# Modeling the Factors Affecting the Establishment of Knowledge Management in Iraqi Universities

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**Purpose:** The purpose of this study was to model the factors affecting the implementation of knowledge management in universities in Iraq.

**Methods and Materials:** The research method, based on its objective, was descriptive, and a survey strategy was employed. The statistical population included all faculty members in educational sciences, totaling 48,985 individuals. A random sampling method was used, and based on Cochran's sample size formula, 384 participants were selected for the study. A researcher-developed questionnaire was used as the research instrument. Content validity, convergent validity, and discriminant validity were utilized to establish the questionnaire's validity. Cronbach's alpha formula was employed to determine the reliability of the questionnaire. Data analysis was conducted using factor analysis and structural modeling tests.

**Findings:** Overall, the results indicated that the factors affecting the implementation of knowledge management in universities in Iraq included organizational structure reconstruction (factor loading 1), organizational welfare (factor loading 0.98), organizational technology (factor loading 1), organizational leadership culture (factor loading 1), organizational excellence (factor loading 1), organizational knowledge processing (factor loading 1), constraint removal (factor loading 0.99), and stakeholder quality improvement (factor loading 1.01). Additionally, the results showed that the studied model had an acceptable fit at the level of $P < 0.001$.

**Conclusion:** The study concludes that implementing knowledge management in Iraqi universities requires addressing multiple strategic factors, including organizational knowledge processes, removing constraints, enhancing welfare and leadership culture, achieving organizational excellence, leveraging technology, restructuring organizational structures, and improving stakeholder service quality. Effective strategies in these areas can significantly improve knowledge management practices and foster innovation and development in higher education institutions.

*Keywords: Knowledge Management Implementation, University Administrators, Iraq.*

## 1. Introduction

Since organizations need to grow and remain dynamic to meet societal demands, they must establish knowledge management systems. Traditional and one-dimensional decision-making has often created problems for organizations. Over the past two decades, the increase in the volume of information within organizations and the necessity of effectively using it for organizational decisions have led to the emergence of knowledge management (Asgharinezhad et al., 2024; Ekrami & Farajpour, 2016; Safari et al., 2020). In the current era, organizations have realized that their longevity will not be sustained unless they adopt a strategic approach to managing and valuing their organizational knowledge. Consequently, strategies and cycles for implementing knowledge management have been introduced, and with global changes, managers and management theorists are increasingly focused on organizations' intellectual assets (Safari et al., 2011).

With the rapid and continuous changes in information technology and the internet, traditional business models must adapt to the business environment for survival. Today's organizations need to effectively leverage knowledge resources to gain and maintain a competitive advantage in the global economy (Ahmadi & Saffari, 2024; Taheri et al., 2019). Both academic and business communities believe that knowledge-empowered organizations can sustain long-term advantages in competitive fields. As a result, knowledge management has become a crucial and vital topic for organizations in recent years. Knowledge management is a specialization necessary for activities such as problem-solving, dynamic learning, strategic planning, and decision-making. Knowledge management can be understood as the creation, storage, and distribution of knowledge in a way that enables its effective use within organizations. Additionally, it is regarded as a systematic and integrated approach to identifying, utilizing, and sharing both documented and undocumented experiences and expertise within organizations (Miri Rami et al., 2022; Soloki et al., 2020).

Given the advantages that knowledge management brings to organizations, efforts should be made to implement management practices based on it. Organizational learning empowers stakeholders and enables organizations to be more flexible and achieve progress in both organizational and personal activities, which depends on the organizational learning vision (Bakar, 2018). Organizational vision is defined as the image of the future that an organization aims to achieve within a specified timeframe. In essence, it represents the organization's current aspirations for the future (Aghavirdi et al., 2016). According to Neefe (2001), the dimensions of organizational learning include: 1) shared vision and mission, 2) organizational culture, 3) teamwork and learning, 4) knowledge sharing, 5) systems thinking, 6) participatory leadership, and 7) competency and skills development for stakeholders (Neefe, 2001). According to Senge (1990), the four elements of action, reflection, communication, and decision-making are fundamental to organizational learning (Sobhani Nejad et al., 2006). Studies have shown that organizational learning depends on facilitators that enable this process (Khanalizadeh et al., 2010; Thuy Pham & Swierczek, 2006).

Organizational learning is the development of new knowledge or insights that can potentially influence behavior. Some argue that the process of understanding and gaining new insights is central to organizational learning. It involves creating conditions within an organization where all members accept changes and view them as a continuous process (Ramazani et al., 2019). Organizational learning occurs when members act as learning agents, responding to internal and external organizational changes by identifying and correcting errors and documenting the results of this process through individual perceptions and organizational patterns (Ahmadi et al., 2017). According to Miyahi et al. (2023), organizational learning leads to improved and enhanced organizational intelligence, thereby empowering organizations (Miyahi et al., 2023).

Organizational learning is facilitated by knowledge management within organizations. The implementation of knowledge management leads to stakeholder empowerment. The sharing and exchange of information and experiences, along with collaborative problem-solving, contribute to stakeholder empowerment (Bowen & Lawler Iii, 1992). Workplace learning not only improves individual and organizational performance but also enhances the interaction between individuals and their work environment (Doornbos, 2004). Organizational learning results from the sharing of knowledge, experiences, and insights among stakeholders and influences the improvement of individual and organizational capabilities (Jiménez-Jiménez & Sanz-Valle, 2011).

