

A Thesis
on
Knowledge management and organizational learning: An empirical
study based on structural equation modeling

This paper is submitted to the Faculty of Business Studies, Hajee Mohammad Danesh Science and Technology University, Dinajpur for the fulfillment of the degree of Master of Business Administration (MBA) in Human Resource Management.



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May Allah bless all of them.

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Certificate of Supervisor

By this declaration, I certify that the concerned paper on “Knowledge management and organizational learning: An empirical study based on structural equation modeling” has prepared by Md. Naeem - Ul - Islam, Student ID-1603173, MBA in Human Resource Management, Hajee Mohammad Danesh Science and Technology University, Dinajpur-5200, under my supervision and submitted for the fulfillment of the requirement of the degree of Master of Business Administration (MBA) in Human Resource Management at HSTU, Dinajpur.

He has completed his work under my supervision and direction. He has made every effort to complete this work successfully. I believe that this curriculum will help him to advance his career in the future.

I wish him every success in life.

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By this declaration, I certify that the concerned thesis on “Knowledge management and organizational learning: An empirical study based on structural equation modeling” has prepared by Md. Naeem - Ul - Islam, Student ID-1603173, MBA in Human Resource Management, Hajee Mohammad Danesh Science and Technology University, Dinajpur-5200, under my co-supervision and submitted for the fulfillment of the requirement of the degree of Master of Business Administration (MBA) in Human Resource Management at HSTU, Dinajpur.

He has completed his work under my co-supervision and direction. He has made every effort to complete this work successfully. I believe that this curriculum will help him to advance his career in the future.

I wish him every success in life.

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Student's declaration

I hereby declare that the study entitled 'Knowledge management and organizational learning: An empirical study based on structural equation modeling' embodies the result of my own works and efforts, prepared under the supervision of Sourav Paul Chowdhury, Associate Professor, Department of Management, Hajee Mohammad Dansesh Science and Technology University, Dinajpur.

I further affirm that, the work and information papered in this thesis paper is original and the whole has not been submitted to any form or any other university or institution for any degree or any other purpose.

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Abstract

This research delves into the various aspects of knowledge management process and its impact on organizational learning. To conduct this study, a total of 448 survey responses were gathered using a structured questionnaire that employed a seven-point Likert scale. The collected data were then analyzed using structural equation modeling techniques. The findings of this study highlight the key dimensions of knowledge management (knowledge creation, knowledge improvement, knowledge acquisition, knowledge storage, knowledge sharing, knowledge utilization and knowledge refinement) that exert a substantial and positive influence on organizational learning. Moreover, knowledge management is shown to directly impact on organizational learning and holds a crucial position within the proposed model. This study will make a valuable contribution to enhancing organizations' knowledge management systems by providing a deeper understanding of the subject. Practitioners are encouraged to utilize these insights to foster a stronger learning culture within their respective organizations.

Keywords: Knowledge management, organizational learning, organizations, knowledge

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Chapter 1

Introduction

The field of knowledge management has the potential to make significant contributions to organizations, but there are several outstanding issues that need to be addressed. Furthermore, there is still much to study and discover, as the field has not yet reached its final form and is still relatively new. There are many articles, journals and research papers where the term “Knowledge Management” is recognized by various writers and researchers. Nonaka and Takeuchi (1995) denoted that Knowledge management is currently receiving considerable attention from both academics and practitioners. The researchers examined the process of knowledge production, utilization, and dissemination within organizations, as well as the ways in which this knowledge contributed to the spread of innovation. The main reason is that it represents a real challenge for global business. Druckes (1960) was the first to coin the term knowledge worker. Corporate memory systems enable organizations to learn from previous experiences (Senge, 1990). A recent report from Gartner Group suggests that as enterprises become more knowledgeable about Knowledge Management (KM), it will increasingly become a practical and essential aspect of conducting business. In any organization, employees or workers require to do their daily tasks and performance in a corporative mode with their acquired knowledge. In many cases, the past work experience and historical context are left behind and this is a lack of specific support to teamwork and knowledge management. This may cause for the decrease in workers’ productivity.

Gourlay (2001) stated that the magnitude of knowledge management and the methods used to manage it have become crucial for the survival of organizations, despite being a continuously evolving management paradigm. There are so many viewpoints of knowledge management but those are not generalized. Despite the lack of connection between the KM dimensions and organizational learning, it is still important to consider and understand each dimension's role in the larger context of the organization. We refer to knowledge management a process of knowledge creation, improvement, acquisition, storage, sharing, utilization and refinement (see the proposed research framework). This phase in knowledge management allow an organization to learn, gleam, and relearn, usually considered essential for building and maintaining a proper management of knowledge and strengthen the organizational learning for increasing worker productivity. This suggests that the two fields

can work together to enhance an organization's ability to create, share, and utilize knowledge, ultimately leading to improved performance and competitiveness.

Knowledge is considered an inseparable part of the quality management process to achieve continuous learning and productivity excellence. Knowledge management is a concept that involves an organization proactively and systematically collecting, organizing, sharing, and analyzing its knowledge and expertise. This includes resources, documents, and people's skills, with the goal of leveraging this knowledge to enhance the organization's performance and achieve its objectives. By managing knowledge effectively, an organization can improve its decision-making, innovate more effectively, and respond more quickly to changes in its environment (Rouse, 2013). The process of knowledge management involves systematically discovering, selecting, organizing, condensing, and presenting information in a manner that enhances an employee's understanding of a specific area of interest. This approach is intended to facilitate learning and knowledge sharing within an organization by providing employees with easy access to relevant and useful information. By enabling employees to better understand their roles and responsibilities and stay up-to-date with industry trends and best practices, knowledge management can contribute to improved performance and competitive advantage. (Knowledge management - glossary, Knowledge point, 2007).

The goal of this study is to discuss that how organizational learning can be accomplished through a proper knowledge management process. It can also be an inevitable part of the organization knowledge. This study can help the academics as well as the professionals who have interest on this issue and wants to see that how knowledge management strengthen the organizational learning and it attempts to study the knowledge management process by emphasizing on its variables.

Chapter 2

Theoretical Background

2.1 Knowledge Management

The concept of knowledge has been a topic of active discussion since ancient times, with notable contributions from Greek philosophers such as Socrates. In Plato's "Theaetetus" (369 BC), Socrates defined knowledge as a true belief that is supported by a justification or explanation. This concept is commonly identified as "justified true belief." However, Socrates also acknowledged that this definition was inadequate, suggesting that there is more to the concept of knowledge than simply having a true belief with justification. This ongoing debate about the disposition of knowledge has continued throughout history, with many philosophers, scholars, and researchers offering their own perspectives on the topic (Anand and Singh, 2011). Knowledge is broadly defined as credible information that is of potential value to an organization. On the inbound side of the knowledge management (KM) process (i.e., knowledge creation), the primary emphasis in knowledge management is on the creation and distribution of information, as well as the development of a shared understanding of that information. This involves filtering shared understandings to identify those with the greatest potential value, and then storing that valuable knowledge within an easily accessible organizational mechanism.

