role in TE, their

impact on KM is comparatively less powerful, suggesting that there are other factors that can also impact on the process of knowledge management in the banking environment.

4.3.3 Assessment of Path Coefficient

The measurement of path coefficients in a structural equation model (SEM) serves a crucial role and purpose in determining the correlations between latent variables and observed variables. In my paper, I have strictly evaluated the path relationships to ascertain the significance and strength of such relationships (Hair et al., 2019). The p-value of a path coefficient is used to determine whether it is significant or not. When the value of p is less than 0.05 (usually), it indicates that the relationship observed did not occur because of chance. This criterion is often adopted by the researchers to determine whether or not a path coefficient is a significant level of relationship (Kline, 2016; Hair et al., 2010).

Table 10: Outcome of Structure Model

Hypothesis	Path	β	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Decision
H1	OTE -> TE	0.546	0.06	9.032	0.000	Supported
H2	TM -> TE	0.312	0.06	5.207	0.000	Supported
H3	OTE -> KM	-0.209	0.078	2.676	0.007	Supported
H4	TM -> KM	0.333	0.073	4.578	0.000	Supported
H5	KM -> TE	-0.013	0.025	0.520	0.603	Not Supported

Source: Field Survey

As the results of the structural model show, the four of five hypothesized relationships are supported. Organizational training environment (OTE) has a strongly positive impact on training effectiveness (TE) ($\beta = 0.546$, $p = 0.001$), which proved the fact that a favorable training environment positively affects the effectiveness of the training programs in general. On the same note, training motivation (TM) is significantly positively associated with TE ($\beta=0.312$, $p < 0.001$), indicating that the employees who are motivated have better chances of recording better training results. In addition, OTE has adverse, but significant impact on the knowledge management (KM) ($\beta= -0.209$, $p = 0.007$), and TM has positive, but significant effect on the knowledge management (KM) ($\beta = 0.333$, $p < 0.001$). The correlation between KM and TE is however established to be insignificant ($\beta=0.013$, $p = 0.603$) implying that in this model, KM is neither a mediator nor a direct enhancement of training effectiveness. Altogether, the findings indicate that both OTE and TM are important factors to enhance the effectiveness of training, but the contribution of KM seems to be little.

4.3.4 Mediating Effect

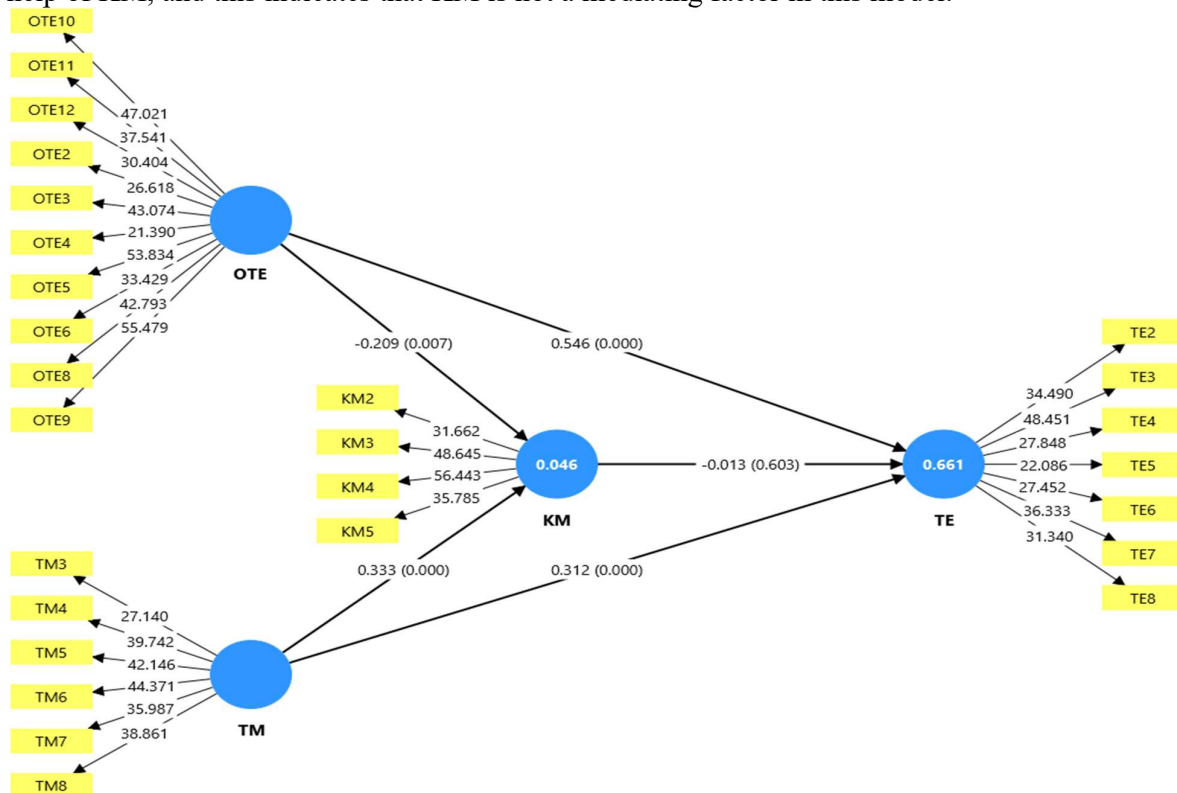
The mediating effect is an important concept used in explaining the mechanisms by which an independent variable (IV) may affect a dependent variable (DV) via one or multiple intermediate variables also referred to as mediators (Baron and Kenny, 1986). I used the established techniques to test the mediating effect (Preacher and Hayes, 2008).