A knowledge-driven organization is characterized by mechanisms that motivate employees and encourage them to share knowledge (Lee & Sukoco, 2007). Without creating an environment that supports knowledge sharing and provides necessary incentives, employees are unlikely to engage in knowledge-sharing activities. According to Faldesiani and

Senen (2024), organizational learning depends on the values it is based on (Faldesiani & Senen, 2024). As these values become more apparent to stakeholders, the motivation and interest in organizational learning increase. Organizing knowledge is essential for empowering individuals and the organization to perform activities effectively (Taghizadeh et al., 2010). Implementing knowledge management in educational organizations enhances their vitality and responsiveness to stakeholders' needs, preventing their decline and entropy. Despite the extensive literature on knowledge management processes in Western organizations, empirical studies on Iraqi universities are rare (Alsalim & Mohamed, 2013). There have been sporadic studies on knowledge management and its implementation in universities and higher education institutions (Farooq, 2024), with theoretical views often lacking cohesion (Esposito et al., 2013). Thus, a comprehensive understanding of knowledge management implementation in universities is necessary. Al-Kurdi, Al-Haddad, and Al-Dabi (2018) argue that efforts to reach a shared understanding of knowledge management strategies facilitate its implementation. According to Masaro, Dumai, and Garlati (2018), identifying the factors affecting the development of knowledge management in higher education is effective. Al-Qarioti (2015) suggests that professional teaching is related to the use of innovative teaching methods. Studies (Andam, 2017; Hasani & Sheikhesmaeili, 2016; Rafiee & Saeedian, 2017; Safari et al., 2020) have shown that using knowledge management in the psychological empowerment of individuals in educational organizations is effective for improving quality and achieving goals. Meanwhile, a study by Chia et al. (2016) indicated that the application of knowledge management in educational systems is not very significant and thus requires necessary infrastructure (Chia et al., 2016). The lack of knowledge management implementation has led to a deficiency in organizational knowledge among individuals, reducing their capacity to work towards the educational system's goals, ultimately diminishing stakeholders' capabilities (Sahibzada et al., 2022).

The main research problem is: What are the factors affecting the implementation of knowledge management in Iraqi universities, and how well does the model fit?

## 2. Methods and Materials

The research method, based on its objective, was descriptive and conducted using a survey strategy. The statistical population consisted of all faculty members in educational sciences, totaling 48,985 individuals. A random sampling method was used, and based on Cochran's sample size formula, 384 participants were selected for the study. The research instrument was a researcher-developed questionnaire comprising eight factors (organizational structure reconstruction, organizational welfare, organizational technology, organizational leadership culture, organizational excellence, organizational knowledge processing, constraint removal, and stakeholder quality improvement). Content validity, convergent validity, and discriminant validity were used to establish the questionnaire's validity. Cronbach's alpha formula was used to determine the questionnaire's reliability. Data analysis was conducted using AMOS software, employing the Kaiser-Meyer-Olkin test (for sample adequacy), confirmatory factor analysis (CFA), and structural modeling tests.

## 3. Findings and Results

28.57% of respondents held a master's degree, and 71.42% had a doctorate. 38.09% of participants were female, while 61.90% were male.

Research Question 1: What are the factors affecting the implementation of knowledge management among university administrators in Iraq?

In this exploratory study, first-order confirmatory factor analysis (CFA) was employed to measure the accuracy and precision of key concepts. Using AMOS software, each part of the model was assessed individually to precisely determine its validity.

First-Order Confirmatory Factor Analysis for Organizational Knowledge Processing Strategy Components

The results from the first-order CFA, illustrated below, show that component (X1) had the highest factor loading of 0.97, indicating its significant role in the latent variable model. In contrast, component (X3) had the lowest factor loading of 0.93.

**Table 1**

*First-Order CFA for Organizational Knowledge Processing Strategy Components*

| Factor & Symbol | Components | Symbol | Factor Loading | Result | Rank |
|---|---|---|---|---|---|
| Organizational Knowledge Processing Strategy | Knowledge Storage | X1 | 0.97 | Confirmed < 0.30 | 1 |
| | Knowledge Creation | X2 | 0.96 | Confirmed < 0.30 | 2 |
| | Organizational Decision-Making | X3 | 0.93 | Confirmed < 0.30 | 4 |
| | Understanding Organizational Knowledge | X4 | 0.94 | Confirmed < 0.30 | 3 |
| | Perception of Organizational Learning Cycles | X5 | 0.94 | Confirmed < 0.30 | 3 |

**Figure 1**

*First-Order CFA Model for Organizational Knowledge Processing Strategy Components*
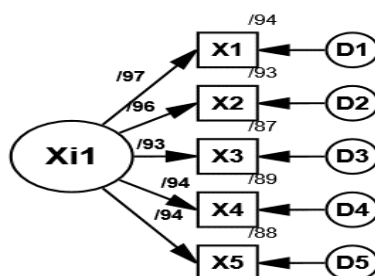


The results in Table 1 highlight that:

"Knowledge Storage (X1)" has the highest factor loading of 0.97, playing a critical role in the latent variable model.

"Knowledge Creation (X2)" has the second-highest factor loading of 0.96.

"Perception of Organizational Learning Cycles (X5)" and "Understanding Organizational Knowledge (X4)" both have a factor loading of 0.94, ranking third.

"Organizational Decision-Making (X3)" has the lowest factor loading of 0.93.

These findings indicate that all components of the organizational knowledge processing strategy have high validity and can be considered reliable indicators in the model.

Table 2 presents the detailed findings from the first-order CFA for the constraint removal strategy components, highlighting that component (X8) has the highest factor loading of 0.99, emphasizing its critical importance. The analysis confirms that all components in the constraint removal strategy have high reliability and can be utilized as reliable indicators for knowledge management implementation in Iraqi universities.

