



University of Hormozgan

Designing the Model of Knowledge Management in Universities: A Qualitative Study

Abolfazl Salehi¹ | Hossein Karimian^{2✉} | Gholamreza Sharifirad³

- 1- PhD student in Educational Management, Qom Branch, Islamic Azad University, Qom, Iran. E-mail: absalehi57@gmail.com
2. Corresponding author, Assistant Professor, Department of Educational Management, Qom Branch, Islamic Azad University, Qom, Iran. E-mail: hosein.karimian46@yahoo.com
3. Professor, Educational Management Department, Qom Branch, Islamic Azad University, Qom, Iran. E-mail: dr.sharifirad@gmail.com

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ABSTRACT

Objective: The purpose of the present study was to design the model of knowledge management in universities (Qom province universities).

Methods: The research method is based on the purposive is fundamental and based on the method is qualitative. The statistical population of the research was experts in the field of knowledge management in universities. The sampling method in the present study was a purposive sampling method. In this research, exploratory and semi-structured interviews were used to collect information. After 15 interviews, theoretical saturation was achieved; hence the selected sample was equal to 15 people. The data analysis method was theoretical coding derived from grounded theory method.

Results: The findings showed that 14 main categories and related concepts of these categories were identified in open coding. Also, in the stage of central and selective coding of categories, refinement and knowledge management model were presented in universities. In the presented model, the causal conditions included knowledge-oriented organizational culture, strategic planning of knowledge management, information technology infrastructure and knowledge manpower. The context included the categories of organizational structure and individual characteristics of employees and professors and intervening conditions including weakness in knowledge management rules and lack of motivation of employees and professors.

Conclusions: The action/interaction strategies in the designed model include knowledge identification and goal-setting, knowledge team building in the university and knowledge-oriented human resource management and the consequences in the knowledge-oriented university, improving university performance and improving individual performance.

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Introduction

Today, the primary form of capital for organizations is the knowledge to which they have access (Leibowitz and Frank, 2016). Organizations that are capable of acquiring the most valuable, dependable, and current human knowledge within their respective business domains and utilizing it with efficiency have the potential for success (Kianto et al., 2019). The fundamental definition of knowledge management entails the discovery of methods to generate, identify, pursue, share, and disseminate organizational knowledge to those individuals who require it (Hauck-Dupigen et al., 2016). Knowledge management is also characterized as a strategic initiative that must be cultivated within a company to ensure that knowledge is accessible to the appropriate individuals at the appropriate time, thereby fostering knowledge sharing and the utilization of information to enhance organizational functions (Ode and Ayavo, 2020).

In contemporary society, knowledge has become an intangible form of capital and a valuable asset for organizations. The effective and efficient utilization of organizational knowledge, along with its integration into the organizational culture, leads to significant advancements in economic, social, and cultural aspects within organizations. Conversely, unsuccessful implementation of knowledge management incurs substantial costs for organizations. Indeed, knowledge management has emerged as a critical and indispensable factor for organizational success. In today's rapidly changing and highly competitive environment, the key to achieving a competitive advantage lies in the possession of high-quality, innovative, and dynamic human resources. Consequently, the development of knowledge management capabilities through a systematic approach is crucial for the evolution of knowledge as a vital organizational resource (Kohi et al., 2018).

Universities serve as the primary models of knowledge-based organizations, which necessitate the adoption of knowledge management approaches to generate, share, organize, and effectively utilize information resources, knowledge, and intellectual capital. By successfully implementing knowledge management and leveraging its capabilities to expedite and streamline information access, universities can enhance their educational capacities and gain a competitive edge over other academic institutions and research centers. Furthermore, the correct application of knowledge management in universities enables group and interdisciplinary research, facilitates communication between researchers and universities as well as other research institutions, and

promotes knowledge sharing, extensive research, and scientific progress. Additionally, knowledge management empowers university administrators to acquire the information needed to make timely and effective decisions. To optimize the influential factors of knowledge management within the university and implement necessary changes, it is imperative for the institution to possess a comprehensive understanding of the current state of these factors (Adina Ghahrani et al., 2011).

