DIGITAL TRANSFORMATION AND ADMINISTRATION INNOVATION

Citation: Al-Tamimi, A. A. K., Eghbali, K., Ibrahim, S. H., & Nazari, R. (2024). Identifying the Components of a Knowledge Management-Based Talent Management Model for Physical Education Teachers in Iraq. *Digital Transformation and Administration Innovation,* 2(4), 121-130.

Received date: 2024-02-11 Revised date: 2024-04-13 Accepted date: 2024-05-28 Published date: 2024-12-01

Identifying the Components of a Knowledge Management-Based Talent Management Model for Physical Education Teachers in Iraq

Ahmed Abdulsalam Khalifa Al-Tamimi[1], Kebria Eghbali[2]*, Saif Harith Ibrahim[3], Rasool Nazari[4]

1. PhD Student, Department of Sports Management, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran
2. Assistant Professor, Department of Sport Sciences, West Tehran Branch, Islamic Azad University, Tehran, Iran
3. Assistant Professor, Ministry of Youth and Sports, Diyala, Iraq
4. Associate Professor, Department of Sports Management, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran

*Correspondence: kebriaeghbali94@gmail.com

Abstract

This study aimed to identify the components of a knowledge management-based talent management model specifically tailored for physical education teachers in Iraq. A qualitative research design using grounded theory methodology was employed. Participants included 15 experts selected through purposive and snowball sampling, comprising experienced physical education teachers, sports management faculty, and administrative personnel from the Iraqi Ministry of Education. Data were collected through semi-structured face-to-face interviews and analyzed using Strauss and Corbin's three-step coding approach: open coding, axial coding, and selective coding. The interview transcripts were systematically examined to extract codes, categories, and conceptual linkages that formed the basis of the emerging model. The analysis resulted in six core elements of the model. Causal conditions included meritocracy, cultural development, compensation systems, professional development, legal requirements, and transparency. Contextual conditions involved organizational support, technology infrastructure, strategic alignment, job-person fit, and managerial attitudes. Intervening conditions were identified as political barriers, financial constraints, legal rigidity, and organizational adaptability. Strategic responses comprised in-service training, external training, talent retention, talent development, recruitment and deployment, and structured identification systems. Core strategies centered on conceptualizing talent and establishing management structures. The outcomes included enhanced teacher motivation, extra-role behavior, knowledge creation, knowledge transfer, organizational commitment, succession planning, and the formation of knowledge-centered educational institutions. The findings underscore the critical role of knowledge management in modernizing talent management practices for physical education teachers in Iraq. The resulting model offers a comprehensive and context-sensitive framework that addresses institutional, procedural, and human factors in the teacher development process, with potential implications for broader educational reform efforts in similar socio-political contexts.

Keywords: Talent management; knowledge management; physical education; teacher development; grounded theory; Iraq; educational reform.

1. Introduction

Knowledge management (KM) has become essential in educational environments where the efficient transfer, sharing, and application of knowledge underpins institutional effectiveness. According to Karuoya, higher education institutions that embed KM strategies can better facilitate teacher competency and continuous professional development (Karuoya, 2022). The same logic applies to primary and secondary education systems, especially in specialized subjects like physical education. In this domain, KM enables educators to adapt rapidly to pedagogical changes and societal expectations (Chernova & Chernova, 2020). In the Iraqi context, applying KM in talent management for physical education can bridge the gap between theory and practice while fostering organizational learning and innovation.

In developing economies, including Iraq, one of the persistent challenges in teacher workforce management is the absence of structured mechanisms for identifying and nurturing potential teaching talent. As noted by Gao and Tasnaina, combining health education and knowledge management with physical education results in a more sustainable and holistic student development process (Gao & Tasnaina, 2024). This observation supports the premise that educational quality and teacher preparedness are intertwined, with KM serving as a bridge to systemic improvement. Furthermore, Pawzi and Alias emphasized the critical role of educational leadership in navigating Fourth Industrial Revolution (IR 4.0) challenges, asserting that school managers must act as catalysts for physical and knowledge infrastructure reforms (Pawzi & Alias, 2024). In Iraq's post-conflict reconstruction era, similar leadership is required to transform educational practice through strategic talent development.

At the heart of KM-based talent management is the ability to convert tacit knowledge—gained from years of teaching and in-school experience—into explicit, transferable learning. This aligns with the work of Pleshkova, who highlighted how Russian educational institutions formalize KM practices to promote instructional consistency and performance improvement (Pleshkova, 2024). Similarly, Shimizu and colleagues found that even in remote health education contexts, the acquisition of practical knowledge is contingent upon access to structured KM processes (Shimizu et al., 2024). These findings underscore the importance of embedding KM processes in talent development frameworks that address contextual challenges like geographical dispersion, limited access to professional development, and inconsistent policy implementation—conditions mirrored in many Iraqi provinces.

