Digital Knowledge Management Model in Education of Universities in Heilongjiang Province

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Abstract

This research aimed to 1) study the level of digital knowledge management in education of universities in Heilongjiang Province; 2) study the exploratory factor analysis of digital knowledge management in education of universities in Heilongjiang Province; and 3) propose the digital knowledge management model in education of universities in Heilongjiang Province. The research methodology was to conduct a questionnaire survey on 432 university administrators and teachers from 36 universities in Heilongjiang Province; the sample level inquiry was 10 key informants, the most significant sector research statistics, and multiple regression analysis and qualitative research were used to triangulate the data. Inductive research was conducted, the content of the documents and research data was analyzed, and the survey data was collected.

It was found that 1. The overall level of digital knowledge management in education of universities in Heilongjiang Province was at the highest level, with an average value between 3.45–4.07 and a standard deviation between 0.669–0.920. 2. The analysis of the survey factors of digital knowledge management in education of universities in Heilongjiang Province found that the factors of digital knowledge management can be divided into five factors: 1) knowledge sharing, 2) policy planning, 3) data management, 4) digital literacy, and 5) organizational culture. 3. The education model of universities in Heilongjiang Province, with 5 elements of digital knowledge management for detailed understanding and promotion of digital literacy support knowledge sharing and management direction certification, reflects the knowledge of information technology direction of technology initiatives and management strategies and establishes a continuous knowledge processing framework.

Keywords: Knowledge management model; Digital knowledge management; Higher education

Introduction

Knowledge Management (KM) is regarded as an important strategic tool in modern organizations to enhance their competitiveness and innovation capabilities (Yusril & Nurmiati, 2021). With the rise of the knowledge economy, knowledge has become the core asset of organizations, and how to effectively manage and utilize knowledge has become a key issue (Rezaei et al., 2021). The core of knowledge management is to promote the creation, sharing and application of knowledge through a systematic management process, thereby improving the overall performance and innovation capabilities of the organization. This process involves not only the storage and dissemination of knowledge, but also the integration, updating and innovation of knowledge to adapt to the ever-changing market environment and technological development.

Knowledge management plays an important role in organizations, mainly in improving organizational performance, promoting innovation and supporting organizational learning. First, effective knowledge management can improve the quality and efficiency of organizational decision-making, reduce decision-making errors, and thus improve overall performance (Giebels et al., 2020). Through knowledge sharing and reuse, organizations can reduce duplication of work, improve production efficiency and reduce costs (Timoshenko et al., 2021). Secondly, knowledge management provides important support for innovation, by promoting knowledge exchange, stimulating employees' innovative thinking, and promoting the development of new products and new technologies (Akgul et al., 2021). In addition, knowledge management also supports organizational learning, provides employees with a good learning environment, and helps organizations establish a learning culture to adapt to the rapidly changing environment and achieve sustainable development (Iqbal, 2021).

Knowledge management faces many challenges in its implementation. First, the disconnect between theory and practice is a prominent problem. Although theoretical research on knowledge management has been continuously deepened, in practical applications, many theoretical models and methods are difficult to implement effectively, resulting in unsatisfactory knowledge management results (Gocotano et al., 2021). For example, some theories are too complex to be applied in specific organizational environments; some methods lack operability and cannot meet actual needs. Secondly, insufficient application of technology is also an important problem. Knowledge management relies on advanced information technology to support the storage, sharing and application of knowledge (Sugiarti et al., 2019). However, many organizations have deficiencies in technology application, such as the lack of effective knowledge management

systems and platforms, weak technical infrastructure, and the inability to support large-scale knowledge sharing and collaboration (Sidhatama et al., 2020). In addition, organizational cultural barriers cannot be ignored. The successful implementation of knowledge management requires a good organizational culture as a support (Rezaei et al., 2021). However, the existing culture of many organizations may not be conducive to knowledge sharing and communication, and there is a lack of trust and cooperation among employees. The traditional culture of some organizations emphasizes individualism and competition, and employees are reluctant to share knowledge; some management cultures are too authoritative and controlling, and employees lack the motivation to participate and innovate; some cultural atmospheres lack openness and tolerance, which is not conducive to knowledge exchange and innovation.

Digital Knowledge Management (DKM) is the extension and development of knowledge management in a digital environment. It uses digital technology to manage, store, share and apply the knowledge resources of an organization. With the rapid development of information technology, especially the widespread application of technologies such as the Internet, big data and artificial intelligence, the generation, dissemination and utilization of knowledge have undergone profound changes (Cabrilo et al., 2024). As an important means to cope with these changes, digital knowledge management has gradually become the focus of attention in academia and industry. It involves how to effectively manage and utilize knowledge resources in a digital environment to support organizational innovation and competitiveness. Technological progress and globalization have promoted the application of digital communication in project management virtual teams, which provides a background for the development of digital knowledge management (Swart et al., 2022).