With the acknowledgment of knowledge as a means to obtain a competitive edge, coupled with the emergence of a comprehensive knowledge management system, organizations are being encouraged to utilize knowledge management capacities and processes, alongside the education system, to enhance the competencies of their human resources and achieve organizational objectives. Knowledge management places emphasis on knowledge-oriented employees within an organization and emphasizes the significance of human resources in fostering a culture of knowledge sharing and utilization. Moreover, it facilitates cost reduction, innovation, performance enhancement, flexibility, and numerous other benefits within the organization. The education unit is the pivotal department responsible for organizing the knowledge management process within the organization, thus paving the way for its successful implementation. The training unit, being closely associated with the growth and development of individuals, is considered a dynamic component of the organization that necessitates constant updates and evaluations (Ahmadi, 2013). The possession of diverse degrees and levels of knowledge by individuals, if left unapplied and untapped, not only leads to personal weakness and ineptitude, but also results in decreased organizational performance and ultimately hinders societal progress and advancement (Moradi et al., 2016).

Human resource development is an ongoing and deliberate endeavor aimed at enhancing the capabilities and performance of employees. In today's world, giving due attention to the training and development of faculty members is considered one of the most crucial approaches to improving the quality of universities and higher education institutions. Faculty members are integral components of the higher education structure, and any decline in their quantity or quality directly impacts the performance of the higher education system. Given that higher education plays a pivotal role in the economic, social, political, and cultural development of a nation, and that it is responsible for training specialized and essential human resources for various sectors,

strengthening and developing this sector, particularly its faculty members, is paramount, as they are the heart and soul of higher education (Sharifzadeh and Safari, 2015).

Considering the vital role universities play in society, the implementation of knowledge management within these organizations holds particular significance compared to other entities. Effective knowledge management of faculty members, who serve as key individuals within the university, is especially important in educational and research activities, which are the core focus of the university's mission. This is because knowledge management at the university level, in the context of organizational knowledge management, necessitates the utilization of knowledge management practices by professors.

Numerous investigations have been carried out in the realm of knowledge management in universities, primarily adopting a quantitative research approach. For instance, Faiz et al. (2019) conducted a study to explore the impact of knowledge sharing on the psychological empowerment of faculty members, with a particular focus on the mediating role of organizational memory at Semnan University. The findings revealed a significant association between knowledge sharing and empowerment, highlighting the influential role of organizational memory in enhancing the knowledge base and empowering faculty members. In a separate investigation, Zand et al. (2017) examined the interplay between knowledge management strategies, entrepreneurial skills, employee empowerment, and organizational effectiveness, ultimately developing a comprehensive model. The results of this research showcased four key components of organizational effectiveness, namely organizational commitment, organizational health, organizational innovation, and job satisfaction. Furthermore, the study demonstrated a positive and significant correlation between knowledge management strategies, entrepreneurial restraints, employee empowerment, and organizational effectiveness, underscoring their interdependence.

In a prospective research endeavor, Vaezi et al. (2016) conducted a study on the future of humanities employing a knowledge management approach. The study findings accentuated the indispensable role of future research in knowledge management within the humanities domain. It was underscored that the creation of genuine knowledge necessitates not only individual cogitation and action but also a social and cultural context. Therefore, organizational knowledge can only be comprehended through transformative changes in organizational practices, the enhancement of human resources performance, and the efficacy of the organization. The emerging paradigm of

knowledge management ought to cultivate knowledge creation and innovative processes within organizational structures through fostering organizational learning.

