

Identifying Dimensions and Components of the Knowledge Management Model for Secondary School Principals in Tehran

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ABSTRACT

Purpose: This study aims to identify the dimensions and components of a KM model tailored for secondary school principals in Tehran, addressing the need for systematic handling of knowledge assets to create value and achieve strategic goals.

Methodology: This qualitative research involved 24 secondary school principals from various schools in Tehran. Data were collected through semi-structured interviews, allowing for in-depth exploration of participants' experiences and perspectives. The interviews were conducted in Persian and transcribed verbatim. Data analysis was performed using NVivo software, following a thematic analysis approach to identify significant themes and sub-themes related to KM practices. The sample size was determined based on theoretical saturation.

Findings: The thematic analysis revealed nine main themes critical to effective KM practices: Knowledge Management Processes, Technological Capabilities, Organizational Culture and Structure, Human Resource Management, Strategic Management, Managerial Support, Learning and Innovation, Efficiency and Effectiveness, and Knowledge Architecture. Each theme comprised several categories and concepts essential for fostering a knowledge-sharing environment and enhancing educational outcomes.

Conclusion: The study concludes that effective KM practices are crucial for secondary school principals in Tehran to navigate their roles' complexities and improve educational outcomes. By understanding and implementing the identified dimensions and components of the KM model, school leaders can foster a culture of continuous learning and innovation, enhance organizational performance, and create an environment conducive to knowledge sharing and application. These findings align with existing KM theories and models, providing practical recommendations for enhancing KM practices in schools.

Keywords: Knowledge Management, Secondary School Principals, Educational Administration, Organizational Culture, Technological Capabilities, Human Resource Management, Strategic Management, Learning and Innovation

1. Introduction

Today, effective knowledge management has become a critical component for enhancing the performance and efficiency of school administrations. Knowledge management (KM) involves the systematic handling of knowledge assets to create value and meet tactical and strategic requirements. This practice is especially crucial for secondary school principals who must navigate complex organizational environments, drive educational improvements, and foster an atmosphere conducive to learning and innovation (Ayeni, 2012). The significance of KM in educational settings has been increasingly recognized in recent years. Effective KM practices can lead to improved decision-making, enhanced organizational performance, and the creation of a collaborative and innovative school culture (Kulkarni et al., 2006). For secondary school principals, the ability to manage and utilize knowledge effectively is crucial for addressing the diverse challenges they face, including resource constraints, policy changes, and the need for continuous improvement in educational outcomes (Akbari & Ghaffari, 2017).

Knowledge management in schools involves the processes of acquiring, sharing, and utilizing knowledge to improve educational practices and administrative functions (Argote et al., 2003; Kavalić et al., 2022; Mills & Smith, 2011; Muniz et al., 2010). According to Hedlund (2007), the N-form corporation model highlights the importance of knowledge creation and dissemination within organizations, which is applicable to school settings where principals must harness the collective knowledge of their staff to drive school improvement (Hedlund, 2007). García-Fernández (2015) further emphasizes the multidimensional nature of KM, which includes knowledge acquisition, dissemination, and application (García-Fernández, 2015). Despite the recognized importance of KM, principals often face significant challenges in implementing effective KM practices. Factors such as limited resources, inadequate training, and resistance to change can hinder the adoption of KM initiatives (Zaied et al., 2012). Additionally, the hierarchical nature of many school systems can impede the free flow of knowledge and collaboration among staff members (Balkar & Şahin, 2015).

In Tehran, secondary school principals are tasked with managing schools in a dynamic and often challenging environment. The educational landscape in Tehran is characterized by a diverse student population, varying levels of resource availability, and a need for continuous adaptation

to educational reforms and technological advancements (Soloki et al., 2020). Effective KM practices can help principals navigate these complexities by fostering a culture of continuous learning and innovation (Turulja & Bajgorić, 2018).