Developing a comprehensive KM-based model also requires clarity in role expectations and alignment with national policy. According to Edwards et al., linking physical activity guidelines to cognitive outcomes through well-structured interventions enhances the role clarity and strategic focus of educators (Edwards et al., 2024). In a similar vein, Alomari and colleagues demonstrated that targeted educational programs significantly improved knowledge application among professionals in clinical environments, suggesting that tailored professional development has measurable impact when aligned with national objectives (Alomari et al., 2024). These insights are pertinent to physical education in Iraq, where role ambiguity, insufficient training, and lack of recognition have traditionally limited the field's perceived value within the broader education system.

Moreover, the digital transformation of education mandates a model that incorporates information and communication technologies (ICT) into knowledge-sharing platforms. Kelchevskaya et al. emphasized that educational digitalization, when paired with KM principles, leads to institutional adaptability and resilience (Kelchevskaya et al., 2023). This resonates with Li's proposition that intelligent physical education systems, supported by AI-powered knowledge graphs, can revolutionize training methodologies and performance tracking (Li, 2025). Iraq's education sector, in seeking modernization, must not only equip its physical education teachers with content knowledge but also with the technological competencies required for sustainable educational delivery.

Supporting this, Spittle et al. found that teacher confidence and motivation significantly improved when they were trained in digitally-enhanced environments that supported active knowledge sharing (Spittle et al., 2022). Similarly, Montpetit-Tourangeau et al. argued that the effectiveness of educational interventions often lies in the 'black box' of knowledge exchange among professionals, emphasizing the need for transparency, structured mentorship, and peer learning (Montpetit-Tourangeau et al., 2023). This underscores the necessity of a well-defined, knowledge-enabled career development path for physical education teachers in Iraq.

A knowledge-based talent management model must also address the relational and motivational dimensions of teaching. According to Ahmad et al., compliance with educational standards in Malaysia was directly influenced by school management's understanding of motivational dynamics and operational knowledge (Ahmad et al., 2024). This insight is echoed by Alhowimel and colleagues who found that healthcare professionals' knowledge and attitudes significantly shaped their engagement with patients, highlighting how belief systems and workplace culture are central to professional effectiveness (Alhowimel et al., 2023). In Iraq, fostering motivation among physical education teachers through transparent knowledge pathways and recognition mechanisms can increase job satisfaction and professional identity, which are critical for long-term retention.

The literature also reveals that teacher development in physical education should be aligned with global standards of innovation and entrepreneurship. Yang, for instance, explored the competencies necessary to cultivate innovative thinking among physical education teachers, calling for structural support for experimentation and idea incubation (Yang, 2023). This aligns with Talaghir et al.'s assertion that physical education must evolve toward a knowledge-based discipline, where decision-making is informed by data, theory, and experiential reflection (Talaghir et al., 2023). In this regard, Iraq's educational system needs a systematic approach to identifying talent not solely based on academic credentials but also on creative potential and growth mindset.

Institutional change, however, must be complemented by policy reform and organizational learning. Lunev et al. argued that KM implementation in higher education is most effective when supported by coherent institutional policies and knowledge-friendly cultures (Lunev et al., 2022). Likewise, Liang's study on educational quality control illustrated that effective training environments hinge on the synchronization between policy goals and internal capacity (Liang, 2023). These findings suggest that Iraq's Ministry of Education must adopt a multi-level governance model that integrates KM principles at both ministerial and school levels.

Furthermore, in health-related educational contexts, knowledge translation has proven critical in bridging research and practice. Dias et al. proposed a knowledge translation framework to optimize physical therapy outcomes, reinforcing the idea that knowledge application is context-dependent and strategy-driven (Dias et al., 2021). Sreevani's evaluation of in-service education programs similarly demonstrated their efficacy in modifying professional behavior when KM was intentionally embedded in training (Sreevani et al., 2021). For physical education in Iraq, this means moving beyond generic teacher training toward modular, context-specific knowledge translation initiatives.

Finally, Drewe provided a philosophical justification for the value of practical knowledge in physical education, noting that bodily knowledge is both epistemic and expressive (Drewe, 2020). This perspective reinforces the need for models that treat teachers not just as conveyors of knowledge, but as active producers and transmitters of culturally embedded skills and values.

In summary, the global literature affirms the critical role of knowledge management in shaping dynamic, context-responsive talent management systems. From digital transformation and teacher motivation to organizational learning and strategic alignment, the components identified in this study are rooted in well-established empirical and theoretical foundations. Consequently, there is a compelling need to identify and structure the components of a talent management model grounded in knowledge management principles. This study addresses this gap by constructing a conceptual model tailored to the professional development of physical education teachers in Iraq, aligning with global trends and local needs.