Al-Kurdi et al. (2020) also investigated the influence of organizational climate on knowledge sharing among academics in higher education institutions. Utilizing a structural equation model, the study examined 257 universities. The findings demonstrated a substantial impact of organizational climate on academics' performance, further revealing a positive relationship between leadership, organizational trust, and academics' academic behavior. Widodo and Gunavan (2021) explored the link between organizational empowerment, knowledge management, teaching creativity, and innovative behaviors. Employing a correlational research design and employing structural equation modeling for data analysis, the study discovered a positive and significant relationship between organizational empowerment and knowledge management, teaching creativity, and innovative behaviors. Moreover, knowledge management exhibited a positive and significant influence on teaching creativity and innovative behaviors, while teaching creativity was found to positively and significantly predict innovative behaviors.

The research conducted by Al-Husseini and Al-Baltaghi (2018), titled "The role of knowledge sharing in promoting innovation: a comparative study between public and private higher education institutions in Iraq," explores the influence of knowledge sharing on innovation in both production and process. This study employed a mixed research method, combining quantitative and qualitative approaches. The quantitative findings, obtained through the utilization of the structural equation model method, demonstrate that knowledge sharing fosters innovation in both public and private institutions. The qualitative findings, on the other hand, reveal that the role of knowledge sharing in promoting innovation in production and process differs between public and private institutions.

Previous studies have shown a lack of qualitative research in the field of knowledge management. Given the incomparability of quantitative and qualitative results, it is imperative to conduct further research in order to obtain novel and distinct findings in the realm of knowledge management in universities. Furthermore, there has been a dearth of purposeful efforts in designing a knowledge management model specifically tailored to the higher education system, particularly in universities

within Qom province (Iran). Based on this gap in the literature, the current research aims to design a qualitative study to develop a knowledge management model for universities in Qom province.

Materials and Methods

The employed research methodology in this study is a fundamental investigation based on the purpose and a qualitative examination through grounded theory based on the data collection. The targeted population for this research consisted of experts in the domain of knowledge management within academic institutions. The sampling technique employed in this study was purposive sampling, whereby the selection of sample cases is contingent upon the research objectives and the nature of the study. This method is preferred as it allows the researcher to tailor the sample composition to the specific aims of the research, particularly in qualitative studies where it is challenging to pre-determine the number of participants required to comprehensively explore the phenomenon of interest. Ideally, data collection should continue until theoretical saturation is achieved, denoting the point at which newly collected data adds no further insights beyond what has already been gathered. In the present investigation, theoretical saturation was reached after conducting 15 interviews, thereby resulting in a sample size of 15 individuals. Prior to conducting the interviews, the research purpose was elucidated to the participants, and their consent was obtained for the recording of the interviews.

In this study, exploratory and semi-structured interviews were employed as the data collection method. An interview guide was utilized, comprising targeted questions aimed at exploring specific issues and areas of interest. The interviewer possessed the questions either mentally or in written form but was not constrained by a predetermined sequence in posing the questions. The data collection process involved a step-by-step approach, drawing upon the extant research literature and the content of the exploratory interviews. The interview questions were designed and specified in advance, and the method of response was open-ended, enabling the participants to provide answers that could be categorized within the pre-established frameworks. The interviews were conducted in person, on an individual basis, with individuals possessing expertise in the subject matter. A tape recorder was used to capture and transcribe the interviews. Following the completion of the interviews and attaining theoretical saturation, the interview contents were

transcribed, typed, and subjected to analysis. The transcriptions were meticulously reviewed and scrutinized multiple times to ensure accuracy and identify any potential shortcomings.

To ensure the integrity of the research, the researchers employed various methods such as peer review, data source triangulation, and review by colleagues to validate their findings. In this particular study, data source triangulation was utilized, which involves analyzing the same phenomenon using multiple data sources. To gather comprehensive information from various perspectives, the researchers collected data from three main sources: faculty members, clinical instructors, and medical education experts. Peer review, on the other hand, involved seeking guidance from experienced individuals in the field of research methods, such as research colleagues and study consultants, who provided valuable insights on research design, data collection, and data analysis. To further validate the results, the researchers solicited the opinions of advisors and consultants, and shared the data analysis and its outcomes with several experts. Additionally, the review by interviewees served as a quality control process, where the findings obtained from the interviews were confirmed or re-evaluated by referring back to the interviewees. After analyzing the data, the researcher summarized the findings and presented them to a group of interviewees for review.