Therefore, the researcher is interested in studying the Digital Knowledge Management Model in Education of Universities in Heilongjiang Province to establish the role of the digital knowledge management model in the creation and development of universities. The development of such a model will directly affect the quality of education and the overall efficiency of the education system. It also opens new directions and opportunities for the development of education in the future.

Research Objectives

1. To study the level of digital knowledge management in education of universities in Heilongjiang Province.

2. To study the exploratory factor analysis of digital knowledge management in education of universities in Heilongjiang Province.

3. To propose the digital knowledge management model in education of universities in Heilongjiang Province.

Literature Review

Research on Digital Knowledge Management Model in Education of Universities in Heilongjiang Province the researcher has synthesized concepts and theories related to the research as follows:

Concepts and theories related to knowledge management

In the digital era, knowledge management is a crucial aspect of organizational success. Knowledge sharing practices among library and information professionals play a significant role in enhancing information dissemination and retrieval.

Knowledge management (KM) is a crucial aspect in various organizational settings, including higher education institutions (HEIs) and healthcare organizations. Paudel (2020) conducted a study on the level of KM among faculty members in Nepali HEIs, finding that overall KM was high except for the knowledge generation process. Arukhe et al. (2020) explored the strong links between KM and organizational transformation (OT) through statistical inferences from a representative sample. Karamitri et al. (2020) emphasized the importance of KM in healthcare organizations for social development, presenting a valid and reliable questionnaire for assessing KM in such settings. Organizational culture also plays a significant role in knowledge management, as demonstrated by Rodríguez (2020) in a study validating causal relations between components of organizational culture and KM among teachers in a university setting. Additionally, Herlina et al. (2020) focused on organizational citizenship behavior and knowledge management behavior among supporting staff in higher education, highlighting the importance of these behaviors in the academic environment. As shown in the Figure 1, they believe that HEI's digital transformation process will lead to new and/or changed structures, procedures, and rules, as well as the establishment of new commitments and acceptance of changed values and

daily practices (including actions in teaching, research, third mission, and management areas). In addition, the transformation process involves the creation of new symbol and character models.

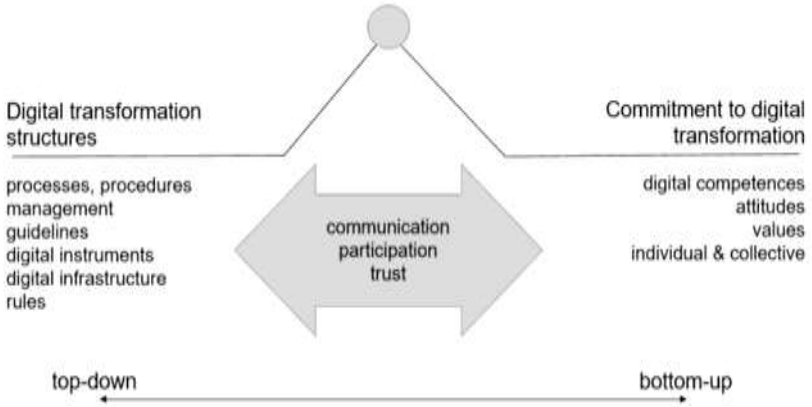

Figure 1 Higher Education Culture.

Source: Ehlers (2020)

The concept of knowledge management in education is a crucial aspect that has been explored in various studies. emphasizes the importance of professional competence formation among future managers of educational institutions, particularly in the context of the New Ukrainian school. This highlights the significance of deepening knowledge about the essence of professional competence in educational leadership roles. Similarly, delve into the competencies of project managers in the field of educational technology within higher education, presenting a conceptual framework based on knowledge, skills, and abilities (Budseeta et al., 2025). Furthermore, the impact of knowledge management on business education is highlighted, including the mediation of academic curriculum and the influence of the business environment. This research sheds light on the dynamic relationship between knowledge management and business education, emphasizing the design of the research model. Additionally, Hargitai et al. (2021) discuss integrating business students' e-learning preferences into knowledge management strategies of universities post-COVID-19, emphasizing the importance of understanding students' learning habits and preferences for effective distance education. In the context of disaster mitigation knowledge in education, Noviana et al. (2021) explore the knowledge of prospective elementary school teachers regarding various types of disasters, aiming to enhance disaster preparedness among educators. This study focuses on primary school teacher education department students at the University of Riau, highlighting the importance of disaster mitigation knowledge in teacher preparation programs. Overall, the advent of the digital era has brought forth a double-edged sword of opportunities and challenges for the field of knowledge management. In this rapidly evolving

landscape, organizations and professionals alike find themselves at a crossroads, where the ability to adapt to the ever-changing environment and wholeheartedly embrace digital transformation has become not just an option but an absolute necessity.