2. Methods and Materials

The main tool for data collection was a semi-structured interview protocol specifically developed for this research. The interview guide was designed to explore the critical factors influencing the process of talent management based on knowledge management among physical education teachers. Questions were open-ended to allow the participants to elaborate on their experiences and perceptions freely. Before conducting the interviews, the research team developed an interview protocol containing broad thematic questions aligned with the study's objectives.

After each interview session, the recordings were transcribed verbatim. Initial coding was performed immediately following each interview to begin extracting primary concepts. These early insights informed subsequent interviews and deepened the researcher's understanding of the subject. The continuous back-and-forth process between data collection and data analysis

ensured that emerging categories remained grounded in the participants' narratives. Throughout this phase, the research team also reviewed relevant literature and theoretical frameworks, enabling a more integrative understanding of the emerging themes.

Data were analyzed using the grounded theory approach as developed by Strauss and Glaser. This method emphasizes the emergence of theory directly from the data rather than imposing pre-existing frameworks. As per the original principles articulated by Strauss and Corbin (1990), data collection, coding, and theory construction were carried out iteratively and concurrently. The entire process revolved around systematic coding procedures that involved three key stages: open coding, axial coding, and selective coding.

Open coding constituted the initial step in data analysis, where interview transcripts were broken down into discrete units of meaning. These units were labeled with conceptual codes that captured their essence. This stage involved line-by-line analysis to ensure a fine-grained understanding of participants' perspectives. Codes were grouped and categorized based on similarities and patterns in the data, with each label serving as a preliminary concept in the emerging framework.

In the next stage, axial coding, the researcher identified a central phenomenon or core category that integrated the concepts developed during open coding. The relationships among categories were explored and organized within a general coding paradigm that included causal conditions, contextual conditions, intervening conditions, action/interaction strategies, and consequences. Causal conditions referred to the underlying factors responsible for the emergence of the core phenomenon. Contextual conditions described the specific settings in which the phenomenon unfolded. Intervening conditions acted as facilitators or barriers affecting the phenomenon's development. The strategies represented purposeful actions taken by individuals or institutions to manage or respond to the central issue. Finally, consequences reflected the outcomes of those strategies.

The final stage, selective coding, involved integrating and refining the emerging theory. The researcher revisited the previous coding phases to ensure consistency and depth of analysis. At this point, all categories were systematically related to the core phenomenon, resulting in a conceptual framework that captured the essence of talent management through a knowledge management lens for physical education teachers in Iraq. This theory was not merely descriptive but aimed at explaining how and why certain patterns and relationships emerged, grounded firmly in empirical data. As a final step, the categories and subcategories were organized to develop a theoretically sound model that would serve as the study's primary contribution to educational and organizational theory in the context of sports and education.

3. Findings and Results

The analysis phase of this study was structured according to the grounded theory method, progressing through open coding and then axial coding. In the open coding stage, interview transcripts were meticulously analyzed line by line to identify meaningful units and concepts. These initial codes were then grouped into categories that reflected common themes emerging from the participants' narratives. As the codes began to converge and thematic clusters emerged, the study entered the axial coding phase, following Strauss and Corbin's paradigm model. This phase aimed to identify a central phenomenon around which other categories could be organized, thereby revealing the structure of the emergent theory.

Table 1. Coding of the Components of Knowledge Management-Based Talent Management

Main Categories	Sub-Categories	Initial Open Codes (Concepts)
Causal Conditions	Meritocracy	Establishing merit-based recruitment for teachers; avoiding hiring of unqualified individuals; developing teacher promotion pathways based on knowledge management
	Cultural Development	Developing cultural infrastructure for embedding knowledge-based talent management in the ministry; creating a supportive environment and innovation-driven culture
	Compensation System	Rewarding teachers based on capabilities and knowledge creation; developing incentive systems; offering motivational support for knowledge-retaining teachers
	Career Development	Providing professional growth opportunities for physical education teachers; offering equitable career advantages for outstanding graduates
	Legal Requirements	Implementing written legal guidelines for knowledge-based talent management; Iraqi government mandates and policy directives supporting it
	Transparency	Ensuring transparency in teacher recruitment, career development, and alignment of compensation with responsibilities
Contextual Conditions	Organizational Factors	Assigning roles based on knowledge capabilities; providing opportunities for teacher progression; avoiding work stagnation