The goal is to facilitate the sharing and retention of knowledge and expertise, so that individuals and teams within the organization can learn from one another and apply that knowledge to improve their performance. Ultimately, the effective management of knowledge can help organizations to achieve their goals more efficiently and effectively (cf. Huber, 1991; Hult, Ketchen, and Slater, 2004). In fact, the influence of the dynamic global environment and rapid advances in information technology during the last decade gave rise to the recognition that knowledge is the only resource that can facilitate a long lasting competitive advantage (cf. Grant, 1996). Knowledge management is an approach that involves collaboration and integration to create, capture, organize, access, and utilize an enterprise's intellectual assets. The goal is to effectively manage the knowledge and actuality within an organization to improve performance and achieve business objectives. This can include various activities such as creating and sharing knowledge, organizing information, providing access to knowledge resources, and utilizing the collective intelligence of the organization. Ultimately, the effective implementation of knowledge management can result

in greater innovation, productivity, and competitiveness for the organization (Grey, 1996). The concept of knowledge management involves treating the knowledge component of business activities as an explicit concern that is reflected in strategy, policy, and practice at all levels of the organization, a successful knowledge management approach can help businesses to be more innovative, efficient, and effective in achieving their objectives (Barclay and Murray, 1997).

Knowledge management is the overarching idea that encompasses the process of transforming information into practical knowledge and ensuring it is easily accessible and usable for those who can apply it (Information Week, Sept. 1, 2003). The source of knowledge is an individual's mind, which includes ideas, facts, concepts, data, and techniques that are stored in one's memory. Personal experience, beliefs, and values also enrich and transform information into knowledge with practical meaning for decision-making and action. The knowledge acquired by one individual may differ from the knowledge obtained by another person even when they receive the same information (Bende and Fish, 2000).

2.2 Knowledge Creation

Knowledge capture and creation is a process in which knowledge identification, capture, acquisition and creation is done (Rao, 2004). The concern of grown focus on knowledge creation and knowledge expansion in organizations suggests that organizations should focus on better utilizing their intellectual capacity by improving knowledge flows among members. The goal is achieving a competitive advantage via effective knowledge deployment (Hult et al., 2000).

2.3 Knowledge Improvement

Knowledge management is a systematic approach that aims to enhance the creation, sharing, distribution, capture, and comprehension of knowledge within an organization, with the goal of improving its overall effectiveness and competitiveness (Gottschalk, 2005, p. 1). The process of knowledge management helps in making informed decisions and improves proficiency by minimizing the necessity to rediscover information (knowledge management, Axelos Common Glossary, 2012).

2.4 Knowledge Acquisition

Knowledge acquisition prescribes to the process of obtaining knowledge and integrating it into a knowledge system. It involves identifying and selecting relevant information from

various sources and transforming it into a format that can be processed and used by the system. This process can include tasks such as data collection, analysis, interpretation, and modeling to create knowledge that is relevant and useful for the system. (Buchanan, et al. 1983). Most knowledge systems are created by knowledge engineers rather than by the domain experts who provide the knowledge. A chronic goal of a course of knowledge acquisition research has been to replace the knowledge engineer with a program that assists in the direct "transfer of expertise" from experts to knowledge bases (Davis, 1976).

2.5 Knowledge Storage

Organizational knowledge is distributed and scattered in different locations, embedded into different artifacts and procedures, and stored into different mediums such as print, disks, and optical media. Each of them requires different means of knowledge presentation (Bhatt, 2001). Advanced storage technology and sophisticated recovery techniques, such as Intranet, query language, e-mail, databases, expert methods, and databases management systems, can be effective tools in enhancing the capabilities of knowledge storage/retrieval. These IT capabilities can assist a particular person to recover and classify useful information. (Chou and Shih-wei, 2005).

2.6 Knowledge Sharing

Before an organization can make use of knowledge at a collective level, it is necessary for that knowledge to be dispersed and exchanged among its members (Bhatt, 2001). Private sector organizations are not the only ones clasping knowledge management. Sharing knowledge in a systematic way is becoming increasingly important in all types of organizations worldwide (Luen and Al-Hawamdeh, 2001). Knowledge sharing is of limited value if the knowledge created is not worth sharing (Schulz, 2001).

2.7 Knowledge Utilization

Knowledge utilization indicates to the method of applying and utilizing knowledge within an organization to add value to its operations and achieve its goals. This involves using the knowledge that has been acquired and stored through knowledge management processes to make informed decisions, solve problems, and innovate (Currie, 2003). Organizational knowledge is required to be employed into a company's products, processes, and services. If

an organization does not find it easy to locate the right kind of knowledge in the right form, the firm may find it difficult to sustain its competitive advantage (Bhatt, 2001).

2.8 Knowledge Refinement

Knowledge Management is the development and distribution of knowledge across an organization ("What is Knowledge Management? How Private Social Networks Help," 2012). It captures the main idea of Knowledge Management, which is the use of practices to discover, develop, and share knowledge within an organization for the purposes of reuse, learning, and awareness ("Knowledge Management, APO P-Glossary"). Knowledge management involves a deliberate and continuous effort to identify, capture, organize, share, and use knowledge to accomplish the goals of the organization and gain a competitive advantage. It encompasses various activities and processes such as knowledge creation, acquisition, storage, retrieval, sharing, transfer, and application. By managing knowledge effectively, organizations can improve their performance, innovate, and adapt to changing environments ("European Guide to good Practice in Knowledge Management - Part 5: KM Terminology," 2004, p. 11).

2.9 Organizational Learning

According to DiBella (2001), it is necessary to establish a connection or "bridge the divide" between knowledge management and organizational learning. Organizations that are capable of managing and transferring their knowledge in an effective manner tend to be more creative and enhance performance (Riege, 2007). Individual knowledge is necessary for developing the organizational knowledge base; however, organizational knowledge is not a simple sum of the individual knowledge (Bhatt, 2000a). The knowledge that subsists within an organization is a result of the specific ways in which its people, technologies, and techniques interact with each other, creating unique patterns that are influenced by the organization's culture and history. Organizational members work with a set of styles. If they are required to learn different sets of "work-styles", delays in integrating and internalizing new knowledge are common. Therefore, an organization may choose to employ similar codification, standards, and programming schemes or make use of predefined templates and schema to present data, information, and knowledge (Bhatt, 2001). Knowledge Management is a process an organization uses to maximize its efficiency and discursive capital to gain organizational objectives (Knowledge Management Glossary, NASA Wiki, 2014).

Here, the proposed research model of knowledge management expresses its dimensions and the effect on organizational learning. We will analyze this KM model.