Concepts and theories related to digital knowledge management

Digital knowledge management theory refers to the systematic management and optimization of knowledge creation, storage, sharing, and utilization in a digital environment (Kusumawardani et al., 2023). It emphasizes promoting the accumulation and dissemination of knowledge through information technology means such as databases, knowledge bases, and collaborative platforms, thereby improving the quality of decision-making and innovation capabilities of organizations or individuals (Anaraki et al., 2024). Digital knowledge management not only focuses on the management of explicit knowledge but also values the mining and transformation of tacit knowledge. By promoting knowledge exchange and collaboration, it achieves the appreciation and innovation of knowledge. Additionally, it involves ethical and legal issues in knowledge management, ensuring the proper use of knowledge and protection of intellectual property rights. The theoretical framework of digital knowledge management typically includes aspects such as knowledge acquisition, knowledge storage, knowledge sharing, and knowledge application, aiming to enhance an organization's core competitiveness and adaptability through effective knowledge management strategies and tools.

Concepts and Theories related to knowledge management model

The influencing factors of knowledge management models are multifaceted, involving various internal and external elements of the organization (Hendradi, 2024). From an internal organizational perspective, leadership style and culture are key factors. Leadership support and participation can provide necessary resources and direction for knowledge management, while organizational culture influences employees' attitudes and behaviors towards knowledge sharing and innovation. The ability and motivation of employees are also crucial, including their professional knowledge, skills, and sense of identification and participation in knowledge management. Employee motivation and initiative are key factors for the success of knowledge management. The structure and process design of an organization can also affect the effectiveness of knowledge management. A reasonable organizational structure and process can promote the flow and integration of knowledge. For example, cross departmental collaboration mechanisms can break down departmental barriers and facilitate knowledge exchange and sharing. From a technical perspective, the completeness of information technology infrastructure directly affects the

acquisition, storage, sharing, and application of knowledge. Advanced information technology can improve the efficiency and quality of knowledge management, including knowledge management systems, databases, communication tools, etc., which provide technical support for the rapid retrieval, dissemination, and updating of knowledge. External environmental factors cannot be ignored. Changes in market demand, competitive pressure, and partnership relationships can all have an impact on an organization's knowledge management strategy and practices. For example, changes in market demand may require the organization to quickly update its product knowledge to meet customer expectations. In addition, the flexibility and openness of organizational structure can promote the flow and sharing of knowledge, while an organizational culture that encourages innovation and learning can stimulate employees' knowledge creation and dissemination behavior, creating a good atmosphere for knowledge management. Hendradi (2 0 2 4) In summary, the influencing factors of knowledge management models are complex and diverse, requiring organizations to comprehensively consider and take corresponding measures to optimize the knowledge management process, in order to achieve maximum utilization of knowledge and sustainable development of the organization. This requires organizations to continuously evaluate and adjust to adapt to the constantly changing internal and external environment

Summary In the digital age, knowledge management has become the heart of organizational success, especially when faced with rapid changes. The ability of leaders to adapt plays a key role. The use of information technologies, such as databases and collaborative platforms, promotes the efficient storage, sharing, and utilization of knowledge, leading to higher quality decision-making and innovation within the organization. In addition, the changing roles of the information profession require professionals to continuously develop new skills. In terms of education, knowledge management supports learning that responds to change, especially in the post-COVID-19 pandemic. For the knowledge management model, key factors include leadership style, organizational culture, personnel capabilities, and operational structure, all of which affect the success of an organization's knowledge system. In addition, information technology and structures that facilitate knowledge exchange also help make knowledge management more effective. However, organizations still face pressures from external environments, such as market demands and competition, and therefore need to continuously adjust their knowledge management strategies for survival and sustainable growth.

Conceptual Framework

This research is a study of the digital knowledge management model in the education of universities in Heilongjiang Province. The researcher has established the conceptual framework of the detailed research in the laboratory.