	Technology and Innovation	Expanding digital infrastructure for knowledge management; equipping teachers with up-to-date technology and tools
	Organizational Strategy	Aligning HR strategic planning with knowledge-based talent goals; embedding foresight in policymaking; ministerial HR strategy alignment
	Job-Person Fit	Ensuring job-role alignment; satisfaction with job conditions and school resources; employing teachers in suitable environments
	Managerial Attitudes	Senior management support for knowledge-based policies; receptivity to feedback; positive attitudes toward knowledge systems
Intervening Conditions	Political Barriers	Political interference in leadership appointments; lack of managerial consistency; short administrative cycles
	Financial Conditions	High cost of recruiting and developing talent; limited financial autonomy and budget constraints
	Legal Limitations	Rigid human resource policies; inadequate legislative flexibility; lack of state budgetary support for hiring processes
	Organizational Flexibility	Structural adaptation to changing environments; benchmarking from successful organizations
Core Strategies	Talent Management Structure	Establishing teams to manage knowledge-based teacher recruitment; setting standards for supervision and process evaluation
	Talent Conceptualization	Defining talent conceptually; identifying required key competencies and evaluation metrics
Strategies	In-Service Training	In-service education through workshops, mentorship, and database training; enhancing access to knowledge systems
	External Training	Supporting further education; facilitating access to conferences; enabling international academic exchange
	Talent Retention	Recognizing teacher roles; meeting professional aspirations; offering well-being and performance-based incentives
	Talent Development	Delivering continuous knowledge development programs; providing constructive feedback; encouraging ethical and professional growth
	Talent Identification and Evaluation	Assessing graduates for potential recruitment; evaluating competency gaps and academic histories
	Recruitment and Deployment	Promoting job appeal; offering entry-level training; ensuring role-task compatibility; drafting clear job descriptions
Outcomes	Knowledge-Centered Organization	Creating learning-oriented schools; documenting and sharing institutional knowledge; promoting systemic advancement
	Knowledge Acquisition and Creation	Encouraging applied knowledge creation; storing explicit knowledge in databases; fostering a knowledge-seeking culture
	Knowledge and Experience Transfer	Facilitating knowledge exchange among teachers; promoting peer-sharing incentives; supporting cross-institutional collaboration
	Motivation and Satisfaction	Enhancing teachers' motivation and workplace value; fostering organizational appreciation and knowledge contributions
	Extra-Role Behavior	Encouraging service to society; promoting extracurricular involvement; facilitating peer knowledge growth
	Organizational Commitment	Cultivating organizational loyalty; promoting team identity and responsibility; preventing talent attrition
	Succession Planning and Retention	Ensuring expert staffing in key roles; reducing appointment delays; minimizing turnover; building a talent reserve

In this study, the core category or central phenomenon was identified as the "knowledge management-based talent management model for physical education teachers." This phenomenon became the focal point of the axial coding process, and all other categories were analyzed in relation to it using six interconnected components of the paradigm model: causal conditions, contextual conditions, intervening conditions, strategies, interactions, and consequences.

The causal conditions explain the underlying reasons or forces driving the emergence of the core phenomenon. Six categories were identified as causal: meritocracy, cultural development, compensation systems, professional development, legal requirements, and transparency. These factors created the foundational needs that necessitated the design of a talent management model based on knowledge management. For instance, the lack of systematic recognition and development of talented teachers, coupled with weak legal and organizational support for transparent evaluation and reward systems, were perceived as primary motivators for reform.

Contextual conditions refer to the specific situational or organizational environment in which the central phenomenon unfolds. In this study, five categories emerged: organizational factors, technology and innovation, organizational strategy, person-job fit, and managerial attitudes. These conditions shaped how talent management initiatives could be developed and sustained. For example, the strategic orientation of educational institutions and the alignment of teacher competencies with job demands were seen as key contextual enablers or barriers. Additionally, the adoption of digital platforms and e-learning tools

was noted as a significant contextual element that could support or hinder the implementation of knowledge management systems.

Intervening conditions function as broad contextual elements that influence the strength or direction of the core phenomenon. Four categories were recognized in this regard: political barriers, financial constraints, legal limitations, and organizational flexibility. These factors either intensified or diminished the ability of educational institutions to effectively implement talent management strategies. Political instability and lack of funding were frequently cited as major constraints, while organizational flexibility—such as adaptive leadership and dynamic structures—was seen as a potential buffer against these challenges.

Strategies represent the intentional actions or interventions designed to manage or influence the central phenomenon. In this study, seven strategic approaches were identified: in-service training, external training opportunities, talent retention, talent development and enhancement, talent identification and evaluation, and recruitment and deployment. These strategies were shaped by the contextual and intervening conditions and reflected the behavioral and managerial responses aimed at developing an effective talent management system. Participants emphasized the importance of structured and ongoing professional development as well as the establishment of clear criteria and procedures for identifying and recruiting talented teachers. There was also a strong focus on retention mechanisms to ensure that skilled educators remained in the system.