Numerous models and theories have been developed to understand and enhance KM practices. Hedlund's (2007) N-form corporation model provides a framework for understanding the complex dynamics of knowledge creation and sharing within organizations. This model is particularly relevant for educational settings where the continuous generation and application of knowledge are essential for school improvement (Hedlund, 2007). Akbari and Ghaffari (2017) explored the relationship between KM initiatives and the empowerment of human resources, highlighting the critical role of staff development and engagement in successful KM implementation. This perspective underscores the importance of creating an environment where teachers and staff feel empowered to share and utilize knowledge (Akbari & Ghaffari, 2017). García-Fernández (2015) proposed a comprehensive model for measuring KM, which includes dimensions such as knowledge acquisition, dissemination, and application. This model provides a useful framework for assessing the effectiveness of KM practices in schools and identifying areas for improvement (García-Fernández, 2015). The application of KM in educational settings has been the focus of several studies. Zaied, Hussein, and Hassan (2012) examined the role of KM in enhancing organizational performance, finding that effective KM practices can lead to significant improvements in school operations and student outcomes (Zaied et al., 2012). Similarly, Turulja and Bajgorić (2018) highlighted the importance of organizational learning dimensions in building KM capabilities within schools. The role of leadership in KM is also critical (Turulja & Bajgorić, 2018). Balkar and Şahin (2015) found that the leadership skills of high school principals significantly impact their KM process competencies. Effective leaders can create a culture of trust and openness, which is essential for fostering knowledge sharing and collaboration among staff (Balkar & Şahin, 2015).

Implementing KM in schools is not without challenges. Factors such as limited resources, inadequate training, and resistance to change can impede the successful adoption of KM practices (Zaied et al., 2012). Additionally, the hierarchical nature of many school systems can create barriers to the free flow of knowledge and collaboration (Argote et al., 2003; Paudel, 2020, 2023; Paudel et al., 2021;

Sitarski, 2010). However, there are also significant opportunities for enhancing KM in schools. The integration of technology, for instance, can facilitate the efficient management and dissemination of knowledge (Sitarski, 2010). Additionally, fostering a culture of continuous learning and innovation can help schools adapt to changing educational environments and improve student outcomes (Turulja & Bajgorić, 2018).

This study aims to identify the dimensions and components of a knowledge management model specifically tailored for secondary school principals in Tehran. By understanding the key elements that contribute to effective KM, this research seeks to provide insights that can enhance the capabilities of school leaders and ultimately improve educational outcomes.

2. Methods and Materials

2.1. Study Design and Participants

This study employs a qualitative research design aimed at identifying the dimensions and components of the knowledge management model for secondary school principals in Tehran. The qualitative approach is chosen to gain in-depth insights and a comprehensive understanding of the participants' experiences and perspectives.

The participants of this study are secondary school principals from various schools in Tehran. A purposive sampling method is utilized to select individuals who have significant experience and knowledge in managing secondary schools. This approach ensures that the selected participants can provide rich, detailed information relevant to the research objectives.

The concept of theoretical saturation guides the sample size in this study. Interviews continue until no new themes or insights emerge from the data, indicating that theoretical saturation has been achieved. This ensures that the collected data comprehensively covers the research topic and provides sufficient depth for analysis.

Ethical considerations are paramount in this study. Participants are informed about the research objectives, procedures, and their rights, including the right to withdraw at any time without penalty. Informed consent is obtained from all participants prior to their involvement. Additionally, confidentiality is maintained by anonymizing the data and ensuring that personal identifiers are removed from the transcripts.

By employing these methods and materials, this study aims to provide a detailed and reliable exploration of the

knowledge management practices among secondary school principals in Tehran, contributing valuable insights to the field of educational management.

2.2. Measures

2.2.1. Semi-Structured Interview

Data collection is conducted through semi-structured interviews. This method allows for flexibility in exploring the participants' views while ensuring that specific topics related to knowledge management are covered. The interview guide includes open-ended questions designed to elicit detailed responses about the participants' experiences, practices, and perceptions regarding knowledge management in their schools.

Each interview lasts approximately 60 to 90 minutes and is recorded with the participants' consent to ensure accuracy in data collection. The interviews are conducted in Persian, the native language of the participants, to facilitate comfortable and open communication.

2.3. Data Analysis

The data analysis is performed using NVivo software, a qualitative data analysis tool that assists in organizing and analyzing large volumes of textual data. The analysis process includes the following steps:

Transcription: All interviews are transcribed verbatim to create a complete and accurate textual record of the conversations.