**Table 2**

*First-Order CFA for Constraint Removal Strategy Components*

| Factor & Symbol | Components | Symbol | Factor Loading | Result | Rank |
|---|---|---|---|---|---|
| Constraint Removal Strategy | Budgetary Requirements | X6 | 0.94 | Confirmed < 0.30 | 3 |
| | Motivation Requirements | X7 | 0.94 | Confirmed < 0.30 | 3 |
| | Opportunity Requirements | X8 | 0.99 | Confirmed < 0.30 | 1 |
| | Structural Requirements | X9 | 0.98 | Confirmed < 0.30 | 2 |

**Figure 2**

*First-Order CFA Model for Constraint Removal Strategy Components*
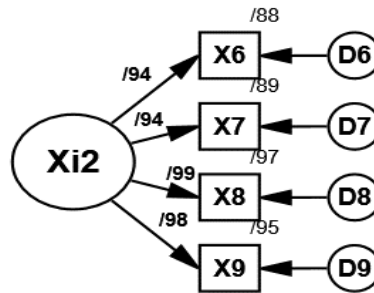


According to Table 2:

"Opportunity Requirements (X8)" has the highest factor loading of 0.99, playing a significant role in the latent variable model.

"Structural Requirements (X9)" has the second-highest factor loading of 0.98.

Both "Budgetary Requirements (X6)" and "Motivation Requirements (X7)" have a factor loading of 0.94, ranking third.

These results confirm that all components of the constraint removal strategy have high validity and reliability and can be used as valid indicators in the model.

The first-order CFA results for the organizational welfare strategy components indicate that component (X12) has a factor loading of 0.98, showing its significant role. In contrast, component (X11) has the lowest factor loading of 0.89, suggesting a comparatively weaker association with the latent variable (Xi3).
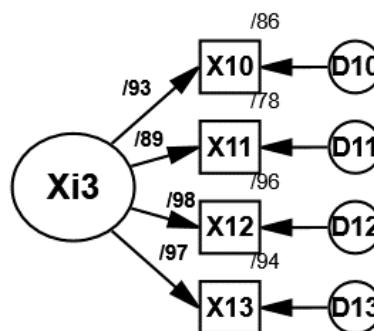
**Table 3**

*First-Order CFA for Organizational Welfare Strategy Components*

| Factor & Symbol | Components | Symbol | Factor Loading | Result | Rank |
|---|---|---|---|---|---|
| Organizational Welfare Strategy | Organizational Dynamism | X10 | 0.93 | Confirmed < 0.30 | 3 |
| | Organizational Excellence | X11 | 0.89 | Confirmed < 0.30 | 4 |
| | Organizational Agility | X12 | 0.98 | Confirmed < 0.30 | 1 |
| | Service Development | X13 | 0.97 | Confirmed < 0.30 | 2 |

**Figure 3**

*First-Order CFA Model for Organizational Welfare Strategy Components*



The results in Table 3 indicate:

"Organizational Agility (X12)" has the highest factor loading of 0.98.

"Service Development (X13)" follows with a factor loading of 0.97.

"Organizational Dynamism (X10)" has a factor loading of 0.93, ranking third.

"Organizational Excellence (X11)" has the lowest factor loading of 0.89.

These findings confirm that all components in the organizational welfare strategy are reliable and can be used as valid indicators in the model.

Table 4 shows the CFA results for the organizational leadership culture enhancement strategy, showing that component (X16) has the highest factor loading of 0.99, highlighting its importance. In contrast, component (X14) has the lowest factor loading of 0.74.
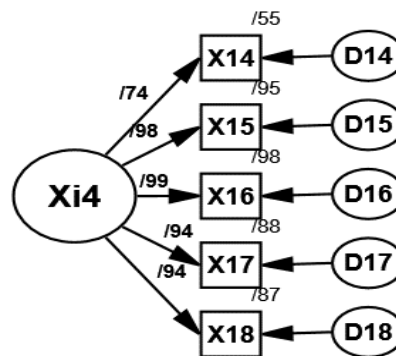
**Table 4**

*First-Order CFA for Organizational Leadership Culture Enhancement Strategy Components*

| Factor & Symbol | Components | Symbol | Factor Loading | Result | Rank |
|---|---|---|---|---|---|
| Organizational Leadership Culture Enhancement Strategy | Developing Organizational Trust | X14 | 0.74 | Confirmed < 0.30 | 4 |
| | Organizing Knowledge at the Administrative Level | X15 | 0.98 | Confirmed < 0.30 | 2 |
| | Organizing Knowledge at the Institutional-Social Level | X16 | 0.99 | Confirmed < 0.30 | 1 |
| | Organizing Knowledge at the Technical-Operational Level | X17 | 0.94 | Confirmed < 0.30 | 3 |
| | Developing Group Learning | X18 | 0.94 | Confirmed < 0.30 | 3 |

**Figure 4**

*First-Order CFA Model for Organizational Leadership Culture Enhancement Strategy Components*



The findings in Table 4 highlight:

"Organizing Knowledge at the Institutional-Social Level (X16)" has the highest factor loading of 0.99.

"Organizing Knowledge at the Administrative Level (X15)" follows with a factor loading of 0.98.

Both "Developing Group Learning (X18)" and "Organizing Knowledge at the Technical-Operational Level (X17)" have a factor loading of 0.94.

"Developing Organizational Trust (X14)" has the lowest factor loading of 0.74.