In the current study, the reliability of the conducted interviews was determined using the test-retest reliability and intra-subject agreement method. Test-retest reliability was calculated by selecting a subset of interviews as samples from the overall pool, and coding each interview twice with a time interval in between. The codes assigned to each interview were then compared across the two time intervals. Agreement codes were identified as those that were consistent in both time intervals, while non-agreement codes referred to those that differed. To calculate the reliability of the interviews using the intra-subject agreement method, a doctoral student was enlisted as a research associate (coder) and provided with the necessary training and techniques for coding the interviews. The researcher and the research associate then coded four interviews together, and the percentage of agreement between the two coders was computed using a specific formula.

The method of data analysis utilized in this study is derived from the grounded theory method and is known as theoretical coding. Theoretical coding involves the analysis, conceptualization, and comparison of data in novel ways, and serves as the primary means by which theory is developed

based on the data (Strauss & Corbin, 1998). The coding process employed in this research encompasses several steps, including open coding, axial coding, and selective coding. During the open coding phase, concepts present in the interviews and documents are classified based on their relationship to similar topics. Axial coding, on the other hand, aims to establish connections between the categories that have been generated during the open coding stage. This is typically accomplished using a paradigm model, which facilitates the theorizing process for the researcher. The underlying principle of coding communication is rooted in the expansion of one category (Strauss and Corbin, 1990). A main category, such as a central idea or event, is identified as a phenomenon, while other categories are linked to this central category. Causal conditions refer to the cases and events that contribute to the emergence and development of the phenomenon. Context pertains to a specific set of conditions, while intervening conditions encompass a broader range of conditions in which the phenomenon is situated. Action strategies are the actions and responses that occur as a result of the phenomenon, and the desired or undesired outcomes of these actions and responses are referred to as consequences (Pandit, 1996). In the central coding phase, the various categories extracted from the raw data are combined based on their role, resulting in the identification of causal conditions (the causes of the main phenomenon), strategies (the actions or mutual actions employed to control, manage, deal with, and respond to the main phenomenon), context (the conditions that influence the strategies), intervening conditions (the general conditions that impact the strategies), and consequences (the outcomes of implementing the strategies).

Results

In the open coding stage, implemented interviews and summaries of the studied documents were done. Open coding was done during review of the collected data. The results of open coding are presented in Table 1. According to Table 1, the open coding process has obtained 14 main categories, which have related concepts with each of these categories.