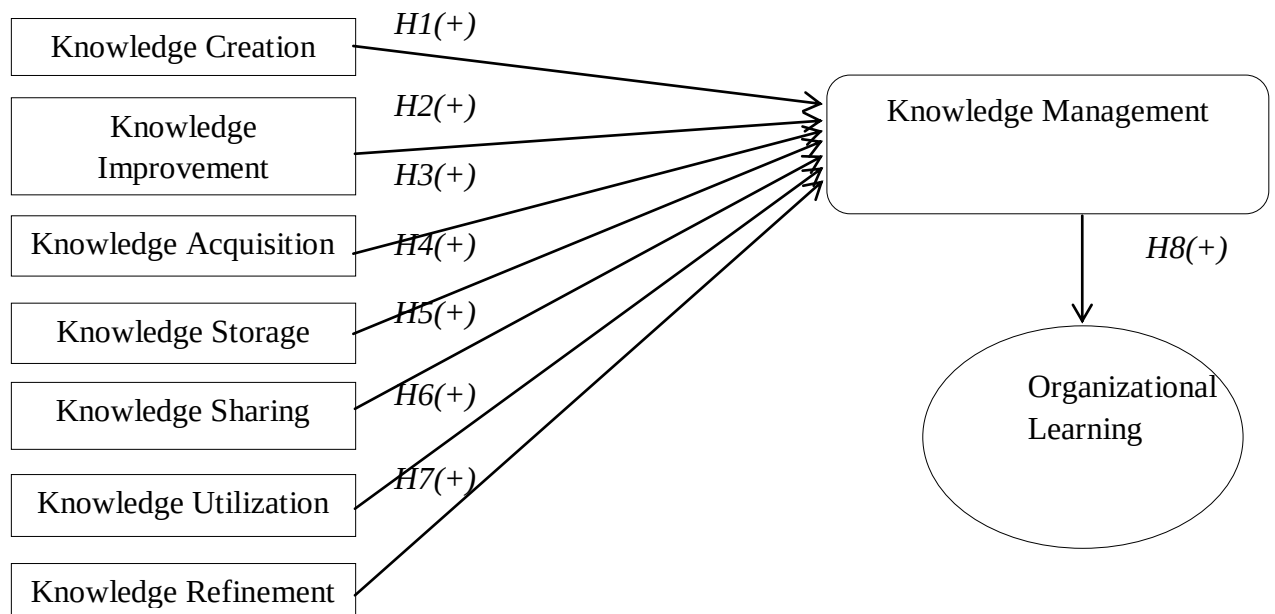


Fig. 1 Proposed research model

Chapter 3

Hypotheses Development

Based on literature review and other research papers, the following hypotheses are proposed. Fig. 1 presents the hypotheses in the form of a research model.

The need for knowledge management begins when knowledge is created (Janz and Prasarnphanich, 2003). Knowledge is created at various levels and transferred within and between levels from individuals, groups, and organizations (Alavi & Leidner, 2001). The concept of "knowledge management" involves identifying the knowledge needs and gaps within an organization, and addressing them through the creation, organization, sharing, and deployment of knowledge. This process enables innovation and creates opportunities for generating revenue (Thomas, 2004). The relationship between conviction and innovativeness is partially influenced by the action of knowledge creation (Sankowska, 2013). Three kinds of issues might have an impact on knowledge creation: the individual's capability to absorb and share knowledge; organizational learning mechanisms; and the capability of knowledge storage/retrieval (Chou, 2005).

H1. "Knowledge creation" factor positively relates to knowledge management.

Knowledge management from the focus on resources and assets which is fundamental to many interpretations of intellectual capital to the daily improvement of the business process in an organization, with a focus on knowledge development and use (Quintas, Lefrere and Jones, 1997). The main aim of management is to enhance the methods of obtaining, merging, and utilizing knowledge, and this is precisely the essence of knowledge management (Kovacic, Bosilj and Loncar, 2006). Knowledge management is an effective solution to upgrade the organizational production and services and this way we can boost the organization value added (Tajpour et al., 2018). Organizations can leverage the relative knowledge gain to improve their processes more than non-knowledge oriented project (McGinnis and Huang, 2007).

H2. "Knowledge improvement" factor positively relates to knowledge management.

Knowledge management system may impact the knowledge acquisition of the user—although there are conflicting theoretical views on whether this is likely to be a positive or a

negative impact (McCall, Arnold and Sutton, 2008). The usefulness of knowledge accumulation, whether through internal or external means such as internalization or externalization, is directly related to the influence of knowledge management within an organization (AlMashari, Zairi and AlAthari, 2002). When information is being processed, it is possible to acquire new knowledge for future use, especially when additional or novel information is obtained and processed (Van Beveren, 2002). When an organization aligns its knowledge acquisition practices with its existing knowledge management strategies, it can lead to improved innovation performance. This suggests that combining knowledge management and knowledge acquisition strategies can have a synergistic effect on a company's innovation outcomes (Ngoc Thang and Tuan, 2020).

H3. "Knowledge acquisition" factor positively relates to knowledge management.

Accessing knowledge in the human memory can be challenging due to its intangible and subjective nature. Organizational knowledge is often radiated and break into fragments across various individuals and departments, making it challenging to capture and manage. Documented knowledge can vary in format from unstructured text to organized charts and tables. In contrast, computerized knowledge is often structured, formalized, and easily shared among individuals and systems within an organization (Anand and Singh, 2011). The storage, organization, and recovery of organizational knowledge, also mentioned to as organizational storage, comprise an significant aspect of effective organizational knowledge management (Starbuck and Hedburg, 1978). Memory can store and reapply workable solutions in the mean of standards and procedures, which in turn may expedite the completion of a task. In addition, basing organizational change on, and relating it to, past experience facilitates the implementation of change. (Chou and Shih-wei, 2005). One point got to be taken into consideration is the fact that all knowledge of the organization should not be preserved and retained in a knowledge repository. Storing irrelevant knowledge can fill up the storage with useless information. Therefore, it is essential to store and retrieve knowledge that is current, relevant, and accurate. By doing so, the organization can benefit more from the stored knowledge (Jasimuddin and Sajjad, 2005).

H4. "Knowledge storage" factor positively relates to knowledge management.

Bringing knowledgeable people together in a helping environment, so that knowledge can be shared and enhanced is imperative for knowledge management (Alavi & Leidner, 2001).

Knowledge management involves processes and strategies that aim to identify, capture, create, store, organize, use, and share knowledge and actuality within an organization to improve efficiency, productivity, innovation, and competitive advantage (Ringel-Bickelmaier and Ringel, 2010). The relationship between confidence and knowledge creation is partially mediated by knowledge transfer. When an organization has trust among its members, it can facilitate knowledge transfer, which in turn can lead to greater knowledge creation and ultimately higher levels of innovation (Sankowska, 2013). Knowledge sharing occurs at individual, team, and organizational level is the significant contributor to success of organizational learning and organization knowledge management (Alavi and Leidner, 2001). The improvement of sharing knowledge (formal or informal) effects the knowledge management positively (Kulkarni and Louis, 2003).

H5. “Knowledge sharing” factor positively relates to knowledge management.

It is generally believed that if an organization can increase its effective knowledge utilization by only a small percentage, great benefits will result (King, W.R., 2009). The higher the appropriateness of utilizing the (existing) knowledge in an organization, the better the KM result (Kulkarni and Louis, 2003). The higher usefulness of knowledge makes the higher knowledge management success (AlMashari, Zairi and AlAthari, 2002). Knowledge utilization has a critical role among the KM processes in converting the KM process capability of organizations to KM performance, and is consistent with other theoretical and experimental findings that consolidate knowledge utilization (Zaim et al., 2019).