Based on Table 5, the results of the first-order confirmatory factor analysis (CFA) for the organizational excellence strategy measurement model indicate that components (X19), (X20), and (X21) have the highest factor loadings of 0.96, giving them more weight in the model. This highlights the significant role of these components in explaining the latent variable related to the organizational excellence strategy. In contrast, component (X23) has the lowest factor loading of 0.83, suggesting a relatively lower importance of this component within the model.
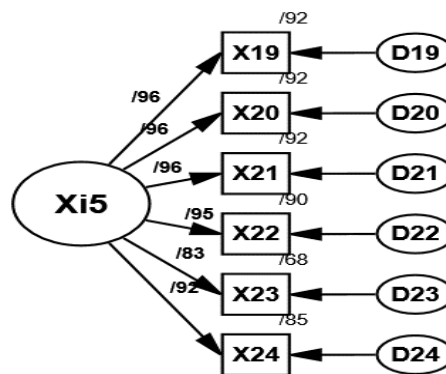
**Table 5**

*Statistical Significance of First-Order CFA for Organizational Excellence Strategy Components*

| Factor & Symbol | Components | Symbol | Factor Loading | Result | Rank |
|---|---|---|---|---|---|
| Organizational Reconstruction Strategy | Digitalization of the Organization | X19 | 0.96 | Confirmed < 0.30 | 1 |
| | Service Development | X20 | 0.96 | Confirmed < 0.30 | 1 |
| | Organizational Dynamism | X21 | 0.96 | Confirmed < 0.30 | 1 |
| | Organizational Agility | X22 | 0.95 | Confirmed < 0.30 | 2 |
| | Organizational Excellence | X23 | 0.83 | Confirmed < 0.30 | 4 |
| | Document Accessibility | X24 | 0.92 | Confirmed < 0.30 | 3 |

**Figure 5**

*First-Order CFA Model for Organizational Excellence Strategy Components*



The results in Table 5 indicate:

"Digitalization of the Organization (X19)," "Service Development (X20)," and "Organizational Dynamism (X21)" each have a factor loading of 0.96, playing crucial roles in the latent variable model.

"Organizational Agility (X22)" has a factor loading of 0.95, ranking second.

"Document Accessibility (X24)" has a factor loading of 0.92, ranking third.

"Organizational Excellence (X23)" has the lowest factor loading of 0.83.

These findings confirm that all components of the organizational reconstruction strategy are highly valid and can be used as reliable indicators in the model.

Table 6 presents the measurement model for the organizational technology strategy, emphasizing the higher importance of component (X28) with a factor loading of 0.99. This component has a strong association with the latent variable (Xi6) and is given more weight in the model. In contrast, component (X26) has the lowest factor loading of 0.92, suggesting a relatively lower contribution in explaining the latent variable associated with the organizational technology strategy.

**Table 6**

*Statistical Significance of First-Order CFA for Organizational Technology Strategy Components*

| Factor & Symbol | Components | Symbol | Factor Loading | Result | Rank |
|---|---|---|---|---|---|
| Organizational Technology Strategy | User Document Digitalization | X25 | 0.95 | Confirmed < 0.30 | 3 |
| | Technical-Operational Document Digitalization | X26 | 0.92 | Confirmed < 0.30 | 4 |
| | Educational Document Digitalization | X27 | 0.97 | Confirmed < 0.30 | 2 |
| | Administrative Document Digitalization | X28 | 0.99 | Confirmed < 0.30 | 1 |

**Figure 6**

*First-Order CFA Model for Organizational Technology Strategy Components*
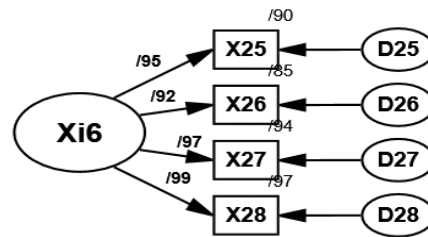


The results in Table 6 highlight:

"Administrative Document Digitalization (X28)" has the highest factor loading of 0.99, indicating its significant role.

"Educational Document Digitalization (X27)" has a factor loading of 0.97, ranking second.

"User Document Digitalization (X25)" has a factor loading of 0.95, ranking third.

"Technical-Operational Document Digitalization (X26)" has the lowest factor loading of 0.92.

These findings show that all components in the organizational technology strategy have high validity and can be used as reliable indicators in the model.

The first-order CFA results for the components related to the organizational structure reconstruction strategy are displayed in Table 7. This model indicates that component (X30) has the highest factor loading of 0.99, highlighting its strong association with the latent variable (Xi7). In contrast, component (X29) has the lowest factor loading of 0.89, indicating relatively less importance.
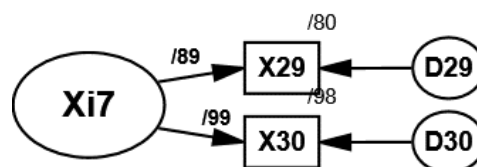
**Table 7**

*Statistical Significance of First-Order CFA for Organizational Structure Reconstruction Strategy Components*

| Factor & Symbol | Components | Symbol | Factor Loading | Result | Rank |
|---|---|---|---|---|---|
| Organizational Reconstruction Strategy | Delegation of Authority | X29 | 0.89 | Confirmed < 0.30 | 2 |
| | Revising Knowledge Acquisition Processes | X30 | 0.99 | Confirmed < 0.30 | 1 |

**Figure 7**

*First-Order CFA Model for Organizational Structure Reconstruction Strategy Components*



The results in Table 7 indicate:

"Revising Knowledge Acquisition Processes (X30)" has the highest factor loading of 0.99, playing a significant role in the model.

"Delegation of Authority (X29)" has a factor loading of 0.89, ranking second.

These findings confirm that all components of the organizational structure reconstruction strategy have high validity and can be used as reliable indicators in the model.