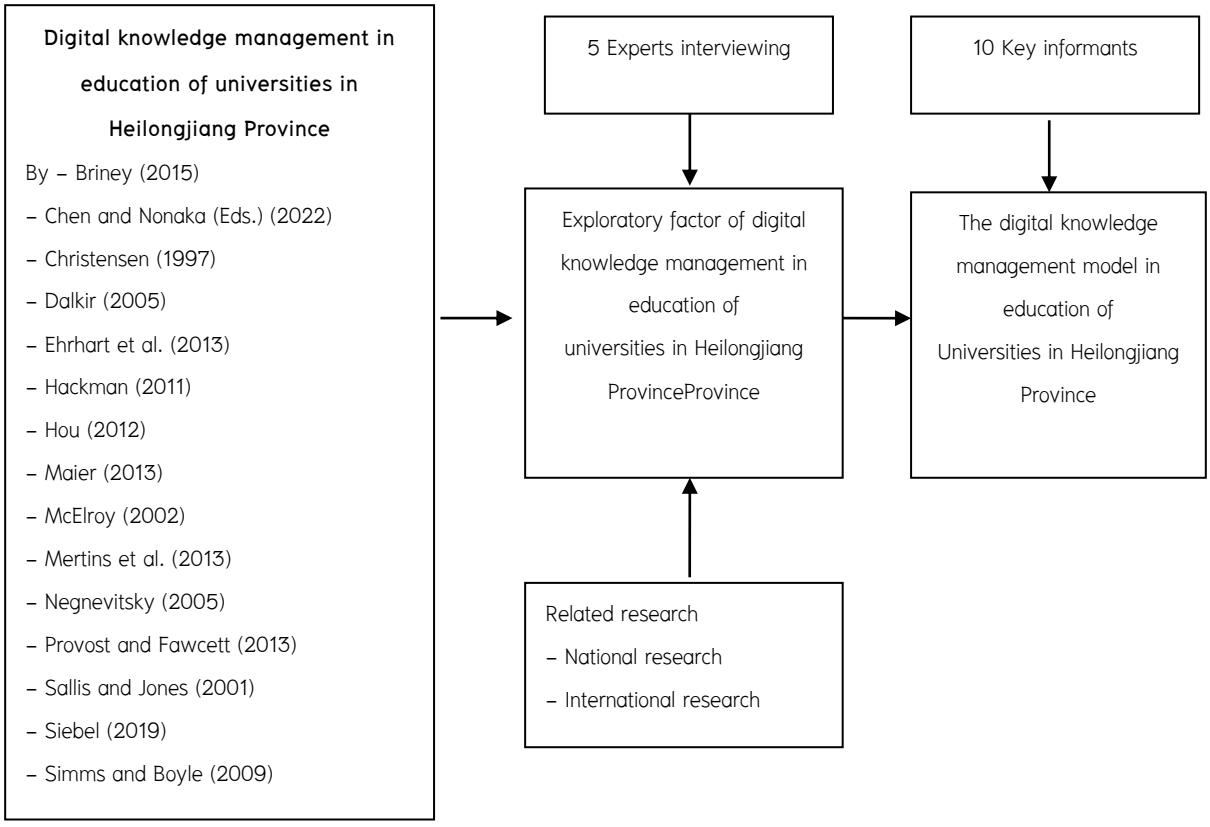

Figure 2 Conceptual Framework

Research Methodology

This research is a mixed quantitative and qualitative research. The population is 3 6 universities administrators and teachers in Heilongjiang Province. The sample is 4 3 2 university administrators and professors in Heilongjiang Province, using simple random sampling method, and 10 key informants. The research instruments are: 1) questionnaire, divided into 3 parts: Part 1: Respondents' Personal Status Questionnaire, which is a checklist to ask the respondents' basic information; Part 2: Questionnaire on Digital Knowledge Management in Education of Universities in Heilongjiang Province; Part 3: Questionnaire on Exploratory Factor Analysis of Digital Knowledge Management in Education of Universities in Heilongjiang Province; and Interview form, divided into 2 parts: Part 1: Interview form on Digital Knowledge Management in Education of Universities in

Heilongjiang Province; and Part 2 : Suggestions. Quantitative data were analyzed using percentages, frequencies, means, standard deviations, and multiple regression analysis. The qualitative research used triangulation, interpreted data analysis, and inductive conclusion–making. Content analysis from documents and interviews was performed by writing narrative texts.

Research Results

Objective 1. The results showed that to study the level of digital knowledge management in education of universities in Heilongjiang Province, it was found that the overall study of the 107 variables was at the high level.

Objective 2. The results showed that from the analysis of the survey factors on digital knowledge management in education of universities in Heilongjiang Province, it was found that the factors of digital knowledge management can be divided into five factors: 1) knowledge sharing, 2) policies planning, 3) data management, 4) digital literacy, and 5) organizational culture. As shown in Table 1.