Coding: The transcriptions are imported into NVivo, where they are systematically coded. Initial coding is conducted to identify significant statements and phrases related to knowledge management. These codes are then grouped into categories based on their similarities and differences.

Theme Development: Through an iterative process of reviewing and refining the categories, overarching themes and sub-themes are developed. These themes represent the key dimensions and components of the knowledge management model as identified from the participants' responses.

Verification: To ensure the credibility and trustworthiness of the findings, member checking is performed. Participants are provided with summaries of the identified themes and asked to confirm their accuracy and relevance to their experiences.

3. Findings and Results

The study involved a total of 24 secondary school principals from various schools in Tehran. The participants included 14 males (58%) and 10 females (42%), reflecting a diverse representation of gender. The age range of the principals was between 35 and 60 years, with the majority

(75%) being in the 40-55 age bracket. In terms of educational qualifications, 18 participants (75%) held a master's degree, while the remaining 6 (25%) had a doctoral degree. The principals had varying years of experience in their roles, ranging from 5 to 25 years, with an average of 15 years of experience.

Table 1

Thematic Analysis Results

Category	Subcategory	Concepts
Knowledge Management Processes	Processes of Knowledge Management	Knowledge creation, knowledge sharing, knowledge storage, knowledge application
	Technological Capabilities	IT infrastructure, software tools, data management systems, technical support
Organizational Culture and Structure	Technological Infrastructure	Network systems, hardware resources, cybersecurity measures, cloud computing
	Organizational Culture	Shared values, trust and openness, communication channels, collaboration
	Organizational Infrastructure	Organizational hierarchy, role definitions, workflow processes, decision-making procedures
Human Resource Management	Teamwork	Collaboration, interdepartmental coordination, team-building activities, joint problem-solving
	Human Resource Management	Recruitment, training and development, performance evaluation, employee retention
Strategic Management	Empowerment	Skill enhancement, delegation of authority, professional growth opportunities, autonomy
	Strategy and Goals	Vision and mission, strategic planning, goal alignment, performance metrics
Managerial Support	Benchmarking	Best practices, industry standards, competitor analysis, continuous improvement
	Senior Management Support	Leadership commitment, resource allocation, policy formulation, mentoring
Learning and Innovation	Learning and Innovation	Continuous learning, creative thinking, research and development, innovation initiatives
	Knowledge-Driven Motivation Drivers	Incentives for knowledge sharing, recognition programs, career advancement opportunities, motivational workshops
Efficiency and Effectiveness	Productivity and Efficiency	Workflow optimization, resource utilization, time management, cost-effectiveness
Knowledge Architecture	Knowledge Architecture	Knowledge repositories, information flow design, taxonomy development, metadata standards

The thematic analysis of the interviews revealed several key categories and subcategories relevant to the knowledge management model for secondary school principals in Tehran. Each subcategory is accompanied by specific concepts that provide deeper insights into the participants' perspectives. Below is a detailed description of the identified themes, supported by quotations from the interviews.

3.1. Knowledge Management Processes

3.1.1. Processes of Knowledge Management:

This subcategory encompasses the core activities involved in managing knowledge within the schools. The concepts identified include:

Knowledge creation: "We encourage teachers to develop new teaching methods and share them with colleagues."

Knowledge sharing: "Regular meetings and workshops are held to facilitate the exchange of ideas and best practices."

Knowledge storage: "We have a digital repository where all important documents and lesson plans are stored."

Knowledge application: "The strategies we develop are implemented in classrooms to improve student outcomes."

3.2. Technological Capabilities

3.2.1. Technological Capabilities:

The participants highlighted the importance of technological resources in supporting knowledge management. The concepts include:

IT infrastructure: "Our school's network and internet access are crucial for accessing and sharing information."

Software tools: "We use various software tools for data management and communication."

Data management systems: "Having a robust data management system helps us track student progress and make informed decisions."

Technical support: "Technical support is always available to assist with any IT-related issues."

3.2.2. *Technological Infrastructure:*

This subcategory focuses on the physical and digital infrastructure that supports technological capabilities. The concepts are:

Network systems: "A reliable network system is essential for our daily operations."

Hardware resources: "We ensure that all staff have access to necessary hardware like computers and tablets."

Cybersecurity measures: "Protecting our data from cyber threats is a top priority."