Table 1. Categories and concepts extracted in open coding

Category 1: Knowledge-oriented organizational culture	
Concepts	Concepts of interaction and communication between individuals and academic units
	Clear and specific definition of knowledge management and its promotion methods
	The existence of a favorable environment for cooperation, support and empowerment of employees to use their knowledge resources
	A culture of friendship
	Knowledge sharing culture between staff and professors
	Interpersonal trust to encourage knowledge sharing
	Positive attitude towards knowledge and its dissemination in the university
Category 2: Strategic planning of knowledge management	
Concepts	Determining the goals of knowledge management in the university
	Compilation of the executive plan of knowledge management in the university
	Preparation of knowledge management strategies in the university
	Determining the place of knowledge management in the strategic plans of the university
	Clear and comprehensive sharing of knowledge management strategy with university professors and staff
	Changing strategies to improve the technical, administrative and structural subsystems of knowledge management
Category 3: Information technology infrastructure	
Concepts	The existence of necessary tools for recording documents and sharing knowledge
	The existence of technological tools necessary for the establishment and overall success of knowledge management programs
	Existence of IT systems to improve absorption, storage and access to knowledge
	The existence of the necessary technology for links to search and contact people with the required experience and background
Category 4: Knowledgeable manpower	
Concepts	Paying attention to different subjects and being interested in experimenting and gaining experience
	Having academic goals and accepting responsibility for one's actions
	Having the motivation to acquire knowledge in order to do things better and continue in education and learning
	Trying to acquire new and up-to-date skills and diverse capabilities and continuous learning
	Ability to understand and logically interpret issues and distinguish and separate facts from opinions
	Using and benefiting from reliable and scientific documents and sources
	Participation in conferences, seminars and scientific gatherings
Category 5: Organizational structure	
Concepts	The existence of a flexible knowledge structure in the university
	Determining the role of knowledge in organizational structure
	Creating a free flow of information, knowledge and ideas in the organizational structure
	Clarity of the knowledge duties of the job and the employee
	Focusing on knowledge-oriented in solving academic problems
	Focusing on knowledge-oriented in university decisions
	Managers' support for knowledge participation and knowledge sharing
	Developing suitable organizational criteria for job promotion based on knowledge performance
	Creating a selection and recruitment system based on knowledge criteria
Category 6: Individual characteristics of staff and professors	
Concepts	Strong belief in accepting the academic goals and values of the university
	The desire to progress in line with the academic values of the university
	Having a sense of duty and responsibility towards the academic goals of the university
	Having academic competences and skills
	Alignment of personal perspective with academic perspective of the university
	Commitment and willingness to perform academic tasks
	The ability to be creative and innovative in line with the academic goals and values of the university
Category 7: Weakness in knowledge management rules	
Concepts	Absence of clear and specific rules related to knowledge management in the university
	Absence of legal requirements related to the implementation of knowledge management in the university
	The implementation process of knowledge management in the university is not clear

	Lack of legal documents related to the implementation of knowledge management for reference in necessary cases
Category 8: Lack of motivation of staff and professors	
Concepts	Lack of motivation to acquire knowledge
	Reluctance to share knowledge
	Lack of desire for scientific innovation
	Not being curious to acquire and create knowledge
	Not wanting to work in a team
Category 9: Knowledge identification and targeting	
Concepts	Defining the academic needs of the university
	Review and transparency of the current academic situation of the university
	Defining the vision and mission of the organization in the field of knowledge management
	Identifying the academic strategic points of the university
	Distribution of knowledge management programs among university employees
	Analysis of university knowledge scenarios by knowledge management specialists
Category 10: Scientific team building in the university	
Concepts	Choosing the desired scenario for the university
	Selection of academic experts in the university
	Placing knowledge experts in the team
Category 11: Knowledge-oriented human resource management	
Concepts	Training of employees (holding training courses for employees)
	Recruitment based on academic qualifications
	Promotion based on academic merits
	Creating motivation in teachers and staff to learn
	Knowledge-based performance evaluation
	The role of knowledge performance in promotion of job rank and material rewards
	Considering incentives according to knowledge functions
Category 12: Knowledge-oriented university	
Concepts	Attention to more knowledge management and knowledge-oriented in organizational processes
	Development and expansion of knowledge
	Registration, storage and sharing of knowledge in the university
	specialization
	knowledge management
Category 13: Improving university performance	
Concepts	Using information resources in order to improve the competitiveness of the university
	Creating an atmosphere of trust between people in the university
	Increasing the quality of decision-making in the university
	Avoiding parallel work and wasting university time and resources
	Improving efficiency and effectiveness and as a result increasing productivity
Category 14: Improving individual performance	
Concepts	Up-to-date knowledge of people in the university
	Increase work motivation
	Motivate individual knowledge reserves

In the central coding section, the codes obtained in the free coding section were examined and studied, and related and similar codes were grouped together in larger categories. Therefore, after comparing the extracted concepts, the related concepts were categorized in a general category and based on the titles in related theories or the concepts obtained from the research, general titles were considered for the categories. Thus, after constant comparison of the answers obtained from the interview, similar answers were arranged and similar concepts were extracted from them. By doing

this stage of the research in response to the causal conditions of knowledge-oriented organizational culture, strategic planning of knowledge management, information technology infrastructures and knowledge manpower were extracted. In response to the context, the categories of organizational structure and individual characteristics of staff and professors were extracted. In response to the intervening factors, weakness in knowledge management rules and lack of motivation of employees and professors were extracted. In response to the strategies of knowledge identification and targeting, knowledge team building in the university and knowledge-oriented human resource management were extracted, and in response to the results of the knowledge-oriented university, improvement of university performance and improvement of individual performance were extracted.