The results of the first-order confirmatory factor analysis (CFA) for the components related to the "Stakeholder Service Quality Enhancement Strategy" are presented in Table 8. The results highlights the greater importance of component (X34) with a factor loading of 0.98 compared to other components. This component has a strong association with the latent variable (Xi8), giving it more weight in the model. In contrast, component (X32) has the lowest factor loading of 0.90, indicating relatively less importance in explaining the latent variable related to the Stakeholder Service Quality Enhancement Strategy. The results also presents the statistical significance results for the first-order CFA of the components, including their respective symbols

and titles. This table and figure confirm the high validity of the examined components and suggest that the findings are reliable. The high validity indicates that the selected components were chosen with precision, and the measurement model is trustworthy. These results can serve

as a basis for future decisions and more precise evaluations within structural equation modeling. Additionally, this information can help managers design and implement organizational technology strategies more effectively.
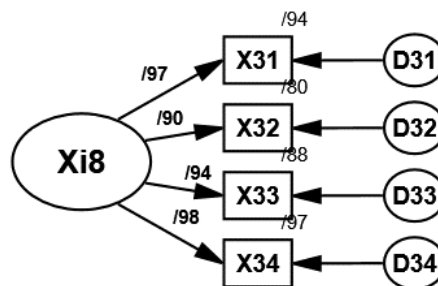
**Table 8**

*Statistical Significance of First-Order CFA for Stakeholder Service Quality Enhancement Strategy Components*

| Factor & Symbol | Components | Symbol | Factor Loading | Result | Rank |
|---|---|---|---|---|---|
| Stakeholder Service Quality Enhancement Strategy | Customer Satisfaction | X31 | 0.97 | Confirmed < 0.30 | 2 |
| | Service Value | X32 | 0.90 | Confirmed < 0.30 | 4 |
| | Productivity | X33 | 0.94 | Confirmed < 0.30 | 3 |
| | Service Scope Improvement | X34 | 0.98 | Confirmed < 0.30 | 1 |

**Figure 8**

*First-Order CFA Model for Stakeholder Service Quality Enhancement Strategy Components*



According to Table 8, the components of the Stakeholder Service Quality Enhancement Strategy, in descending order of factor loading, are:

Service Scope Improvement: Factor loading of 0.98, confirmed, ranked 1.

Customer Satisfaction: Factor loading of 0.97, confirmed, ranked 2.

Productivity: Factor loading of 0.94, confirmed, ranked 3.

Service Value: Factor loading of 0.90, confirmed, ranked 4.

All components are validated and highlight their importance in the Stakeholder Service Quality Enhancement Strategy.

In the second-order factor model, higher-level latent variables are measured by observed variables that are themselves influenced by other latent variables. The results of this analysis, shown in Table 9, indicate the high validity of all model factors. This high validity suggests that the selected components were chosen with precision and that the measurement model is reliable. These results can serve as a foundation for future decisions and more precise evaluations. They also provide assurance to future researchers that the model used is valid and can be a reliable tool for assessing knowledge management implementation in Iraqi universities.

**Table 9**

*Second-Order CFA Analysis of the Structural Model "Knowledge Management Implementation in Iraqi Universities"*

| Row | Symbol | Factors | Factor Loading | Result | Rank |
|---|---|---|---|---|---|
| 1 | Eta1 | Organizational Knowledge Processing Strategy | 1.00 | Confirmed < 0.30 | 2 |
| 2 | Eta2 | Constraint Removal Strategy | 0.99 | Confirmed < 0.30 | 3 |
| 3 | Eta3 | Organizational Welfare Strategy | 0.98 | Confirmed < 0.30 | 4 |
| 4 | Eta4 | Organizational Leadership Culture Enhancement Strategy | 1.00 | Confirmed < 0.30 | 2 |
| 5 | Eta5 | Organizational Excellence Strategy | 1.01 | Confirmed < 0.30 | 1 |
| 6 | Eta6 | Organizational Technology Strategy | 1.00 | Confirmed < 0.30 | 2 |
| 7 | Eta7 | Organizational Structure Reconstruction Strategy | 0.99 | Confirmed < 0.30 | 3 |
| 8 | Eta8 | Stakeholder Service Quality Enhancement Strategy | 1.01 | Confirmed < 0.30 | 1 |

In Table 9, the results of the second-order CFA for the structural model "Knowledge Management Implementation in Iraqi Universities" are presented, including:

Eta1 (Organizational Knowledge Processing Strategy): Factor loading of 1.00, confirmed, ranked 2.

Eta2 (Constraint Removal Strategy): Factor loading of 0.99, confirmed, ranked 3.

Eta3 (Organizational Welfare Strategy): Factor loading of 0.98, confirmed, ranked 4.

Eta4 (Organizational Leadership Culture Enhancement Strategy): Factor loading of 1.00, confirmed, ranked 2.

Eta5 (Organizational Excellence Strategy): Factor loading of 1.01, confirmed, ranked 1.

Eta6 (Organizational Technology Strategy): Factor loading of 1.00, confirmed, ranked 2.

Eta7 (Organizational Structure Reconstruction Strategy): Factor loading of 0.99, confirmed, ranked 3.

Eta8 (Stakeholder Service Quality Enhancement Strategy): Factor loading of 1.01, confirmed, ranked 1.

These results indicate the high validity of all factors in the model and can be used as a foundation for future decisions and precise evaluations. The model can serve as a reliable tool in future research for assessing knowledge management implementation in Iraqi universities.