Table 11: Outcome of Mediation Effect

Hypothesis	Path	β	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Decision
H6	OTE -> KM -> TE	0.003	0.006	0.462	0.644	Not Supported
H7	TM -> KM -> TE	-0.004	0.009	0.487	0.626	Not Supported

Source: Field Survey

In the mediation analysis, it can be found that both hypothesized indirect effects are not supported. The mediation of knowledge management (KM) between organizational training environment (OTE) and training effectiveness (TE) is not significant ($\beta = 0.003$, $p = 0.644$), which means that knowledge management does not convey the effect of organizational training environment (OTE) on training effectiveness (TE). In the same vein, the indirect relationship between training motivation (TM) and TE with the help of KM is also insignificant ($\beta = -0.004$, $p = 0.626$), implying that KM does not mediate between the role that TM plays on TE. These findings suggest that although OTE and TM have a strong direct effect on TE, they do not mediate their effects with the help of KM, and this indicates that KM is not a mediating factor in this model.



5. Discussion

The synergies of Organizational Training Environment (OTE), Training Motivation (TM), Knowledge Management (KM), and Training Effectiveness (TE) is an important area of concern in the banking sector of Bangladesh where interactions among these constructs have immense effects on the performance of an organization. A recent study examined these dynamic by testing

seven hypotheses to determine the relations between these variables, and found subtle results on the relations between these variables.

H1 and H2 were considerably supported by the data, which proved the existence of a strong positive effect of OTE on TE, and TM on TE. These findings are in line with the existing body of knowledge, which has emphasised the significance of a positive training environment and motivated workforce as the key determinants of successful training performance (Hoque & Ahmed, 2024; Gautam & Basnet, 2020). A supportive OTE leads to setting an environment in which employees have higher chances of being more involved in training content, which eventually results in increased learning and skill application, which is supported by the findings on the mediating effect of motivation (Gautam & Basnet, 2020).

Hypothesis H3, in its turn, showed a negative correlation between OTE and KM. The fact that this result was reached indicates that in spite of the fact that the environment is supposed to be conducive to knowledge sharing, the particulars of the environment in question might prevent KM because of structural or contextual limitations. Such an observation is quite the opposite of other studies which indicate that knowledge sharing should be supported by the presence of favorable climates (Mohamad et al., 2023). In addition, H4 supported the notion that TM has a positive influence on KM, which highlights the importance of motivation as a key factor in the readiness of the employees to share knowledge after training (Hoque & Ahmed, 2024).

Nevertheless, the research found inconclusive findings of the other hypotheses on the mediation of KM between OTE, TM and TE. H5, H6 and H 7 were not supported and this indicates that KM does not directly impact TE and that KM does not act as a mediating factor in these relationships and thus results show it poses no significant effects on KM. Such findings suggest that the role of KM in the training effectiveness models needs to be reconsidered because previous studies have tended to place KM as a necessary mediator that can increase the effectiveness of training program (Kim and Kim, 2024).