The final component of the axial coding process involved identifying the outcomes or consequences of implementing the model. Eight categories were derived as key consequences: knowledge-centered organizations, knowledge acquisition and creation, knowledge and experience transfer, teacher motivation and satisfaction, extra-role behavior, organizational commitment, succession planning, and talent retention. These outcomes highlighted the transformative potential of a well-implemented knowledge-based talent management model. Specifically, participants envisioned a more engaged, committed, and innovative teaching workforce, capable of sustaining long-term improvements in the quality of physical education across Iraq.

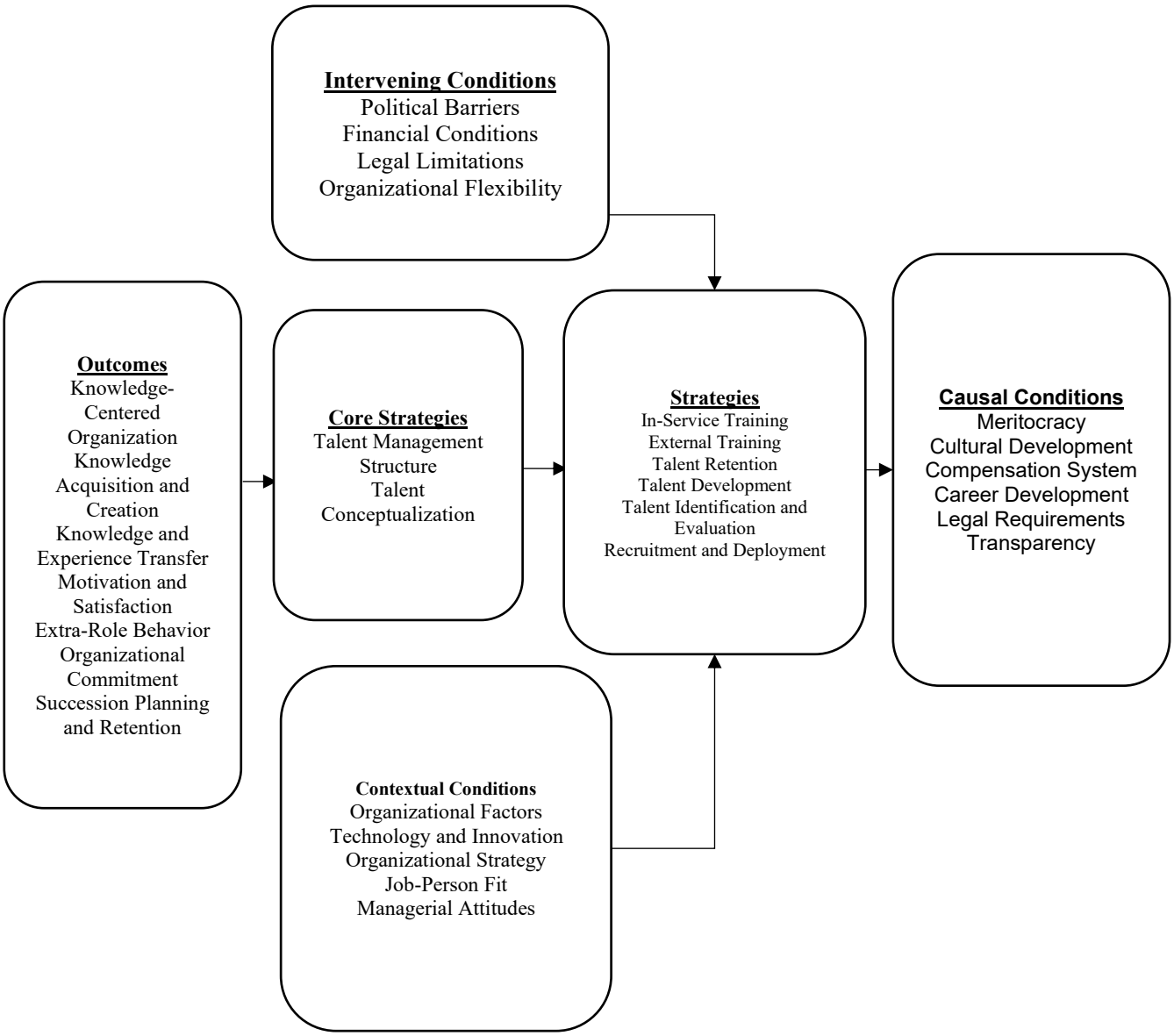

Figure 1. Final Paradigm Model

In summary, the axial coding phase provided a coherent framework that connected the various elements of talent management through the lens of knowledge management. Each component—from causal and contextual conditions to strategies and consequences—contributed to a comprehensive understanding of how such a model could be effectively conceptualized and implemented. The findings reflect the participants' collective vision for a structured, transparent, and contextually adaptive system that nurtures and leverages teacher talent to improve educational outcomes.