**Figure 9**

*Structural Model for "Knowledge Management Implementation in Iraqi Universities"*
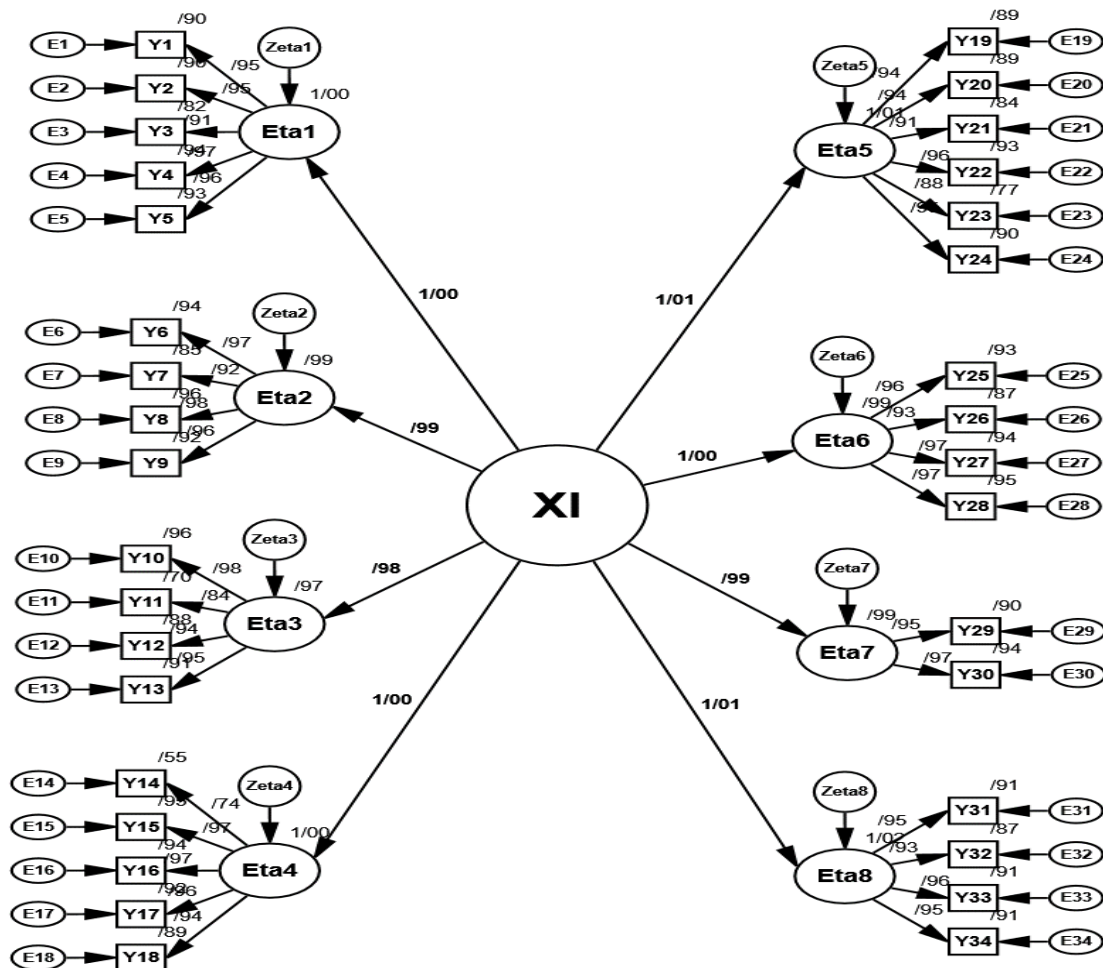


Ultimately, the results of the goodness-of-fit indices showed:

Chi-square to degrees of freedom ratio (CMIN/DF): With an estimate of 1.194, this index indicates that the model has a good fit, as the ratio is less than 5.

Root Mean Square Error of Approximation (RMSEA): With a value of 0.042, this index indicates a good model fit, as it is less than 0.05.

Goodness of Fit Index (GFI): With a value of 0.984, this index is above the desirable threshold of 0.90, indicating excellent model fit.

Adjusted Goodness of Fit Index (AGFI): With a value of 0.948, this index is also above the desirable threshold of 0.90, showing good model fit.

Comparative Fit Index (CFI), Bentler-Bonett Normed Fit Index (NFI), Tucker-Lewis Index (TLI), and Incremental Fit Index (IFI): All these indices, with values above 0.90, indicate very good model fit.

Relative Fit Index (RFI): With a value of 0.968, this index also indicates a good fit.

Parsimonious Ratio (PRATIO): With a value of 0.403, this index is below the desirable threshold of 0.50, reflecting the model's efficiency in using the data.

Parsimonious Normed Fit Index (PNFI) and Parsimonious Comparative Fit Index (PCFI): These indices, with values of 0.679 and 0.661, respectively, are above the desirable threshold of 0.50, indicating excellent model fit.

Overall, these indices demonstrate that the model used for "Knowledge Management Implementation" in Iraqi universities has a very good fit and can be a useful tool for evaluating and improving knowledge management processes in these institutions. These results can help university administrators implement knowledge management standards more effectively, ultimately enhancing the quality of education and research in Iraqi universities.

## 4. Discussion and Conclusion

Enhancing the academic system in Iraq requires the implementation of knowledge management. Based on the findings of this study, one of the factors affecting the implementation of knowledge management in Iraqi universities is the organizational knowledge processing strategy. Using first-order confirmatory factor analysis, the components included organizational knowledge storage with a factor loading of 0.97, organizational knowledge creation with a factor loading of 0.96, organizational decision-making with a factor loading of 0.93, understanding organizational knowledge with a factor loading of 0.94, and the perception of organizational learning cycles with a factor loading of 0.94. The results align with prior studies (Barão et al., 2017; Zamani Tabkadehi et al., 2022), which indicate

that knowledge management implementation is related to organizational knowledge. Knowledge management facilitates the development and enhancement of organizational knowledge. Knowledge management and the improvement of organizational knowledge are two fundamental topics that interact and can support organizational development and advancement. Knowledge management involves creating an environment for collecting, storing, and sharing the knowledge and experiences of employees, leading to improved organizational performance and increased innovation.

Another factor influencing knowledge implementation in Iraqi universities is constraint removal. Using confirmatory factor analysis, the components included budgetary requirements with a factor loading of 0.94, motivation requirements with a factor loading of 0.94, opportunity requirements with a factor loading of 0.99, and structural requirements with a factor loading of 0.98. The results are consistent with prior studies (Alsalim & Mohamed, 2013; Haghighi, 2009), which show that knowledge management implementation is related to organizational constraints. Existing constraints hinder the development and implementation of knowledge management, whereas eliminating organizational constraints can promote the expansion of knowledge management. Empowering employees is a key strategy for overcoming these constraints.