Table 1 Total Variance Explained

Total Variance Explained						
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	27.195	36.750	36.750	27.195	36.750	36.750
2	6.895	9.317	46.067	6.895	9.317	46.067
3	4.683	6.329	52.396	4.683	6.329	52.396
4	4.176	5.643	58.038	4.176	5.643	58.038
5	3.706	5.008	63.047	3.706	5.008	63.047
6	.964	1.302	64.349			
7	.852	1.152	65.500			
8	.812	1.098	66.598			

Extraction Method: Principal Component Analysis.

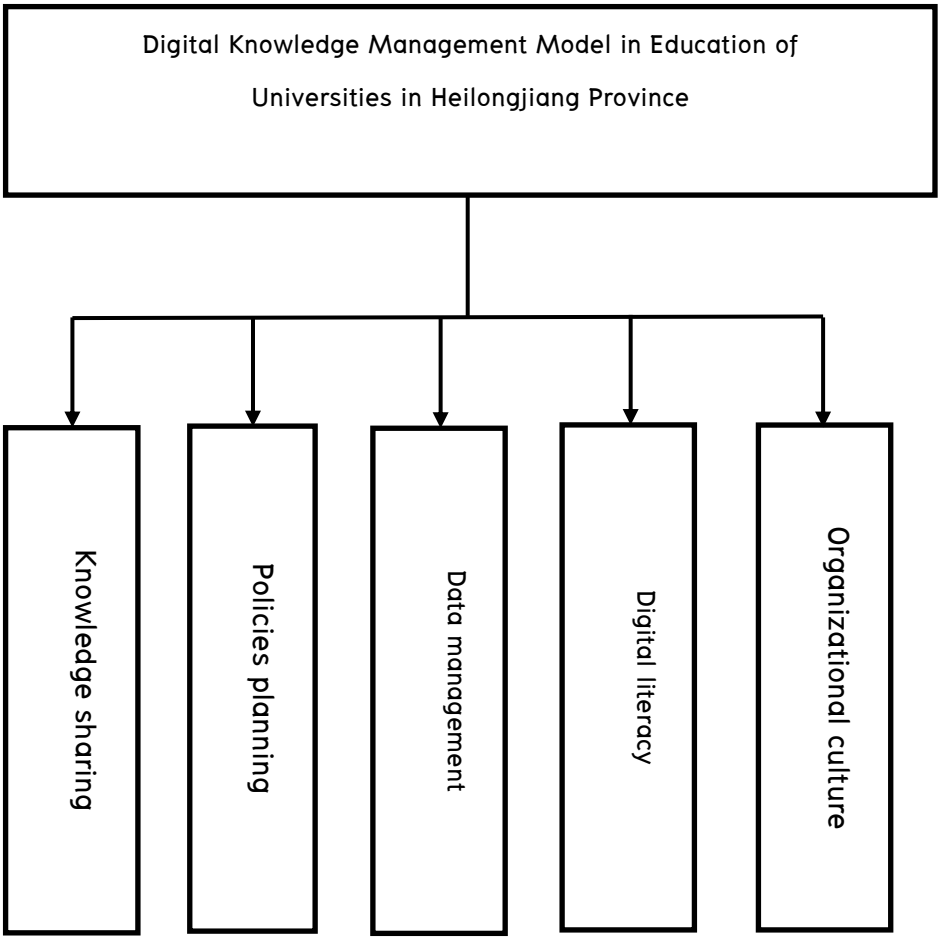

Figure 3 Digital knowledge management Model based on Exploratory Factor Analysis (EFA) and Principal Component analysis (PCA)

Objective 3. The results showed that the digital knowledge management model in education of universities in Heilongjiang Province, consisting of five factors influencing digital knowledge management in education, is required for collaborative, adaptive, and secure environment that fosters digital literacy, supports knowledge sharing, and ensures robust data management practices. These themes reflect the importance of aligning knowledge sharing, policies planning, digital literacy, data management, and organizational culture strategies to create an effective and sustainable knowledge management framework within universities. constructed.

Knowledge obtained from the study of the research on Digital Knowledge Management Model in Education of Universities in Heilongjiang Province, which is the result of the research synthesis in the form of a diagram, as follows:

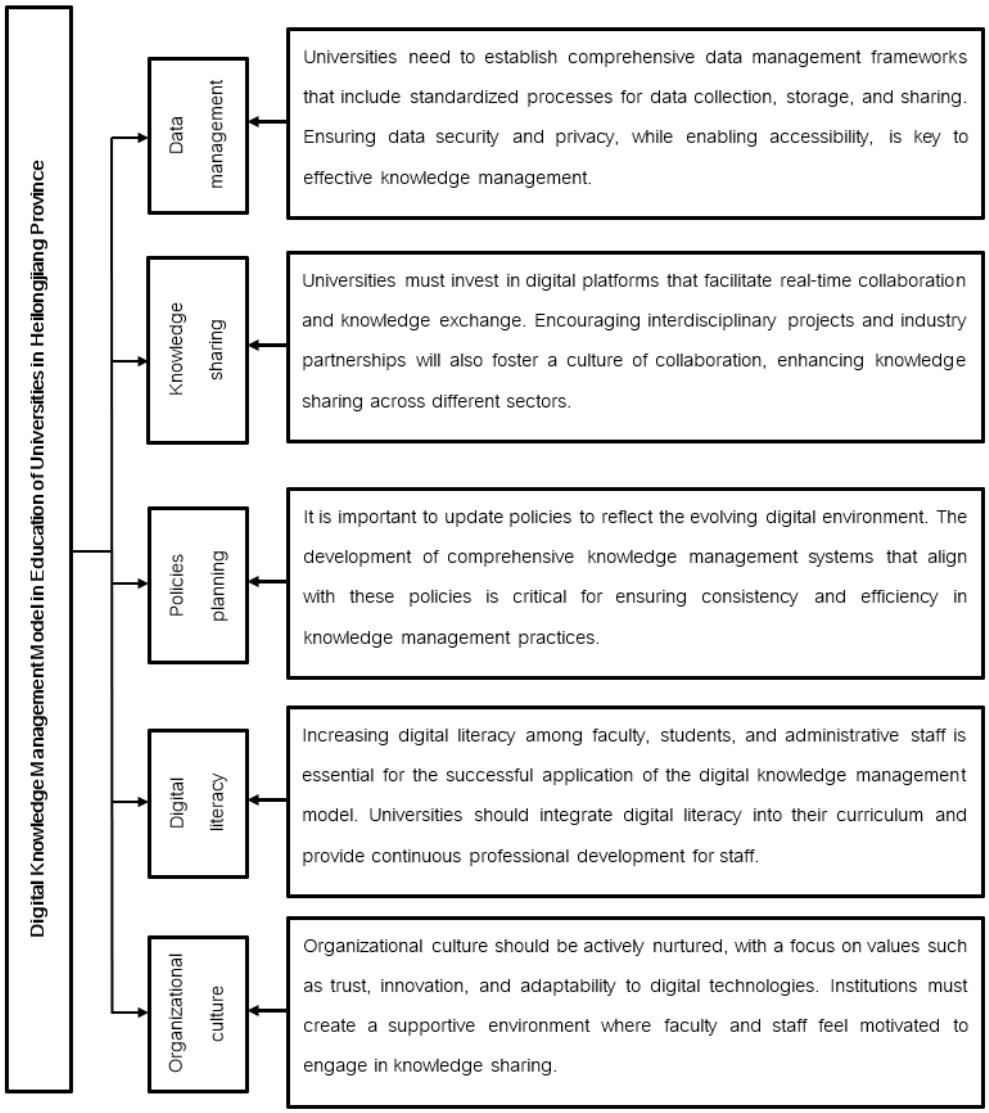

Figure 4 Digital knowledge management Model in Education of Universities in Heilongjiang Province

Discussions

The research results according to objective 1 found that the overall level of digital knowledge management in education of universities in Heilongjiang Province was at the highest level, with an average value between 3.45–4.07 and a standard deviation between 0.669–0.920, which is consistent with the research of Li et al. (2013) on Knowledge management research status in China from 2006 to 2010: based on analysis of the degree theses. And the research of Wang et al. (2023) Knowledge Management on Art Design in Universities under Liaoning Province.

The research results according to objective 2 from the analysis of the survey factors of digital knowledge management in education of universities in Heilongjiang Province found that the

factors of digital knowledge management can be divided into five factors: 1) knowledge sharing, 2) policies planning, 3) data management, 4) digital literacy, and 5) organizational culture. This is consistent with the research of Alavi and Leidner (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues.

The research results for objective 3, the digital knowledge management model in education of universities in Heilongjiang Province, which consists of 5 factors influencing digital knowledge management in education, are necessary for a collaborative, adaptive, and safe environment that promotes digital literacy, supports knowledge sharing, and ensures a strong data management approach, reflecting the importance of aligning knowledge sharing , policies planning, data management , digital literacy, and organizational culture strategies to build an effective and sustainable knowledge management framework within the university. Knowledge management evaluation using digital capability maturity model in higher education institutions. and in line with Alavi and Leidner (2024). Knowledge management and higher education institute: Review & topic analysis.