In the selective coding stage of the current research, the relationship of the main category with other categories was determined. At this stage, the main and secondary classes were connected with each other to develop theoretical concepts in order to present the knowledge management model in the universities of Qom province. These actions allowed the researcher to integrate the concepts obtained in the open and central coding stages and use them to present the knowledge management model in the universities of Qom province. Based on this, the paradigm model is presented in Figure 1.

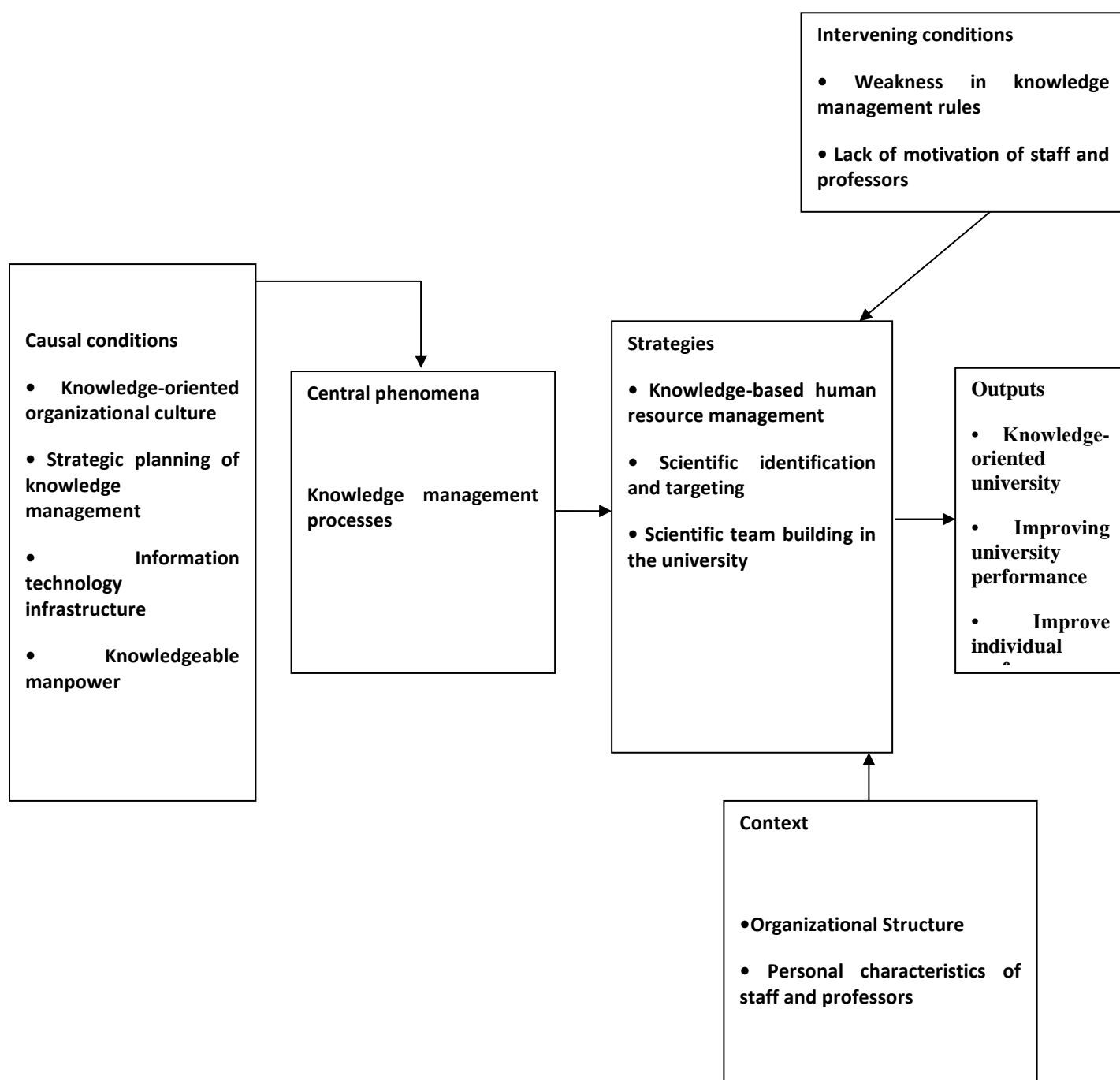


Figure 1. Final model developed from qualitative data

Discussion

The aim of the present study was to develop a model of knowledge management in universities. Through open, central, and selective coding of the collected data, it was found that 14 main categories emerged as open codes. These categories were further refined and labeled during axial and selective coding, according to the data paradigm model. As a result, the components of the proposed foundation data theory were identified as follows:

Core category: knowledge management processes

This category represents the main event or outcome that arises from the interaction of various conditions. In this research, knowledge management processes are considered the focal phenomenon or central category.

Causal conditions: knowledge-oriented organizational culture, strategic planning of knowledge management, information technology infrastructures, and knowledge manpower

Causal conditions refer to a set of events and conditions that impact the central category

These conditions precede the main phenomenon in terms of time and contribute to its creation and development. Among the identified categories, "knowledge-oriented organizational culture, strategic planning of knowledge management, information technology infrastructure, and knowledge manpower" are considered as active causes in the model of knowledge management in universities. Without proper preparation of these factors, knowledge management cannot be established in universities.

Strategies: knowledge identification and targeting, knowledge team building in the university, and knowledge-oriented human resources management

Strategies, in the context of the foundation approach, are purposeful actions that offer solutions for the desired phenomenon and lead to specific outcomes. The key strategies employed in this research include knowledge identification and targeting, knowledge team building in the university, and knowledge-oriented human resources management.