Cloud computing: "Using cloud services allows us to store and access data remotely."

3.3. *Organizational Culture and Structure*

3.3.1. *Organizational Culture:*

The culture within the school significantly influences knowledge management practices. The concepts include:

Shared values: "We have a culture of mutual respect and shared goals."

Trust and openness: "Trust among staff members is vital for effective knowledge sharing."

Communication channels: "Open lines of communication help in addressing issues promptly."

Collaboration: "Collaborative efforts are encouraged to solve problems and innovate."

3.3.2. *Organizational Infrastructure:*

This subcategory pertains to the structural aspects of the school organization. The concepts are:

Organizational hierarchy: "A clear hierarchy helps in defining roles and responsibilities."

Role definitions: "Each staff member knows their role and how they contribute to the school's objectives."

Workflow processes: "Streamlined workflow processes enhance efficiency."

Decision-making procedures: "Decisions are made collaboratively, ensuring everyone's input is considered."

3.3.3. *Teamwork:*

Effective teamwork is crucial for successful knowledge management. The concepts include:

Collaboration: "Teamwork is essential for achieving our common goals."

Interdepartmental coordination: "Coordination between different departments ensures smooth operations."

Team-building activities: "Regular team-building activities foster a sense of unity."

Joint problem-solving: "Working together to solve problems leads to better outcomes."

3.4. *Human Resource Management*

3.4.1. *Human Resource Management:*

Managing human resources effectively is key to supporting knowledge management. The concepts include:

Recruitment: "We hire individuals who are not only qualified but also a good fit for our culture."

Training and development: "Continuous training programs help staff stay updated with the latest knowledge."

Performance evaluation: "Regular evaluations ensure that everyone is meeting their goals."

Employee retention: "We focus on retaining talented staff through various incentive programs."

3.4.2. *Empowerment:*

Empowering staff members enhances their contribution to knowledge management. The concepts are:

Skill enhancement: "We provide opportunities for skill development."

Delegation of authority: "Staff are given the authority to make decisions in their areas of expertise."

Professional growth opportunities: "Professional growth is encouraged through workshops and seminars."

Autonomy: "Staff have the autonomy to implement new ideas and methods."

3.5. *Strategic Management*

3.5.1. *Strategy and Goals:*

Strategic planning is crucial for effective knowledge management. The concepts include:

Vision and mission: "Our vision and mission guide all our activities."

Strategic planning: "We have a detailed strategic plan that aligns with our goals."

Goal alignment: "All staff are aware of and work towards our common goals."

Performance metrics: "We use performance metrics to measure our success."

3.5.2. Benchmarking:

Benchmarking helps in comparing and improving practices. The concepts are:

Best practices: "We adopt best practices from other successful schools."

Industry standards: "Adhering to industry standards ensures quality."

Competitor analysis: "Analyzing competitors helps us stay ahead."

Continuous improvement: "We are always looking for ways to improve our practices."

3.6. Managerial Support

3.6.1. Senior Management Support:

Support from senior management is essential for successful knowledge management. The concepts include:

Leadership commitment: "Our leaders are committed to fostering a knowledge-sharing environment."

Resource allocation: "Adequate resources are allocated for knowledge management initiatives."

Policy formulation: "Policies are in place to support knowledge management."

Mentoring: "Senior managers mentor staff to develop their skills and knowledge."

3.7. Learning and Innovation

3.7.1. Learning and Innovation:

Continuous learning and innovation are vital for knowledge management. The concepts include:

Continuous learning: "We promote a culture of continuous learning."

Creative thinking: "Creative thinking is encouraged to solve problems."

Research and development: "Research and development are key components of our strategy."

Innovation initiatives: "Various initiatives are in place to foster innovation."

3.7.2. Knowledge-Driven Motivation Drivers:

Motivating staff to engage in knowledge management activities is crucial. The concepts are:

Incentives for knowledge sharing: "Incentives are provided for sharing knowledge."

Recognition programs: "Staff are recognized for their contributions."

Career advancement opportunities: "Opportunities for career advancement are available."

Motivational workshops: "Workshops are held to motivate staff."