Organizational welfare is also a factor affecting knowledge implementation in Iraqi universities. Using confirmatory factor analysis, the components included organizational dynamism with a factor loading of 0.93, organizational excellence with a factor loading of 0.89, organizational agility with a factor loading of 0.98, and service development with a factor loading of 0.97. The results align with prior studies (Laihonen & Sillanpää, 2014; Rastorgueva & Zecca, 2017), which show that knowledge management implementation is associated with organizational welfare. Effective strategies related to organizational transformation and improvement can maximize welfare. Knowledge management and organizational welfare are both critical for organizations, as knowledge management enhances the knowledge and experience of employees, facilitates structured knowledge transfer, and improves organizational performance, thereby positively impacting welfare.

Another factor influencing knowledge implementation in Iraqi universities is the enhancement of organizational leadership culture. Using confirmatory factor analysis, the

components included organizational trust development with a factor loading of 0.74, knowledge organization at the administrative level with a factor loading of 0.98, knowledge organization at the institutional-social level with a factor loading of 0.99, knowledge organization at the technical-operational level with a factor loading of 0.94, and group learning development with a factor loading of 0.94. The findings are consistent with prior studies (Al-Husseini et al., 2021; Aldosari, 2023; Miyahi et al., 2023), showing that improving organizational leadership culture enhances the knowledge and experience of employees and facilitates the structured sharing of knowledge, which can increase innovation and the development of new technologies.

Organizational excellence is another factor affecting knowledge implementation in Iraqi universities. Using confirmatory factor analysis, the components included service digitalization, service development, and organizational dynamism, each with a factor loading of 0.96; organizational agility with a factor loading of 0.95; document accessibility with a factor loading of 0.92; and organizational excellence with a factor loading of 0.83. The results are in line with prior studies (Quarchioni et al., 2022; Sadri, 2018), which indicate that knowledge management implementation is related to organizational excellence. Knowledge management and organizational reconstruction are key topics that interact and can enhance performance and development. Knowledge management involves creating an environment for the systematic sharing of knowledge and experiences, collecting and storing information, and increasing organizational innovation. Organizational excellence aims to improve organizational structures to enhance flexibility, efficiency, and productivity.

The organizational technology strategy also influences knowledge implementation in Iraqi universities. Using confirmatory factor analysis, the components included user document digitalization with a factor loading of 0.95, technical-operational document digitalization with a factor loading of 0.92, educational document digitalization with a factor loading of 0.97, and administrative document digitalization with a factor loading of 0.99. The findings are consistent with prior studies (Ishak & Mansor, 2020), which show that knowledge management implementation is associated with organizational welfare and can maximize welfare through effective strategies for organizational transformation and improvement. Knowledge management and organizational welfare are both critical topics for organizations.

Another factor affecting knowledge implementation in Iraqi universities is the reconstruction of organizational structures. Using confirmatory factor analysis, the components included delegation of authority with a factor loading of 0.89 and revising knowledge acquisition processes with a factor loading of 0.99. The results are consistent with previous studies (Alipour & Hosseinpour, 2018; Nilipour Tabatabaei et al., 2018). Knowledge management implementation depends on restructuring university organizational structures and requires effective management strategies for structural flexibility, which can be achieved through transformational and transactional leadership.

Stakeholder service quality enhancement is also a factor influencing knowledge implementation in Iraqi universities. Using confirmatory factor analysis, the components included customer satisfaction with a factor loading of 0.97, service value with a factor loading of 0.90, productivity with a factor loading of 0.94, and service scope improvement with a factor loading of 0.98. The results align with prior studies (Aldosari, 2023; Bianchi et al., 2022), which suggest that knowledge management implementation is related to stakeholder service delivery. Efforts to implement knowledge management are necessary for effective service delivery to stakeholders. Knowledge management and service delivery to students are crucial topics that can improve student performance and well-being as well as the educational and research quality of the organization. Knowledge management involves enhancing the knowledge and experience of organizational members, creating a structured environment for knowledge sharing, and increasing innovation.

It is recommended to use information technology for organizational management to implement knowledge management in Iraqi universities.

It is recommended to revise and reconstruct the organizational structure to implement knowledge management in Iraqi universities.

It is recommended to pursue organizational excellence to implement knowledge management in Iraqi universities.

It is recommended to make efforts to enhance organizational welfare for the implementation of knowledge management in Iraqi universities.

It is recommended to remove organizational constraints to implement knowledge management in Iraqi universities.

## Authors' Contributions

Authors equally contributed to this article.

## Declaration

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

## Transparency Statement

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

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## Declaration of Interest

The authors report no conflict of interest.

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## Ethical Considerations

All procedures performed in studies involving human participants were under the ethical standards of the institutional and, or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

## References

Aghavirdi, B., Moghadasi, A., & Sharifzadeh, F. (2016). Factors Influencing Human Resource Empowerment for Organizational Excellence. *Human Resources Studies Quarterly*, *5*(21), 45-70. https://www.semanticscholar.org/paper/Factors-Influencing-Human-Resources-Empowerment-for-Aghavirdy/243f525b5a2e222cb85c7e05fdc42d903094b8f7

Ahmadi, A. A., Malek Avar Zaman, A., & Sheikhlar, M. (2017). Examining the Impact of Knowledge Management Practices on the Psychological Empowerment of Stakeholders. *Quarterly Journal of Development and Transformation Management*, *9*(28), 11-22. https://www.researchgate.net/publication/254192219_Examining_the_impact_of_knowledge_management_practices_on_knowledge-based_results

Ahmadi, R., & Saffari, H. (2024). The Effect of Knowledge-Based Leadership on Company Performance According to the Mediating Role of Customer Knowledge Management and Innovation Quality. *Dynamic Management and Business Analysis*, *2*(4), 13-20. https://doi.org/10.22034/dmbaj.2024.2022216.1009