Context: organizational structure and individual characteristics of staff and professors

Context conditions are a set of circumstances that provide the context for the desired phenomenon and influence behaviors and actions. These conditions have an impact on the central category and

the resulting outcomes. In the current study, the background conditions encompass organizational structure and the individual characteristics of staff and professors.

Intervening factors encompass the structural conditions that pertain to the desired phenomenon and exert an influence on the strategies. These factors either restrict or facilitate the implementation of strategies within a specific context. In the present study, the weakness in knowledge management regulations and the lack of motivation among employees and professors have been identified as intervening conditions within the paradigm model.

Consequences refer to the outcomes that arise from the strategies and actions undertaken in relation to the desired phenomenon. Whenever individuals or groups choose a course of action or reaction in response to an issue, problem, or to manage and sustain a situation, consequences emerge. Some of these consequences are favorable, while others are undesirable. The findings of this research indicate an enhancement in university performance and individual performance.

Based on the findings, it is recommended that effective knowledge management in universities should take into consideration the categories identified in this study. For the successful implementation of the knowledge management model, emphasis should be placed on the identified causal conditions, which encompass a knowledge-oriented organizational culture, strategic planning, knowledge management, information technology infrastructure, and knowledgeable personnel. By attending to these factors, the desired outcomes such as a knowledge-oriented university, improved university performance, and enhanced individual performance can be achieved.

Furthermore, it is important to acknowledge the limitations associated with the present research in order to appropriately generalize the findings. Firstly, the qualitative nature of the study restricts the extent to which the findings can be generalized. Additionally, the model presented is specific to universities in the Qom province, therefore caution should be exercised when attempting to apply and generalize this model to other universities.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

A.S, H.K and Gh.S contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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