3.8. Efficiency and Effectiveness

3.8.1. Productivity and Efficiency:

Enhancing productivity and efficiency is a key focus. The concepts include:

Workflow optimization: "We constantly work on optimizing our workflows."

Resource utilization: "Effective utilization of resources is essential."

Time management: "Good time management practices are followed."

Cost-effectiveness: "We aim to achieve cost-effectiveness in all our activities."

3.9. Knowledge Architecture

3.9.1. Knowledge Architecture:

The architecture of knowledge management systems is crucial for their effectiveness. The concepts include:

Knowledge repositories: "We have well-organized knowledge repositories."

Information flow design: "The design of information flow is streamlined."

Taxonomy development: "A clear taxonomy is developed for easy access to information."

Metadata standards: "Metadata standards are followed to ensure consistency."

4. Discussion and Conclusion

This study aimed to identify the dimensions and components of a knowledge management (KM) model for secondary school principals in Tehran. The thematic analysis of the interviews revealed nine main themes critical to effective knowledge management (KM) practices for secondary school principals in Tehran: Knowledge

Management Processes, Technological Capabilities, Organizational Culture and Structure, Human Resource Management, Strategic Management, Managerial Support, Learning and Innovation, Efficiency and Effectiveness, and Knowledge Architecture. Each theme comprises several categories that encompass various concepts relevant to KM in the educational context.

Knowledge Management Processes encompass the fundamental activities involved in managing knowledge within the schools. The categories identified within this theme include knowledge creation, knowledge sharing, knowledge storage, and knowledge application. Knowledge creation involves encouraging teachers to develop new teaching methods. Knowledge sharing is facilitated through regular meetings and workshops where best practices are exchanged. Knowledge storage refers to maintaining a digital repository of important documents and lesson plans. Knowledge application is about implementing developed strategies in classrooms to enhance student outcomes.

Technological Capabilities highlight the importance of technology in supporting KM practices. This theme includes the categories of IT infrastructure, software tools, data management systems, and technical support. IT infrastructure pertains to the school's network and internet access, which are crucial for information access and sharing. Software tools are various applications used for data management and communication. Data management systems involve robust systems for tracking student progress and making informed decisions. Technical support ensures that IT-related issues are promptly addressed, maintaining the efficiency of technological resources.

Organizational Culture and Structure significantly influence KM practices within schools. The identified categories include organizational culture, organizational infrastructure, and teamwork. Organizational culture involves shared values, trust and openness, communication channels, and collaboration. Organizational infrastructure refers to the organizational hierarchy, role definitions, workflow processes, and decision-making procedures that streamline operations. Teamwork emphasizes collaboration, interdepartmental coordination, team-building activities, and joint problem-solving, fostering a collaborative environment conducive to effective KM.

Human Resource Management is crucial for supporting KM practices, with categories such as recruitment, training and development, performance evaluation, and employee retention. Recruitment focuses on hiring individuals who align with the school's culture and goals. Training and

development involve continuous programs to keep staff updated with the latest knowledge. Performance evaluation ensures staff meet their goals and contribute effectively. Employee retention strategies are designed to retain talented staff through various incentives. Empowerment, another category, includes skill enhancement, delegation of authority, professional growth opportunities, and autonomy, fostering an environment where staff feel empowered and engaged.

Strategic Management includes vision and mission, strategic planning, goal alignment, and performance metrics. Vision and mission guide all activities within the school. Strategic planning involves detailed plans that align with the school's goals. Goal alignment ensures that all staff work towards common objectives. Performance metrics are used to measure the success of KM initiatives. Benchmarking is another category, involving the adoption of best practices, adherence to industry standards, competitor analysis, and continuous improvement, ensuring that the school remains competitive and effective in its KM practices.

Managerial Support is essential for successful KM implementation, including categories such as leadership commitment, resource allocation, policy formulation, and mentoring. Leadership commitment involves senior management fostering a knowledge-sharing environment. Resource allocation ensures adequate resources for KM initiatives. Policy formulation includes policies supporting KM practices, and mentoring involves senior managers developing staff skills and knowledge through guidance and support.