H6. “Knowledge utilization” factor positively relates to knowledge management.

Recent developments in knowledge refinement (i.e., knowledge capture, definition, compilation and storage) share the common goal of developing operational knowledge-based systems or decision support systems (Wang, Chen, Chen and Chu, 2005). With age, a part of knowledge may be obsolete that needs to be reconfigured and refined to the existing realities. Frequently, it may be essential to have multiple and ongoing interactions among technologies, techniques, and individuals to verify the accuracy and validity of knowledge (Bhatt, 2000b). Knowledge refinement is an ongoing process that requires periodic evaluation and updates to ensure that knowledge remains current and relevant. Stale knowledge can lead to inaccurate decisions and actions, which can be costly for organizations. Therefore, it is

essential to continuously monitor and refine knowledge to keep it up-to-date and useful. (Park et al., 2001).

H7. “Knowledge refinement” factor positively relates to knowledge management.

The relevance between knowledge management and organizational learning is interdependent (Schulz, 2001). The idea of using organizational learning to support knowledge management is a recent development, although the importance of both individual and organizational learning has been recognized for some time in response to a constantly evolving environment (Bennet and Bennet, 2004). Effective use of knowledge to enhance organizational performance depends on organizational learning, and in particular ‘generative learning’ (Senge 1990). Structure of a learning organization facilitates knowledge management (Janz and Prasarnphanich, 2003). In order to spread learning abilities, organization must fulfill well knowledge management process. A lack of knowledge management can hinder the development of individual or collective learning capabilities within an organization (Garratt, 1990). Knowledge and, more specifically, its acquisition or creation, along with its dissemination and integration within the organizations; become a key strategic resource to organizational learning. Organizational learning is thought to be a dynamic process that relies on knowledge and involves movement between different levels of action, beginning at the individual level, moving to the group level, and then to the organizational level, and ultimately returning back to the individual level. Business with additional knowledge management show higher capability in enhancing organizational learning (Liao and Wu, 2010). A climate helpful to learning is expected to influence the rate of organizational learning and, ultimately, organizational performance (Slater and Narver, 1995).

H8. “Organizational learning” factor positively relates to knowledge management.

Chapter 4

Research Methodology

This study is empirical and conducted to examine the research model. Initially, we developed a questionnaire consisting of relevant constructs based on the existing literature and the context of the study. The questionnaire was developed in English: thus a bilingual translator was unnecessary. 448 employees of the current working sector were selected purposively who were considered in different organizations of Bangladesh for sampling. A well-structured questionnaire was developed and 7 points Likert scale ranging from 1 to 7 (e.g., strongly disagree, disagree, somewhat disagree, neither agree nor disagree, somewhat agree, agree and strongly agree) was used in this study. A short time briefing on the point of knowledge management was given to the interested respondents. The questionnaire itself took 15-20 minutes to complete. There were two portions to the questionnaire demographic characteristics and knowledge management variables questionnaire.

The data were analyzed using SPSS: 24 as well as AMOS: 24. Some inferential statistics were used for analyzing the data like factor analysis, descriptive statistics, correlation analysis, and regression analysis. Reliability and validity data were also tested properly to ensure better acceptance.

Chapter 5

Analysis

5.1 Demographic Information

Using online as well as offline survey technology and purposive sampling, a public poll was conducted in Bangladesh in March, 2023. This study's online survey was carried out via the use of a Google form and the offline survey was via printed questionnaire form. The necessary sample sizes were covered by 475 respondents. Instructions, the study's aim, and a guarantee that respondents' answers would remain confidential were all provided on the questionnaire's first page. After data cleaning for the SPSS and Amos version 24 analyses, 448 valid replies were present. 27 respondents' data were cleaned as they were obscure and incompatible. Frequency analysis was performed to evaluate and analyze the respondents' demographic profile, which revealed that somewhat more males than women answered. Participants tend to be more male than female. Men make up 75% of the participation, while women make up just 25%. Table 1 provides a detailed comprehensive summary of the respondents' demographic characteristics.

Table 1: Demographic characteristics			
Factor	Groups	Frequency	Percentage
Age	20-25	36	8.04
	26-30	176	39.29
	31-35	137	30.58
	36-40	87	19.42
	More than 40	12	2.68
Gender	Male	336	75
	Female	112	25
Experience (years)	Below 5	251	56.03
	5-10	163	36.38
	10-15	25	5.58
	15-20	9	2.00
Income (BDT)	Below 10000	7	1.56
	10000-20000	113	25.22
	20000-30000	171	38.17
	30000-40000	119	26.56
	40000-50000	33	7.37
	More than 50000	5	1.12

Source: survey data

5.2 Instrument Development

The survey questionnaire comprised nine constructs, knowledge creation, knowledge improvement, knowledge acquisition, knowledge storage, knowledge sharing, knowledge utilization, knowledge refinement, knowledge management, organizational learning as well as demographic information for each respondent. This study derived the measurements of all constructs from previous studies with some modifications to fit the constructs in this organizational situation. The measures of knowledge creation was adopted and modified from (Sahibzada, Latif, et al., 2020; Nisula et al., 2016; Liu et al., 2019; Razzaq et al., 2018), knowledge improvement from (Liu et al., 2018), knowledge acquisition from (Limsangpetch et al., 2022; Sahibzada, Latif, et al., 2020; Farrell et al., 2008; Zheng et al., 2010), knowledge storage from (Razzaq et al., 2018; Liu et al., 2019; Nisula & Kianto, 2015; Zheng et al., 2010), knowledge sharing from (Limsangpetch et al., 2022; Nisula & Kianto, 2015; Zheng et al., 2010; Andreeva & Kianto 2011), knowledge utilization from (Limsangpetch et al., 2022; Sahibzada, Latif, et al., 2020; Farrell et al., 2008; Nisula & Kianto, 2015), knowledge refinement from (Motowidlo and Scotter, 1994; Liu et al., 2018). Additionally knowledge management was modified from (Spinello, 2000, p. 189; Liao and Wu, 2010; Kumar, Singh and Haleem, 2014) and organizational learning from (Farrell et al., 2008). Table 6 at appendix section shows a detailed review of measurement items.

5.3 Evaluation of Common Method Bias (CMV)

This study utilized Harman's single-factor test to assess common method variance (CMV), which refers to potential bias when respondents use the same method to rate multiple variables. If one factor accounts for over 50% of the variance, it indicates CMV problems. The study's results indicated that the first factor explained 24.93% of the total variance, and several factors had eigenvalues greater than 1, suggesting the absence of CMV issues (Podsakoff et al., 2003).