4. Discussion and Conclusion

The present study sought to develop a comprehensive model of knowledge management-based talent management for physical education teachers in Iraq using grounded theory. The model that emerged from the data reflects a multilayered and dynamic system in which causal, contextual, and intervening factors shape a range of strategies and produce organizational and individual outcomes. The axial coding process revealed six primary components: causal conditions, contextual conditions, intervening conditions, strategies (including core strategies), and outcomes. Each of these components is supported by theoretical and empirical insights in the extant literature on knowledge management, educational leadership, and teacher development, validating the structure and practical utility of the proposed model.

The causal conditions identified in this study—meritocracy, cultural development, compensation systems, professional development, legal requirements, and transparency—point to systemic necessities that form the foundation of effective talent management. The emphasis on merit-based recruitment and career pathways aligns with the findings of (Ahmad et al., 2024), who emphasized the role of institutional compliance and strategic leadership in managing educational standards. Similarly, cultural development and transparent reward systems resonate with (Kelchevskaya et al., 2023), who noted that the successful implementation of knowledge economies hinges on an environment that values clarity, fairness, and continuous growth. This foundational structure creates the institutional justification for integrating knowledge management practices into the teacher lifecycle, ensuring alignment between individual capabilities and systemic goals.

The contextual conditions—organizational support, technological infrastructure, strategic alignment, job-person fit, and managerial attitudes—demonstrate how the broader environment either facilitates or inhibits knowledge-based talent management. These findings are consistent with (Pleshkova, 2024) and (Karuoya, 2022), who both emphasized the need for institutional ecosystems that support the acquisition, transfer, and use of knowledge. The identification of ICT readiness and digital tools as key enablers supports (Li, 2025), who demonstrated how knowledge graph technologies can enhance intelligent physical education systems. Furthermore, managerial attitudes toward knowledge systems, highlighted in this study as a key contextual factor, echo the arguments of (Alhowimel et al., 2023), who emphasized how professional beliefs and leadership engagement significantly shape behavior in health and education sectors alike.

Intervening conditions—namely political interference, financial constraints, legal rigidity, and organizational adaptability—emerged as potential barriers or modifiers in the model's implementation. These conditions reflect systemic issues that often impact public sector reform, particularly in developing countries. The role of financial constraints aligns with (Gao & Tasnaina, 2024), who emphasized the importance of economic sustainability in integrating health and physical education. Political and legal limitations mirror the challenges described by (Denysenko et al., 2020), who argued that reforms in teacher education must be protected from policy instability and bureaucratic inertia. The importance of organizational adaptability in mitigating these challenges is underscored by (Liang, 2023), who linked institutional responsiveness to improved training outcomes in educational systems.

The strategies and core strategies identified in the model—such as in-service and external training, retention and development practices, talent identification, and structured recruitment—reflect purposeful actions to address both the causal and contextual dynamics. These strategies correspond closely with existing models of knowledge-based teacher development. For example, the emphasis on in-service learning and mentorship echoes the findings of (Sreevani et al., 2021), who observed significant professional growth resulting from structured training interventions. (Montpetit-Tourangeau et al., 2023) similarly emphasized the value of transparent and collaborative knowledge exchange in improving educational outcomes. Moreover, support for teacher participation in international training programs, highlighted in the current model, parallels (Yang, 2023), who advocated for the cultivation of global competencies among physical education teachers through exposure to best practices in innovation and entrepreneurship.

Importantly, the identification and deployment of talent based on knowledge metrics address a long-standing gap in traditional teacher recruitment practices. This aspect of the model mirrors (Talaghir et al., 2023), who called for a paradigm shift toward knowledge-based physical education. The implementation of knowledge-based selection processes also aligns with (Pawzi & Alias, 2024), who underscored the need for educational leaders to act as change agents in adapting to IR 4.0-driven demands. Taken together, these strategies build a coherent framework that addresses both operational and strategic levels of teacher development.

The outcomes of the model—knowledge-centered organizations, knowledge creation and transfer, teacher motivation, extra-role behavior, organizational commitment, and succession planning—represent the tangible benefits of an integrated KM-TM approach. These findings are reinforced by (Chernova & Chernova, 2020), who argued that cognitive modeling and KM mechanisms improve organizational learning and performance. The enhanced motivation and commitment of physical education teachers found in this study echo (Spittle et al., 2022), who showed that teacher confidence and willingness to innovate are heightened when they are embedded in supportive knowledge environments. Furthermore, the model's attention

to succession planning and retention is supported by (Lunev et al., 2022), who emphasized the strategic role of KM in ensuring leadership continuity and long-term institutional resilience.