Conclusion

This research explores digital knowledge management (DKM) in universities in Heilongjiang Province, focusing on the level of digital literacy, the current state of DKM, and the proposal of a practical model to enhance educational development. The findings reveal that digital knowledge management in these universities is at a high level, with mean scores ranging from 3.45 to 4.07 and standard deviations from 0.669 to 0.920. This indicates effective use of digital technologies in educational settings.

Five key interrelated factors significantly influence DKM: (1) knowledge sharing, (2) policies planning, (3) data management, (4) digital literacy, and (5) organizational culture. These elements work synergistically. A culture of knowledge sharing enhances the use of data management tools. Policies planning ensures data security and provides clear guidelines for knowledge flow, aligning digital practices with institutional goals. Data management supports informed decision-making and continuous improvement while being strengthened by the other factors. Digital literacy—the digital competence of staff—directly affects their ability to use knowledge systems and collaborate. Organizational culture fosters innovation and openness, encouraging knowledge exchange. In addition, this study also uses the ethnographic futures research (EFR) technique in the qualitative

research component to provide future-oriented development strategies by envisioning potential scenarios and formulating adaptive responses.

In conclusion, the study offers a comprehensive framework for improving digital knowledge management in Heilongjiang universities and beyond. It emphasizes the interconnectedness of people, policy, technology, and culture as essential for sustainable educational advancement in the digital age.

Suggestions

1. Continuously increase training or develop digital skills for university personnel, especially faculty and personnel involved in knowledge management. These trainings will enhance knowledge and skills in using new technologies that will better support digital education.

2. Develop and strengthen an organizational culture that emphasizes knowledge sharing, which may include promoting online knowledge exchange or organizing activities that encourage staff to share knowledge and experiences with each other.

3. Improve or develop policies related to data management and digital data security in universities, using modern technologies to maintain data security and privacy.

4. This research should be continued to explore new opportunities and methods that can lead to the development of more effective digital education systems at the university level.

5. Creating an effective digital knowledge management model will help promote the sharing and use of digital knowledge in educational institutions. Therefore, a model that can be applied in universities should be developed, including the creation of policy and strategic frameworks that can support the use of technology in knowledge management and digital education.

6. Expand the scope of the research to universities in other regions to compare and evaluate the results of digital knowledge management in different contexts.

References

Akgul, T., Brown, J., Milz, B., & Messina, K. (2021). Design thinking applied in higher education: Exploring participant experiences. *Journal of Design Thinking, 2*(1), 37–44. https://doi.org/10.22059/jdt.2021.314024.1050

Alavi, M., & Leidner, D. E. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly, 25*(1), 107–136. https://doi.org/10.2307/3250961

Anaraki, F., Dadras, M., Arun Pinto, C., Manomat, T., & Amirkhani, M. (2024). Social media in education. *International Journal of Multidisciplinary in Management and Tourism, 8*(2), 191–198. https://doi.org/10.14456/ijmmt.2024.14

Arukhe, J., Abdullah, E., Enazi, A., & Al-Ghamdi, S. (2020, January). *Knowledge management and organizational transformation: A quantitative study* [Conference paper]. International Petroleum Technology Conference, Dhahran, Saudi Arabia. https://doi.org/10.2523/IPTC-19697-MS

Budseeta, P., Boonkummuang, N., Somkhumpa, S., Phetphimoon, A., Benjawan, K., Wongkongkaew, P., Keeratipornnipat, P., & Nunchaikaew, W. (2025). Development of online lessons in teaching management integrated management course. *Journal of Educational Management and Research Innovation, 7*(1), 115–128. retrieved from https://so02.tci-thaijo.org/index.php/jemri/article/view/275592

Cabrilo, S., Dahms, S., & Tsai, F. S. (2024). Synergy between multidimensional intellectual capital and digital knowledge management: Uncovering innovation performance complexities. *Journal of Innovation & Knowledge, 9*(4), 100568.https://doi.org/10.1016/j.jik.2024.100568

Giebels, D., Carus, J., Paul, M., Kleyer, M., Siebenhüner, B., Arns, A., Bartholomä, A., Carlow, V., Jensen, J., Tietjen, B., Wehrmann, A., & Schröder, B. (2020). Transdisciplinary knowledge management: A key but underdeveloped skill in EBM decision-making. *Marine Policy, 119,* 104020. https://doi.org/10.1016/j.marpol.2020.104020

Gocotano, T. E., Jerodiaz, M. A. L., Banggay, J. C. P., Nasibog, H. B. R., & Go, M. B. (2021). Higher education studentsâ€™ challenges on flexible online learning implementation in the rural areas: A Philippine case. *International Journal of Learning, Teaching and Educational Research, 20*(7). https://doi.org/10.26803/ijlter.20.7.15