5.4 Measurement Model Assessment

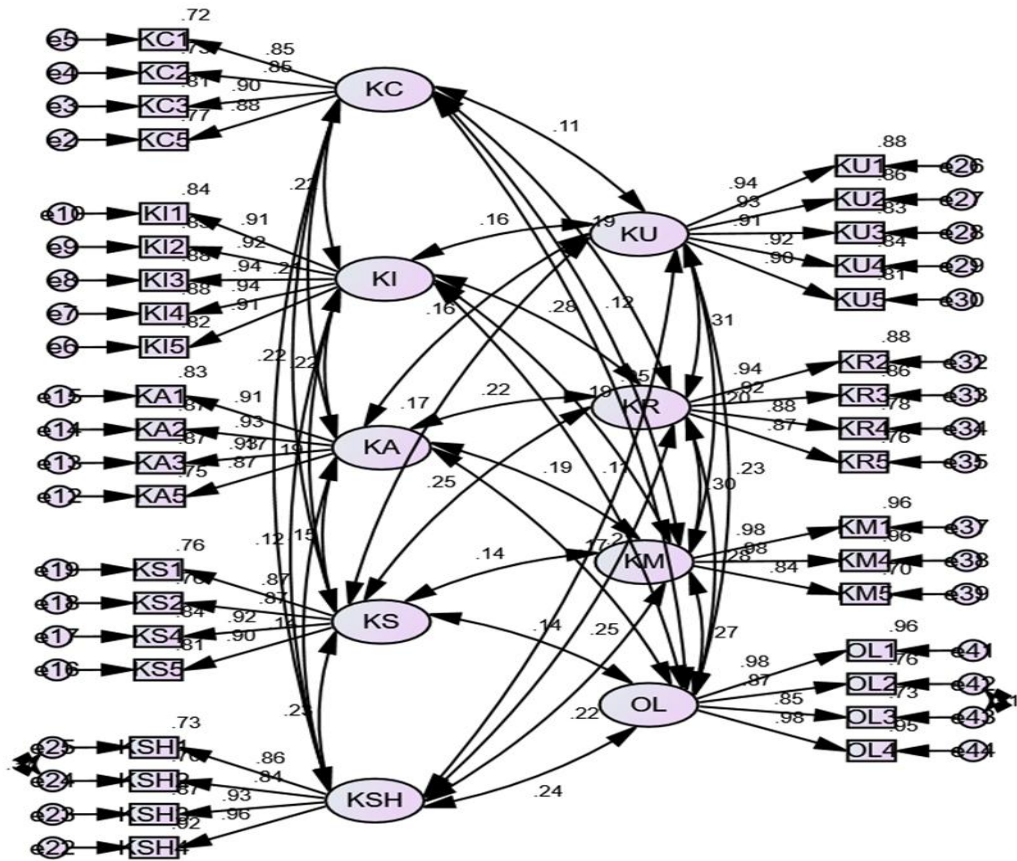


Fig. 2 Measurement model

Both hypothesis testing and data analysis in this research were done using structural equation modeling (SEM). Table 2: Standardized estimates (Group no. 1 - Default model) have a sufficient degree of reliability. Due to shortage of data factor loading some variables are excluded in the measurement model. An evaluation of this is done using the Cronbach's alpha findings, with a value higher than 0.7 indicating strong reliability (Chin 1998). Because it permits a real-time assessment of both the measurement model and the structural model, the test was carried out using the Amos-24 data analysis tool in particular. This technique, in particular, significantly helps in evaluating the accuracy and clarifying the theoretical connections between constructs within the structural model.

Table 2. Standardized estimates (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Cronbach's alpha
KC5	<---	KC	.875				0.92
KC3	<---	KC	.902	.041	26.555	***	
KC2	<---	KC	.852	.043	23.980	***	
KC1	<---	KC	.848	.039	23.755	***	
KI5	<---	KI	.907				0.96
KI4	<---	KI	.939	.034	34.759	***	
KI3	<---	KI	.940	.033	34.890	***	
KI2	<---	KI	.924	.034	33.094	***	
KI1	<---	KI	.915	.029	32.191	***	
KA5	<---	KA	.869				0.95
KA3	<---	KA	.935	.040	29.665	***	
KA2	<---	KA	.931	.040	29.417	***	
KA1	<---	KA	.911	.038	28.057	***	
KS5	<---	KS	.902				0.93
KS4	<---	KS	.919	.032	30.663	***	
KS2	<---	KS	.874	.032	27.356	***	
KS1	<---	KS	.874	.032	27.358	***	
KSH4	<---	KSH	.957				0.94
KSH3	<---	KSH	.931	.023	38.151	***	
KSH2	<---	KSH	.839	.028	27.909	***	
KSH1	<---	KSH	.857	.027	29.602	***	
KU1	<---	KU	.937				0.96
KU2	<---	KU	.928	.026	37.337	***	
KU3	<---	KU	.912	.027	35.085	***	
KU4	<---	KU	.916	.026	35.594	***	

KU5	<---	KU	.903	.029	33.889	***	
KR2	<---	KR	.936				0.94
KR3	<---	KR	.925	.029	35.449	***	
KR4	<---	KR	.881	.029	30.655	***	
KR5	<---	KR	.871	.029	29.784	***	
KM1	<---	KM	.981				0.95
KM4	<---	KM	.980	.017	63.074	***	
KM5	<---	KM	.837	.029	30.359	***	
OL1	<---	OL	.978				0.96
OL2	<---	OL	.870	.028	34.156	***	
OL3	<---	OL	.852	.030	31.894	***	
OL4	<---	OL	.976	.017	61.605	***	

Note: *** p < 0.001. Source: SEM-Amos output

According to Table 2, each construct's alpha value and CR value are greater than the thresholds; show the reliability of the scales (Hair & Black et al. 2010). According to a dependent variable (labeled as KC5, KI5, KA5, KS5, KSH4, KU1, KR2, KM1, and OL1), this table shows the regression weights for a collection of predictor variables (KC, KI, KA, KS, KSH, KU, KR, KM, and OL). The table includes data on each predictor variable's estimated regression weight, standard error, critical ratio, and p-value for the test of significance. The Cronbach's alpha coefficient, a measure of the group of items' internal consistency or reliability, is also included in the table for each group of predictor variables. It shows how well each group's components evaluate the same underlying concept. the first row of the table shows that the estimate of the regression weight between KC and KC5 is 0.875, which means that a one-unit increase in KC is associated with a 0.875 unit increase in KC5. The p-value for this regression weight is not provided, but it is noted that the Cronbach's alpha for the group of predictor variables including KC is 0.92, which suggests good internal consistency among these variables. The critical ratio (C.R.) column provides a measure of the strength of the association between each predictor variable and the dependent variable, relative to the standard error of the estimate. A C.R. value greater than 1.96 indicates

statistical significance at the 0.05 level (two-tailed test), which is denoted by "****" in the table.