This study's model is further validated by theoretical frameworks such as those advanced by (Dias et al., 2021), who proposed a knowledge translation model to improve therapy outcomes through practitioner education. In both contexts—healthcare and physical education—success depends on the systematic conversion of knowledge into practice, sustained by institutional support and professional motivation. Finally, the emphasis on practice-based knowledge as a legitimate epistemic form is grounded in (Drewe, 2020), who argued that physical education must be recognized not only as skill-based but as knowledge-intensive. This justification supports the notion that knowledge management in physical education is not ancillary but foundational to improving teaching quality and institutional effectiveness.

Despite its comprehensive scope, this study is not without limitations. First, the qualitative approach, while rich in contextual depth, limits generalizability to other educational systems beyond Iraq. The cultural, political, and institutional nuances captured in the data are specific to the Iraqi context and may not be fully applicable elsewhere. Second, the study relied on semi-structured interviews with a relatively small sample size of 15 experts. Although theoretical saturation was reached, the limited number of participants may have excluded perspectives from other relevant stakeholders, such as policymakers, students, or regional educational authorities. Third, the reliance on self-reported data introduces the possibility of social desirability bias, which may have led participants to provide idealized rather than fully candid responses. Additionally, the study did not include a longitudinal component, which would be necessary to evaluate the long-term effectiveness of the proposed model if implemented.

Future research should consider applying this model in diverse regional contexts within Iraq to test its adaptability and robustness. Comparative studies across provinces or even with other countries in the Middle East could reveal which components are universally applicable and which are context-dependent. Quantitative validation of the model through survey-based studies could strengthen its empirical foundation and provide statistical generalizability. Additionally, longitudinal studies tracking the outcomes of implemented strategies over time would offer valuable insights into the model's sustainability and impact. Future researchers could also explore the role of digital platforms and artificial intelligence in supporting knowledge management systems for teacher development, especially given the increasing shift toward digital education ecosystems.

For practitioners and policymakers, this study offers a concrete and actionable framework to guide talent development in physical education. Educational ministries should prioritize the integration of KM principles into teacher recruitment, training, and retention strategies. Institutions should invest in digital infrastructure and create environments that support knowledge sharing and continuous learning among educators. School leaders must be empowered to recognize and reward knowledge-based performance while fostering a culture of transparency and collaboration. Finally, teacher training institutions should incorporate KM concepts into pre-service education programs, ensuring that future educators are equipped not only with technical skills but also with the competencies needed to thrive in knowledge-driven educational systems.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

Acknowledgments

Authors thank all who helped us through this study.

Conflict of Interest

The authors report no conflict of interest.

Funding/Financial Support

According to the authors, this article has no financial support.

References

Ahmad, N. S., Karuppiah, K., Praveena, S. M., Ali, N. F., Ramdas, M., & Nur Athirah Diyana Mohammad, Y. (2024). Cracking the Code: Uncovering the Factors That Drive COVID-19 Standard Operating Procedures Compliance Among School Management in Malaysia. *Scientific reports*, *14*(1). https://doi.org/10.1038/s41598-023-49968-4

Alhowimel, A., Al-Shahrani, A., Abulaban, A. A., Althobeit, A. M., Alenazi, A. M., Alshehri, M. M., Alqahtani, B. A., & Alodaibi, F. (2023). Saudi Arabian Physical Therapists' Knowledge, Attitudes, and Clinical Practice in Diabetes Prevention and Management. *Diabetes Metabolic Syndrome and Obesity Targets and Therapy*, *Volume 16*, 2967-2977. https://doi.org/10.2147/dmso.s426949

Alomari, H., Allobaney, N. F., Swallmeh, E., Macaaly, R. A., & Al-Husban, R. Y. (2024). Effect of an Educational Program on Nurses' Level of Knowledge About Pain Assessment and Management: A Quasi-Experimental Study. https://doi.org/10.21203/rs.3.rs-5231832/v2

Chernova, L., & Chernova, L. (2020). Cognitive Modeling of Knowledge Management Mechanisms in the Training of Specialists. *Innovative Technologies and Scientific Solutions for Industries*, *0*(4 (14)), 86-93. https://doi.org/10.30837/itssi.2020.14.086

Denysenko, N., Marchuk, S., Tabak, N., & Knight, N. (2020). Competence-Based Approach in the System of Formation of Occupational Mobility of Future Physical Education Teachers in the United States of America. *The Educational Discourse a Collection of Scientific Papers*(20(2)), 20-31. https://doi.org/10.33930/ed.2019.5007.20(2)-2