Hargitai, D. M., Pinzaru, F., & Veres, Z. (2021). Integrating business students' e-learning preferences into knowledge management of universities after the COVID-19 pandemic. *Sustainability, 13*(5), 2478. https://doi.org/10.3390/su13052478

Hendradi, P. (2024). Implementation of the Knowledge Management (KM) Model in Increasing Student Body in Private Universities. *ADI Journal on Recent Innovation, 6*(1), 32-43. https://doi.org/10.34306/ajri.v6i1.1070

Herlina, M. G., Saputra, N., Lasmy, Sudrajat, D., Syahchari, D. H., & Saroso, H. (2020, August). Fine-tuning organizational citizenship behaviour and knowledge management behaviour in higher education [Conference paper]. In *Proceedings of the 2020 International Conference on Information Management and Technology (ICIMTech)* (pp. 17–22). IEEE. https://doi.org/10.1109/ICIMTech50083.2020.9211109

Iqbal, A. (2021). Innovation speed and quality in higher education institutions: the role of knowledge management enablers and knowledge sharing process. *Journal of Knowledge Management, 25*(9), 2334–2360. https://doi.org/10.1108/jkm-07-2020-0546

Karamitri, I., Kitsios, F., & Talias, M. A. (2020). Development and validation of a knowledge management questionnaire for hospitals and other healthcare organizations. *Sustainability, 12*(7), 2730. https://doi.org/10.3390/su12072730

Kusumawardani, S.S., Alfarozi, S.A.I., Pradana, C., Ratnaningsih, D.J., Endrayanto, A.I., Wihendro, W., & Chaeruman, U.A. (2023). Predicting student performance based on their interaction activities in a learning management system using machine learning method. In Book: *Education Technology in the New Normal: Now and Beyond* (pp.236–244). Routledge. DOI:10.1201/9781003353423-25

Li, X., Hou, J., & Wu, A. (2013). Research status of knowledge management in China: A bibliometric and content analysis. *Scientometrics, 95*(1), 97–119. https://doi.org/10.1007/s11192-012-0858-7

Noviana, A.H., Ulfah, M., Puteri, N., & Yudhanto, S.B. (2020). *Implementing "Food Traffic Light" as a guide for choosing healthy food in university canteen.* https://doi.org/10.22146/BKM.54903

Paudel, K. P. (2020). Level of knowledge management among faculty members in the context of Nepali Higher Educational Institution. *Dhaulagiri Journal of Sociology and Anthropology, 14,* 124–130. https://doi.org/10.3126/dsaj.v14i0.27370

Rezaei, F., Khalilzadeh, M., & Soleimani, P. (2021). Factors affecting knowledge management and its effect on organizational performance: Mediating the role of human capital. *Advances in Human-Computer Interaction,* (1), 8857572. https://doi.org/10.1155/2021/8857572

Sidhatama, B., Fatmasari, F., & Solikin, I. (2020). Implementasi Knowledge Management System

Pada Rumah Sakit Muhammadiyah Palembang Berbasis Web (Study Kasus: Unit Sumber Daya Manusia). *Jurnal Pengembangan Sistem Informasi Dan Informatika, 1*(3), 164.175. https://doi.org/10.47747/jpsii.v1i3.179.

Sugiarti, Y., Kumaladewi, N., Rahmawati, S., & Nanang, H. (2019, November). Factors that affect the implementation of knowledge management for MUI halal certification. In *2019 7th International Conference on Cyber and IT Service Management (CITSM)* (Vol. 7, pp. 1–6). IEEE. https://doi.org/10.1109/CITSM47753.2019.8965400

Swart, K., Bond-Barnard, T., & Chugh, R. (2022). Challenges and critical success factors of digital communication, collaboration and knowledge sharing in project management virtual teams: a review. *International Journal of Information Systems and Project Management, 10*(4), 84–103. http://dx.doi.org/10.12821/ijispm100404

Timoshenko, K., Hansen, O. B., Madsen, D. Ø., & Stenheim, T. (2021). Designing an accounting course module on cost allocation: Pedagogical and didactical considerations from a norwegian perspective. *Education Sciences, 11*(5), 232. https://doi.org/10.3390/educsci11050232

Wang, Y., Liu, J., & Zhang, W. (2023). Research on knowledge management in art design education in Liaoning province universities. *Design and Systems Review, 1*(2), 89–102. https://so07.tci-thaijo.org/index.php/dsr/article/view/1344

Yusril, A. N., & Nurmiati, E. (2021). Systematic literature review: implementation of knowledge management in the organization. *JITK (Jurnal Ilmu Pengetahuan Dan Teknologi Komputer), 6*(2), 227–232. https://doi.org/10.33480/jitk.v6i2.1929