Table 3. Discriminant validity											
	Composite reliability (CR)	Average variance extracted (AVE)	KC	KI	KA	KS	KSH	KU	KR	KM	OL
KC	0.92	0.75	0.86								
KI	0.96	0.85	.220	0.92							
KA	0.95	0.83	.212	.221	0.91						
KS	0.94	0.79	.217	.192	.155	0.88					
KSH	0.94	0.80	.171	.119	.140	.229	0.89				
KU	0.96	0.84	.108	.156	.161	.172	.211	0.91			
KR	0.94	0.81	.191	.276	.219	.252	.252	.313	0.90		
KM	0.95	0.87	.124	.190	.186	.141	.220	.196	.302	0.92	
OL	0.95	0.84	.047	.110	.171	.136	.241	.229	.276	.265	0.91

Note: bold diagonal numbers are the square roots of AVE

Source: SEM-Amos and SPSS output

This table shows the composite reliability (CR) and average variance extracted (AVE) for the different constructs in the study, as well as their inter co-relations. In this research, to test the reliability and validity statistics of the instrument are used Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and Cronbach's alpha. As shown in Table 3, both the alpha value and CR value of each construct are higher than the thresholds, representing that the scales were reliable (Hair & Black et al. 2010). Composite reliability is a measure of internal consistency reliability, or the extent to which the items within a construct measure the same underlying concept consistently. It ranges from 0 to 1, with values above 0.7 generally considered acceptable. Average variance extracted is a measure of convergent validity, or the extent to which the items within a construct share variance and measure the same underlying concept. It ranges from 0 to 1, with values above 0.5 generally considered acceptable. The table shows the CR and AVE values for each construct (KC, KI, KA, KS, KSH, KU, KR, KM, and OL), as well as their correlations with each other. For example, the AVE for KC is 0.75 and its CR is 0.92. KC has a moderate to strong correlation with KI, KA, KS, and OL, with correlation coefficients ranging from 0.22 to 0.86. The Average Variance Extracted (AVE) indicates the ability of each measured variable to explain the average variance of the latent variables. Additionally, the findings of KC indicate that it has the lowest range (CR=0.92, AVE =0.75), while Ki has the maximum range (CR=0.96, AVE =0.85). As a result, all composite reliability values are larger than 0.7.

In this investigation, the Average Variance Extracted (AVE) values were larger than 0.5, indicating that each measured variable had the capacity to be in the acceptable range. Additionally, for all constructs, the AVEs exceeded the Maximum Shared Variance (MSV), showing high discriminant validity (Fornell & Larcker 1981).

Model Fit test

Table 4. Model fit indices			
Indices	Model Fit Obtained Value	Recommended Value	References
CMIN/df	2.286	<3	Hair et al.
CFI	.960	≥ 0.90	Hair et al.
GFI	.856	≥ 0.80	Doll et al.
AGFI	.828	≥ 0.80	Doll et al.
NFI	.931	≥ 0.90	Hair et al.
TLI	.955	≥ 0.90	Hair et al.
IFI	.960	≥ 0.90	Hair et al.
RMSEA	.054	≤ 0.08	Browne and Cudeck

Source: SEM-Amos and SPSS output

The outcomes of a Model Fit test, which evaluates how well a statistical model fits the observed data, are shown in this table. The table features comparisons between several models and a number of model fit measures. The CMIN statistic, which measures the least difference between the observed data and the model and is used to evaluate model fit, is included in the first portion of the table. The default model (with 112 parameters), the saturated model (with 703 parameters), and the independence model (with 37 parameters) are each shown in the table along with their respective CMIN values. The independence model, which suggests that all variables are uncorrelated, gives the lowest fit to the data whereas the saturated model offers the greatest match to the data.

The RMSEA score for the next portion of the table is 0.054, suggesting a reasonably good fit between the model and the data. The LO 90 and HI 90 columns represent the lower and upper bounds of the 90% confidence interval around the RMSEA estimate, and the PCLOSE column represents the p-value for the test of close fit, with a value of 0.056 suggesting a

relatively good fit. The table's following section contains a number of relative model fit measurements that contrast the default model's fit with those of the other models. These measures include the Normed Fit Index (NFI), the Relative Fit Index (RFI), the Incremental Fit Index (IFI), the Tucker-Lewis Index (TLI), and the Comparative Fit Index (CFI). These indices measure the degree to which the model provides a better fit to the data than the baseline model (the independence model). Higher values indicate better fit. The Root Mean Square Residual (RMR), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), and Parsimony Goodness of Fit Index (PGFI) are all included in the table's last section. These indices evaluate how well the model fits the data while taking the model's complexity into account. Higher values of GFI, AGFI, and PGFI suggest better fit, whereas lower values of RMR indicate good fit (Browne and Cudeck, Hair et al., Doll et al.).

5.5 Structural model analysis

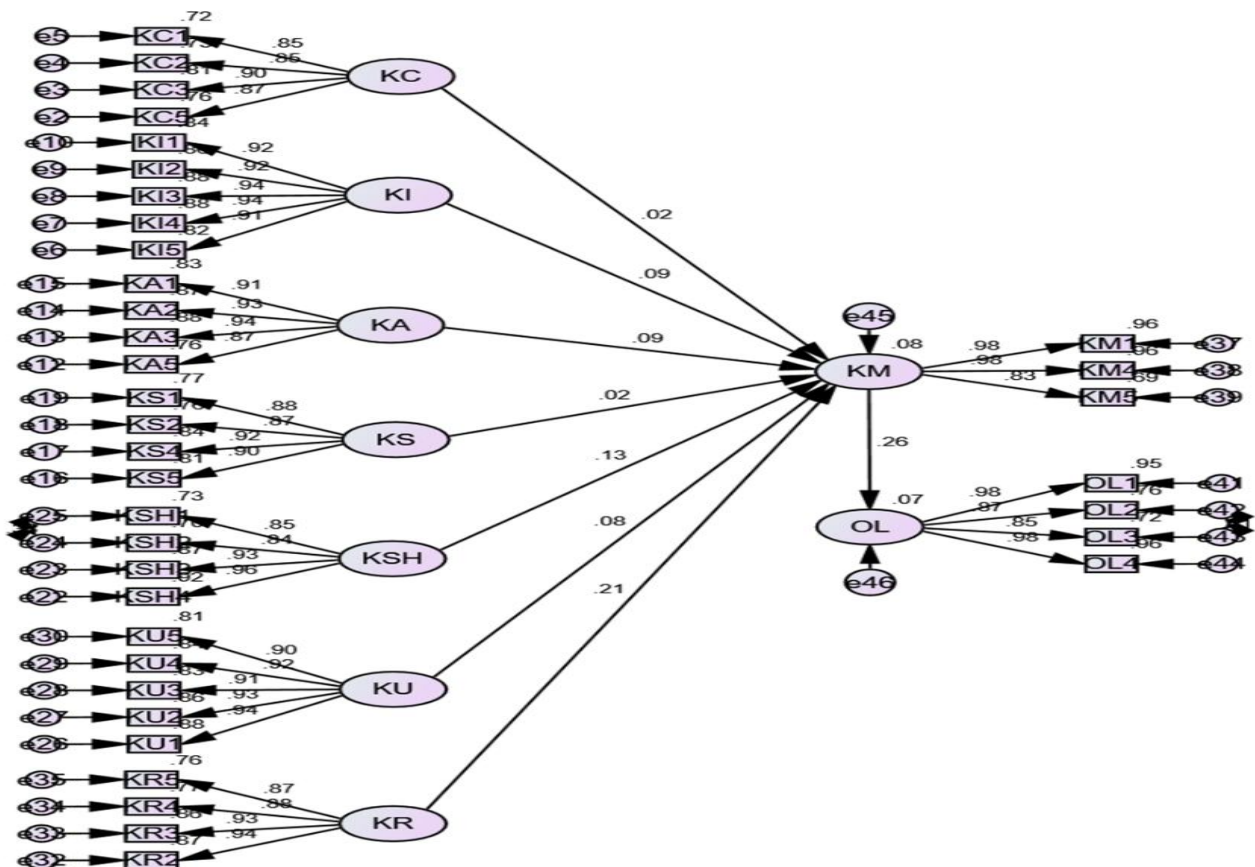


Fig 3: Structural model

Table 5: Hypothesis analysis (Group number 1 - Default model)