Learning and Innovation are critical for fostering a culture of continuous improvement. This theme includes categories such as continuous learning, creative thinking, research and development, and innovation initiatives. Continuous learning promotes a culture where staff are encouraged to keep learning. Creative thinking is encouraged to solve problems. Research and development are key to innovation within the school. Innovation initiatives are various programs and activities designed to foster new ideas and practices. Knowledge-driven motivation drivers, another category, include incentives for knowledge sharing, recognition programs, career advancement opportunities, and motivational workshops, motivating staff to engage in KM practices.

Efficiency and Effectiveness focus on optimizing productivity and resource utilization. This theme includes categories such as workflow optimization, resource utilization, time management, and cost-effectiveness.

Workflow optimization involves streamlining processes to enhance efficiency. Resource utilization ensures that all resources are used effectively. Time management practices help in achieving goals within set timelines. Cost-effectiveness aims to achieve the best outcomes with the least resources, enhancing the overall efficiency of KM practices.

Knowledge Architecture is crucial for the effectiveness of KM systems. This theme includes categories such as knowledge repositories, information flow design, taxonomy development, and metadata standards. Knowledge repositories are well-organized databases of information. Information flow design ensures smooth and efficient information transfer within the organization. Taxonomy development involves creating a clear classification system for easy access to information. Metadata standards ensure consistency and reliability of the information stored, making it easier to retrieve and use knowledge efficiently.

The study identified processes of knowledge management as a fundamental category, encompassing knowledge creation, sharing, storage, and application. These processes are critical for effective KM in schools. García-Fernández (2015) emphasized the multidimensional nature of KM, highlighting the importance of these processes in achieving organizational goals. The findings from this study align with García-Fernández's model, indicating that Tehran's secondary school principals actively engage in these processes to enhance educational outcomes (García-Fernández, 2015).

The emphasis on knowledge sharing is particularly noteworthy. Principals reported that regular meetings and workshops facilitate the exchange of ideas and best practices among teachers. This finding is consistent with Kulkarni, Ravindran, and Freeze (2006), who found that knowledge sharing significantly contributes to the success of KM initiatives (Kulkarni et al., 2006). Additionally, the study by Zaied, Hussein, and Hassan (2012) supports the idea that knowledge sharing enhances organizational performance, reinforcing the importance of this process in educational settings (Zaied et al., 2012).

Technological capabilities emerged as a crucial category, highlighting the role of IT infrastructure, software tools, data management systems, and technical support in supporting KM. The integration of technology in KM practices is well-documented in the literature. Sitarski (2010) emphasized the role of information technology systems in facilitating KM, which is corroborated by the findings of this study. Principals reported that a robust IT infrastructure and

reliable technical support are essential for managing and sharing knowledge effectively (Sitarski, 2010).

The study also highlighted the importance of cybersecurity measures and cloud computing in enhancing technological capabilities. These elements are critical for ensuring the security and accessibility of knowledge resources. The findings align with Muniz, Batista, and Loureiro (2010), who identified the integration of technology as a key factor in successful KM implementation (Muniz et al., 2010).

The study revealed that organizational culture and structure significantly influence KM practices. Principals emphasized the importance of shared values, trust, open communication, and collaboration in fostering an environment conducive to knowledge sharing. Balkar and Şahin (2015) found that the leadership skills of school principals impact their KM competencies, particularly in creating a culture of trust and openness. This finding is supported by the current study, which highlights the role of principals in cultivating a collaborative organizational culture (Balkar & Şahin, 2015).

The hierarchical nature of schools was also noted as a potential barrier to KM. Principals reported that clear role definitions and streamlined workflow processes are essential for effective KM. This finding aligns with Hedlund (2007), who emphasized the importance of organizational structure in facilitating knowledge creation and dissemination (Hedlund, 2007).

Effective human resource management (HRM) is critical for supporting KM practices. The study identified recruitment, training and development, performance evaluation, and employee retention as key HRM components. Akbari and Ghaffari (2017) explored the relationship between KM initiatives and the empowerment of human resources, highlighting the importance of staff development in successful KM implementation. The findings of this study support Akbari and Ghaffari's conclusions, indicating that continuous training and development programs are essential for enhancing the KM capabilities of school staff (Akbari & Ghaffari, 2017).