Dias, K. J., Shoemaker, M. J., Lefebvre, K., & Heick, J. D. (2021). A Knowledge Translation Framework for Optimizing Physical Therapy in Patients With Heart Failure. *Physical Therapy*, *101*(6). https://doi.org/10.1093/ptj/pzab079

Drewe, S. B. (2020). Acquiring Practical Knowledge: A Justification for Physical Education. *Paideusis*, *12*(2), 33-44. https://doi.org/10.7202/1073088ar

Edwards, B., Perera, E., King, E. C., McKay, S., & Ruco, A. (2024). Enhancing Physical Activity Recommendations to Support Cognition in Homecare: A Quality Improvement Project. *Home Health Care Management & Practice*, *37*(1), 27-36. https://doi.org/10.1177/10848223241247837

Gao, Y., & Tasnaina, N. (2024). The Development of a Management Model on an Integration of Physical Education, Health Education, and Medical Practice for Sustainable Students' Health Development. *Ijsasr*, *4*(1), 305-322. https://doi.org/10.60027/ijsasr.2024.3774

Karuoya, L. N. (2022). Knowledge Management Practices in Higher Education Institutions. 118-132. https://doi.org/10.4018/978-1-6684-3652-3.ch007

Kelchevskaya, N. R., Pelymskaya, I. S., & Chernenko, I. y. (2023). Knowledge Economy and Digital Transformation of Business. https://doi.org/10.12737/1891230

Li, H. (2025). Knowledge Graph Construction for Intelligent Physical Education and Its Application in Training. *J. Comb. Math. Comb. Comput.*, *127a*, 2179-2197. https://doi.org/10.61091/jcmcc127a-126

Liang, Z. (2023). Quality Management Technology for the Training of Bachelors in Physical Education in the Conditions of the Educational Environment of the University (On the Example of the Prc). *Polonia University Scientific Journal*, *55*(6), 116-121. https://doi.org/10.23856/5515

Lunev, A., Tomashevskaya, Y. N., & Koshkarov, A. (2022). Knowledge Management in Higher Education: Theory and Practice. *Management Sciences*, *12*(2), 86-97. https://doi.org/10.26794/2304-022x-2022-12-2-86-97

Montpetit-Tourangeau, K., Diaz-Arenales, A. S., Dyer, J.-O., & Rochette, A. (2023). The Black Box of Patient Education: An Expert Consultation on Patient Education Interventions and Strategies for the Management of Subacromial Pain Syndrome. *Physiotherapy Canada*, *75*(3), 215-232. https://doi.org/10.3138/ptc-2022-0123

Pawzi, H., & Alias, B. S. (2024). Navigating IR 4.0 Education: School Leaders as Catalysts for Effective Physical Management in Malaysia Education. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, *9*(12), e003142. https://doi.org/10.47405/mjssh.v9i12.3142

Pleshkova, A. (2024). Knowledge Management Practices in Russian Educational Institutions. *Russian Management Journal*, *22*(1), 113-130. https://doi.org/10.21638/spbu18.2024.105

Shimizu, S., Yoshida, S., & Nerome, Y. (2024). Knowledge and Practical Skills for Cancer Pain Management Among Nurses on Remote Islands in Japan and Related Factors Nationwide. *Australian Journal of Rural Health*, *32*(4), 801-814. https://doi.org/10.1111/ajr.13146

Spittle, S., Spittle, M., Encel, K., & Itoh, S. (2022). Confidence and Motivation to Teach Primary Physical Education: A Survey of Specialist Primary Physical Education Pre-Service Teachers in Australia. *Frontiers in Education*, *7*. https://doi.org/10.3389/feduc.2022.1061099

Sreevani, R., Thimmajja, S. G., Bevoor, P., & Nanjegowda, R. B. (2021). Nurses' Knowledge, Attitude and Practices on Use of Restraints at State Mental Health Care Setting: An Impact of in-Service Education Programme. *Investigación Y Educación en Enfermería*, *39*(1). https://doi.org/10.17533/udea.iee.v39n1e12

Talaghir, L.-G., Olaru, B. S., Ciorbă, C., Rus, C. M., & Iconomescu, T. M. (2023). A Knowledge-Based Approach to Physical Education: A Systematic Review. *Revista Romaneasca pentru Educatie Multidimensionala*, *15*(4), 252-278. https://doi.org/10.18662/rrem/15.4/792

Yang, H. (2023). Exploration of Key Factors and Approaches for Cultivating Innovation and Entrepreneurship Ability of Physical Education Teachers. *International Journal of New Developments in Education*, *5*(26). https://doi.org/10.25236/ijnde.2023.052603