		Estimate	S.E.	C.R.	P	Decision
KM <---	KA	.094	.051	1.995	.046	accept
KM <---	KS	.020	.047	.433	.665	reject
KM <---	KI	.089	.046	1.905	.057	accept
KM <---	KC	.019	.050	.406	.685	reject
KM <---	KSH	.131	.039	2.798	.005	accept
KM <---	KU	.084	.042	1.795	.073	accept
KM <---	KR	.205	.046	4.356	***	accept
OL <---	KM	.261	.048	5.582	***	accept
KM (smc)		.084				
OL (smc)		.068				

Note: *** $p < 0.001$. Source: SEM-Amos output

Table 5 shows the regression weights in the default model for a particular set of variables (Group number 1). The dependent variable (KM or OL) is represented by the rows, while the independent variables (KA, KS, KI, KC, KSH, KU, KR) are represented by the columns.

For each dependent variable, the table displays the estimate (the regression coefficient), standard error (S.E.), critical ratio (C.R.), and p-value (P). The "Decision" column indicates whether the regression coefficient is statistically significant ($p < .05$) or not.

With respect to KM, the variables KA, KI, KSH, KU, and KR have statistically significant regression coefficients (marked by "accept" in the Decision column), however KS and KC do not (shown by "reject"). Only KM for OL has a regression coefficient that is statistically significant (denoted by "***" in the Decision column).

The table shows the squared multiple correlations for the context for the two predictor variables, KM and OL. The squared multiple co-relations are measure of how much of the variance in the dependent variable is accounted for by the predictor variables in the model.

The squared multiple correlation for KM is .084 for group number 1 in the default model, suggesting that KM explains 8.4% of the variation in the dependent variable. Since OL has a squared multiple correlation of .068, it can be said that it explains 6.8% of the variation in the dependent variable.

Chapter 6

Discussion

The main goal of our study is to examine the impact of knowledge management on organizational learning along with other valuable variables, such as knowledge creation, improvement, acquisition, storage, sharing, utilization and refinement. Here, knowledge management is a dependent variable and the others are independent. Proper management of knowledge is very essential for an organization because with improper knowledge and its usage an organization can be very much detrimental. Hypotheses H1, H2, H3, H4, H5, H6 and H7 investigated whether the dimensions of knowledge management are significant. The study results have supported all the seven hypotheses, which corroborate the existing research (Bouthillier & Shearer, 2002; Hung et al., 2011; Anand & Singh, 2011; Probst, G. J., 1998; Gunjal B., 2005; Janz and Prasarnphanich, 2003; Quintas, 1997; AlMashari et al., 2002; Kulkarni and Louis, 2003; King, W.R., 2009; Wang et al., 2005). These revealed that an organization values the knowledge system when it is created with organizational benignancy then the created knowledge is improved for acquisition, stored for dissemination, utilization and retouch the knowledge on a constant basis. Knowledge management can provide employees with access to relevant and accurate information, enabling them to make more informed decisions. Following consecutive steps for knowledge management makes the management effective and efficient which also makes the process matured. By promoting the sharing of ideas and knowledge, knowledge management can foster innovation and creativity within an organization.

The study investigated H8 and confirmed the impact of knowledge management on organizational learning. Organizational learning significantly affects by knowledge management system. The result of H8 corroborates the previous literature (e.g., Garratt, 1990; Schulz, 2001; Liao and Wu, 2010), which narrated that organizational learning depends on effective use of knowledge and for maintaining a strong learning culture, knowledge management is must which can enhance the learning capabilities of personnel or team members. It can help to create an environment where employees feel encouraged and empowered to share their expertise and learn from one another. With knowledge based management, organizations become more enthusiastic about their task or duty which increases their learning capability and makes the organization strengthful. These findings reveal that a feasible knowledge management system enhances the learning capability of an

organization, which is likely to influence the better performance of the organizational workers or employees. In addition, proper organizational learning can motivate the workers for the betterment of the organization using their learned knowledge. Therefore, knowledge management is an essential for organizational learning. Knowledge management plays an important role in facilitating organizational learning by creating a culture of continuous learning, capturing and retaining organizational knowledge, improving decision-making, fostering innovation, and enhancing overall performance.

Chapter 7

Conclusion

Theoretical and Managerial Implications

Results of the current study offer several theoretical and managerial contributions. Firstly, this study strengthens the subsisting literature on the knowledge management and organizational learning as comprehensive in a couple of ways: (1) this study integrates knowledge management and organizational learning into a single framework, which is hardly found altogether, (2) Knowledge management namely knowledge creation, knowledge improvement, knowledge acquisition, knowledge storage, knowledge sharing, knowledge utilization and knowledge refinement provides clear and precise insights of organizational learning towards knowledge management practice. The theoretical impact of knowledge management extends beyond the practical benefits of managing knowledge within an organization. It challenges traditional views of knowledge, learning, and organizations, and offers a new perspective on how we can create and share knowledge to drive innovation, maximize learning and create value. Secondly, the current research edify that organizational learning mostly affected by knowledge management, revealing that this has an incredible influence on organizational interactions to build explicit, mutual interactions and long-lasting organizational knowledge. Overall, knowledge management can be an effective tool for managing theoretical knowledge within an organization, helping to capture and organize knowledge, facilitate sharing and collaboration, and support the effective application of theoretical knowledge in real-world situations. Moreover, we believe it will encourage future researchers to extend this model or develop a model with the variables best suited to knowledge management research.

The results of the study also have specific managerial implications. First, this study identifies seven distinctive dimensions of knowledge management that may allow managers to improve knowledge interfaces and features that facilitate knowledge engaged acceptance, productivity quality and continued practice. Specifically, organization managers or organizational knowledge practitioners should include particular perspectives of research and development, encouragement and purification in the system they build to increase comprehensive acceptance. They should pay attention to the living presence, continued development and increasing the likelihood of continued learning and productivity. Organizational learning can be facilitated through the knowledge management process which is essential for any

organization. Second, the emersion of knowledge management has debatably changed the nature of learning. This study demonstrated that the outcome of knowledge management to the organizational learning is subliming; therefore, practitioners should prioritize organizational learning. Managers should pay additional concern towards the learning process for the employees of the organization. Overall, practitioners can adopt several strategies, such as continuous questing and learning strategies to improve versability, better consistency to provide eminent knowledge learning system in the organization, which is likely to stimulate the motive of enhancing the eagerness of learning. However, knowledge management can have important managerial implications for organizational learning, helping managers to identify knowledge gaps, promote knowledge sharing, encourage experimentation and innovation, capture and retain organizational knowledge, and support effective decision-making. By leveraging these implications, managers can help their organizations to adapt to changing environments, drive innovation, and achieve their goals.