Finally, a conducive OTE and high TM also play a significant role in training effectiveness, the intricacies of KM and its lack of effectiveness suggest the possible focus area of the organization. This underscores a reason why banking institutions should put more effort in enhancing their knowledge management plans as a critical aspect of their training and development program.

6. Research Implications

The results of this research have theoretical and practical implications on the area that the organizational training environment (OTE) and training motivation (TM) could affect training effectiveness (TE), and knowledge management (KM) mediates that response in the banking sector of Bangladesh.

Theoretical Implication

Theoretically, the present study is valuable in terms of its contribution to the existing knowledge base on human resource development and organizational learning since it empirically confirms the direct relationship between OTE and TM and TE. The findings support the already known theories of Social Learning Theory and Motivation Theory which state the importance of environmental support and internal drive in promoting the success of the learning process (Bandura, 1986; Deci and Ryan, 2000). In addition, the paper also advances the research by introducing KM as a possible mediator, but the mediation effect was also not significant. This observation offers a theoretical explanation that in the developing world such as Bangladesh, KM practices might be immature or inadequately fit within the training practices hence their effectiveness in training outcomes is constrained.

Practical Implication

In practice the research provides good advice to policy makers, HR managers and training practitioners in the banking industry. The good positive impacts of OTE and TM on TE imply that, the banks should invest in developing favorable training environment through bettering facilities,

managerial encouragement, and coordinating the training initiatives with the employees job requirements. The effectiveness of the training initiatives can be further reinforced by increasing the motivation of employees by recognizing them, providing growth opportunities along with incentive rewards that are based on their performance. The mediating role of KM is insignificant meaning that even when banks do training, the banks might not have effective mechanisms of capturing, storing and sharing knowledge acquired during the training programs. In this way, designed KM systems, including digital learning platforms and knowledge sharing networks, should be created in banks to provide permanent learning and the use of new skills.

7. Limitations and Future Research Direction

There are a number of limitations that this study has. First, it only looks at the banking industry in Bangladesh and this restricts the generalization of the results on other industries and other countries where the organizational culture, training, and knowledge management systems differ. Second, the study used a cross-sectional design and utilized self-reported survey information that is also prone to the common method bias and limits the possibility to make a causal conclusion. Third, despite the fact that knowledge management (KM) was also studied as a mediating variable, its influence was also not significant, and it is possible that other factors, like organizational culture, support of the leadership, or engagement of the employees, can be more essential in increasing the effect of training.

There are ways in which in the future research these limitations can be overcome by considering more mediating or moderating variables that could influence training outcomes. Experimental designs or longitudinal research would be more likely to offer causal results and measure training efficacy change over time. It would be useful to compare them within industries or countries in order to estimate the applicability of the findings to the context. Lastly, a study on moderating variables of organizational support, technological support, or personal differences may provide more detailed information about the effects of training environment and motivation on employee learning and performance.

8. Conclusion

This paper explored the role of the organizational training environment (OTE) and training motivation (TM) on training effectiveness (TE) in banking sector in Bangladesh where knowledge management (KM) is possible as the mediating variable. The results suggest that both OTE and TM have great positive impacts on TE, which implies the importance of a supportive training environment and motivated workers in attaining positive learning results. Conversely, it was established that KM did not have a significant direct relationship with TE and it did not mediate relationships between OTE, TM, and TE, to indicate that knowledge management practices in the sampled banks have not been comprehensively implemented in the training process or utilized to drive better results.

The research has a theoretical contribution in the form of supporting the significance of environmental and motivational elements in training performance and offering some insights into the insignificant role of KM in the Bangladeshi banking environment. In practice, it highlights the importance of banks concentrating on the design of enabling training courses, employee motivation, and designing structured KM systems to store and share knowledge. In general, the results indicate that the improvement of training effectiveness depends not only on the presence of the conducive environment but on the engagement of workers in the training process, whereas the further emphasis should be put on creating knowledge management as a part of training programs to ensure that the learning and performance of the organization will be maximized in the long run.

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