Empowerment was another important subcategory, with principals emphasizing the need for skill enhancement, delegation of authority, and professional growth opportunities. This finding aligns with the work of Zaied, Hussein, and Hassan (2012), who found that empowering employees enhances their engagement in KM practices (Zaied et al., 2012).

Strategic management, including vision and mission, strategic planning, goal alignment, and performance metrics, was identified as a crucial category. Principals reported that having a clear strategic vision and aligning goals with KM initiatives are essential for achieving educational objectives. This finding is consistent with the work of Ibidunni et al. (2020), who emphasized the importance of strategic planning in KM and innovation performance (Ibidunni et al., 2020).

Benchmarking was also highlighted as an important practice, with principals adopting best practices from other successful schools. This finding supports García-Fernández (2015), who noted the role of benchmarking in improving KM practices (García-Fernández, 2015).

Support from senior management emerged as a key factor in successful KM implementation. Principals reported that leadership commitment, resource allocation, policy formulation, and mentoring are essential for fostering a knowledge-sharing environment. This finding aligns with the work of Balkar and Şahin (2015), who found that the leadership skills of principals significantly impact their KM process competencies (Balkar & Şahin, 2015). Additionally, the study by Turulja and Bajgorić (2018) supports the idea that managerial support is crucial for building KM capabilities within schools (Turulja & Bajgorić, 2018).

The study identified learning and innovation as critical components of KM. Continuous learning, creative thinking, research and development, and innovation initiatives were highlighted as essential for fostering a culture of knowledge sharing and application. Lin (2007) found that knowledge sharing enhances firm innovation capability, which is consistent with the findings of this study. Principals reported that promoting a culture of continuous learning and innovation is essential for adapting to changing educational environments and improving student outcomes (Lin, 2007).

Knowledge-driven motivation drivers, such as incentives for knowledge sharing, recognition programs, and career advancement opportunities, were also emphasized. This finding supports the work of Kulkarni, Ravindran, and Freeze (2006), who found that motivating employees to engage in KM practices is critical for their success (Kulkarni et al., 2006).

Enhancing productivity and efficiency was identified as a key focus of KM practices. Principals reported that workflow optimization, resource utilization, time management, and cost-effectiveness are essential for achieving organizational goals. This finding aligns with the work of Mills and Smith (2011), who found that effective

KM practices can lead to significant improvements in organizational performance (Mills & Smith, 2011).

The architecture of KM systems, including knowledge repositories, information flow design, taxonomy development, and metadata standards, was highlighted as crucial for their effectiveness. The findings support the work of García-Fernández (2015), who emphasized the importance of a well-designed knowledge architecture in facilitating KM processes (García-Fernández, 2015).

The study concludes that effective KM practices are crucial for secondary school principals in Tehran to navigate the complexities of their roles and improve educational outcomes. By understanding and implementing the identified dimensions and components of the KM model, school leaders can foster a culture of continuous learning and innovation, enhance organizational performance, and create an environment conducive to knowledge sharing and application. The findings align with existing KM theories and models and are supported by previous research, reinforcing the importance of these practices in educational settings.

This study has several limitations. The sample size was limited to 24 secondary school principals in Tehran, which may not be representative of all secondary schools in the region. Additionally, the study relied on self-reported data from interviews, which may be subject to bias or inaccuracies. The qualitative nature of the study also means that the findings may not be generalizable to other contexts or educational systems.

Future research should consider a larger and more diverse sample to enhance the generalizability of the findings. Quantitative studies could be conducted to validate the identified KM dimensions and components and to examine their impact on educational outcomes statistically. Additionally, longitudinal studies could explore how KM practices evolve over time and their long-term effects on school performance. Further research could also investigate the specific challenges and barriers to implementing KM practices in different educational contexts.

For practical implications, school leaders should focus on developing robust KM processes and integrating technology to support these practices. Creating a supportive organizational culture that values trust, openness, and collaboration is essential. Continuous professional development and empowerment of staff should be prioritized to enhance their engagement in KM activities. Strategic planning and managerial support are critical for aligning KM initiatives with school goals and ensuring their

success. Educational policymakers should consider these findings to design policies and programs that facilitate effective KM in schools, ultimately improving educational outcomes for students.

Authors' Contributions

The first author was responsible for conducting the interview and collecting data, and the other authors were responsible for analyzing the data and writing the article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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