Limitations and Future Scope

While this study has provided some valuable results, it also has some limitations that need to be addressed. First, the current research is based on a few variables which can cause dissents for ignoring other inevitable variables, including knowledge validation, knowledge presentation, knowledge formatting, knowledge application or risk factors: thus future studies are suggested to take into account mostly linked variables related to the model. Second, the samples of this study. The respondents in this study are all from Bangladesh. Thus, results may not be contextual to other cultural and economic contexts. Future researchers could therefore focus on examining different countries and regions that engage in knowledge management process. Third, the way this study has grouped knowledge management model, future scholars may empirically test this structure. Fourth, future researchers can also examine the workers' productivity level affected by organizational learning. This study suggests that future scholars should address these limitations.

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Appendix

Table 6: Questionnaire

Constructs	Items	
Knowledge Creation (Sahibzada, Latif, et al., 2020; Nisula et al., 2016; Liu et al., 2019; Razzaq et al., 2018)	KC1	Our organization is highly committed to research and development
	KC2	In our organization existing knowledge is used to develop new knowledge
	KC3	Our organization constantly searching for new ideas
	KC4	Our organization encourages me to engage in creative work.
	KC5	Our organization considers and rewards performance improvement and innovation
Knowledge Improvement (Liu et al., 2018)	KI1	In the organization, there are professionals assessing the value of newly acquired or generated knowledge
	KI2	The organization classifies valuable knowledge
	KI3	In the organization, there are professionals arranging experiences and knowledge appearing in past work
	KI4	The organization often adds new knowledge to the repository
	KI5	The organization has adopted a number of technical methods to save a variety of lessons learned
Knowledge Acquisition (Limsangpetch et al., 2022; Sahibzada, Latif, et al., 2020; Farrell et al., 2008; Zheng et al., 2010.)	KA1	Our organization receives knowledge from the knowledge worker
	KA2	Our organization believe that learning is an investment, not expenses
	KA3	Our organization consider that learning is an important factor to guarantee survival
	KA4	Our organization encouraged to enrich our knowledge
	KA5	Our organization encouraged to identify best way for future use.
Knowledge Storage (Razzaq et al., 2018; Liu et al., 2019; Nisula & Kianto, 2015; Zheng et al., 2010)	KS1	We actively collect development ideas
	KS2	We have a source of knowledge storage
	KS3	Our organization actively spreads new ideas among us.
	KS4	We use information technology to facilitate the process of knowledge storing
	KS5	Our organization regularly removes wrong information from the knowledge repository
Knowledge Sharing (Limsangpetch et al., 2022; Nisula & Kianto, 2015; Zheng et al., 2010; Andreeva & Kianto 2011)	KSH1	Our organization encourages sharing information with colleagues
	KSH2	We regularly share information and knowledge with our superior
	KSH3	We regularly share information and knowledge with our subordinates
	KSH4	Our workplace encourages knowledge workers to share knowledge
	KSH5	Knowledge workers who share knowledge with others receive rewards and recognition.

Knowledge Utilization (Limsangpetch et al., 2022; Sahibzada, Latif, et al., 2020; Farrell et al., 2008; Nisula & Kianto, 2015)	KU1	We apply knowledge to improve our work productivity.
	KU2	We utilize our knowledge to solve all the problems we face in our job.
	KU3	We can easily find the information required for work.
	KU4	At our workplace previous information is easily available.
	KU5	We feel encouraged to apply knowledge and experience learned from previous projects in subsequent projects.
Knowledge Refinement (Motowidlo and Scotter, 1994; Liu et al., 2018)	KR1	The organization routinely removes worthless, obsolete and repetitive knowledge from the repository of knowledge
	KR2	We follow proper procedures and avoid unauthorized shortcuts
	KR3	We pay close attention to each and every important details
	KR4	We take the initiative to solve a knowledge problem
	KR5	We support and encourage a coworker with a knowledge problem
Knowledge management (Spinello, 2000, p. 189; Liao and Wu, 2010; Kumar, Singh and Haleem, 2014)	KM1	The impact of knowledge sharing on organizational learning and effectiveness
	KM2	Knowledge management is positively related to organizational innovation
	KM3	Business with more knowledge management show higher capability in enhancing organizational learning
	KM4	Top management need to understand the importance of knowledge management and its implementation related processes
	KM5	Ignorance of KM consequences can cause barrier to the organization
Organizational Learning (Farrell et al., 2008)	OL1	Managers basically agree that our organization's ability to learn is the key to our competitive advantage.
	OL2	The basic values of this organization include learning as a key to improvement.
	OL3	The sense around here is that employee learning is an investment, not an expense.
	OL4	Learning in our organization is seen as a key commodity necessary to guarantee organizational survival.
	OL5	There is total agreement on our organizations' vision across all levels, functions and divisions.

Source: review of literature.

Table 7

Exploratory Factor Analysis

Rotated Component Matrix ^a									
	Component								
	1	2	3	4	5	6	7	8	9
KC1									.869
KC2									.877
KC3									.904
KC4									.874
KC5									.879
KI1			.917						
KI2			.929						
KI3			.921						
KI4			.919						
KI5			.911						
KA1					.889				
KA2					.924				
KA3					.930				
KA4					.929				
KA5					.891				
KS1							.903		
KS2							.887		
KS3							.909		
KS4							.906		
KS5							.892		
KSH1						.879			
KSH2						.864			
KSH3						.922			
KSH4						.932			
KSH5						.900			
KU1				.914					
KU2				.924					
KU3				.915					
KU4				.909					
KU5				.887					
KR1								.866	
KR2								.889	
KR3								.895	
KR4								.853	
KR5								.870	
OL1		.910							
OL2		.941							

OL3		.903							
OL4		.924							
OL5		.907							
KM1	.906								
KM2	.946								
KM3	.906								
KM4	.922								
KM5	.922								

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table 8

Component	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.216	24.925	24.925	11.216	24.925	24.925	4.508	10.018	10.018
2	4.643	10.319	35.244	4.643	10.319	35.244	4.476	9.947	19.965
3	3.977	8.838	44.081	3.977	8.838	44.081	4.447	9.883	29.848
4	3.592	7.982	52.063	3.592	7.982	52.063	4.432	9.849	39.697
5	3.450	7.666	59.729	3.450	7.666	59.729	4.357	9.682	49.378
6	3.291	7.313	67.041	3.291	7.313	67.041	4.328	9.619	58.997
7	3.197	7.104	74.146	3.197	7.104	74.146	4.261	9.469	68.466
8	3.005	6.677	80.822	3.005	6.677	80.822	4.238	9.417	77.883
9	2.782	6.183	87.005	2.782	6.183	87.005	4.105	9.123	87.005