Al-Husseini, S., El Beltagi, I., & Moizer, J. (2021). Transformational Leadership and Innovation: The Mediating Role of Knowledge Sharing Amongst Higher Education Faculty. *International Journal of Leadership in Education*, *24*(5), 670-693. https://doi.org/10.1080/13603124.2019.1588381

Aldosari, S. A. M. (2023). The Relationship Between Leaders' Mastery of Tacit Knowledge Management Skills and the Achievement of Competitive Advantage at Universities. *Journal of Sustainable Finance & Investment*, *13*(1), 142-160. https://doi.org/10.1080/20430795.2021.1886552

Alipour, A., & Hosseinpour, M. B. (2018). Identifying Factors Influencing the Implementation of Knowledge Management in Jihad-e-Daneshgahi Central Office. *Journal of Technology Growth*, *14*(54), 46-54. http://www.roshdefanavari.ir/Article/20506/FullText

Alsalim, M. S., & Mohamed, A. P. D. N. Y. (2013). Impact of knowledge management processes on organizational performance: An empirical study in Institute of Technical Learning-Iraq. *transfer*, *3*(11), 94-105. https://iiste.org/Journals/index.php/IKM/article/view/8808

Andam, F. (2017). Psychological Empowerment: Exploring the Links to Knowledge Sharing. *International Journal of Basic Sciences & Applied Research*, *6*(1), 62-71. https://www.researchgate.net/publication/353681588_Psychological_Empowerment_Exploring_the_Links_to_Knowledge_Sharing

Asgharinezhad, S., Rezghi Shirsavar, H., & Khanzadi, K. (2024). Identifying the Dimensions and Components of Internet of Things (IoT) Development in Schools Based on Futurology [Research Article]. *Iranian Journal of Educational Sociology*, *7*(2), 98-105. https://doi.org/10.61838/kman.ijes.7.2.12

Bakar, R. (2018). The influence of professional teachers on Padang vocational school students' achievement. *Kasetsart Journal of Social Sciences*, *39*(1), 67-72. https://doi.org/10.1016/j.kjss.2017.12.017

Barão, A., de Vasconcelos, J. B., Rocha, Á., & Pereira, R. (2017). A knowledge management approach to capture organizational learning networks. *International Journal of Information Management*, *37*(6), 735-740. https://doi.org/10.1016/j.ijinfomgt.2017.07.013

Bianchi, G., Testa, F., Boiral, O., & Iraldo, F. (2022). Organizational learning for environmental sustainability: Internalizing lifecycle management. *Organization & Environment*, *35*(1), 103-129. https://doi.org/10.1177/1086026621998744

Bowen, D. E., & Lawler Iii, E. E. (1992). Total quality-oriented human resources management. *Organizational Dynamics*, *20*(4), 29-41. https://doi.org/10.1016/0090-2616(92)90073-V

Chia, N., Chiu, Huei, H., & Chen. (2016). The study of knowledge management capability and organizational effectiveness in Taiwanese public utility: the mediator role of organizational commitment. *SpringerPlus*, *5*(1). https://doi.org/10.1186/s40064-016-3173-6

Doornbos, M. R. (2004). 'Good governance': the pliability of a policy concept. *Trames*, *8*(4), 372-387. https://doi.org/10.3176/tr.2004.4.03

Ekrami, M., & Farajpour, A. (2016). Predicting Learning Organization Components Based on the Perspective of Stakeholders at Payame Noor University. *Quarterly Journal of Learning Research in Schools and Virtual Learning*(14), 57-68.

Esposito, V., De Nito, E., Pezzillo Iacono, M., & Silvestri, L. (2013). Dealing with knowledge in the Italian public

universities: The role of performance management systems. *Journal of Intellectual Capital*, *14*(3), 431-450. https://doi.org/10.1108/JIC-03-2013-0035

Faldesiani, R., & Senen, S. H. (2024). Knowledge Management Systems in Higher Education: A Comprehensive Study through Systematic Literature Review and Bibliometric Analysis (2019-2023). *The Eastasouth Management and Business*, *2*(02), 184-201. https://doi.org/10.58812/esmb.v2i02.185

Farooq, R. (2024). A review of knowledge management research in the past three decades: a bibliometric analysis. *VINE Journal of Information and Knowledge Management Systems*, *54*(2), 339-378. https://doi.org/10.1108/VJIKMS-08-2021-0169

Haghighi, M. A. (2009). *Organizational Behavior Management*. Termeh Publications.

Hasani, K., & Sheikhesmaeili, S. (2016). Knowledge management and employee empowerment: A study of higher education institutions. *Kybernetes*, *45*(2), 337-355. https://doi.org/10.1108/K-04-2014-0077

Ishak, R., & Mansor, M. (2020). The relationship between knowledge management and organizational learning with academic staff readiness for education 4.0. *Eurasian Journal of Educational Research*, *20*(85), 169-184. https://doi.org/10.14689/ejer.2020.85.8

Jiménez-Jiménez, D., & Sanz-Valle, R. (2011). Innovation, organizational learning, and performance. *Journal of Business Research*, *64*(4), 408-417. https://doi.org/10.1016/j.jbusres.2010.09.010

Khanalizadeh, R., Kardanayich, A., Fani, A. A., & Mashbaki, A. (2010). The Relationship Between Empowerment and Organizational Learning. *Journal of Management Transformation Research*, *2*(1), 20-45. https://tmj.um.ac.ir/index.php/rf/article_25210.html?lang=en

Laihonen, H., & Sillanpää, V. (2014). What is the role of knowledge management in establishing the effectiveness of public welfare services? *Knowledge and Process Management*, *21*(2), 112-121. https://doi.org/10.1002/kpm.1438

Lee, L. T., & Sukoco, B. M. (2007). The effects of entrepreneurial orientation and knowledge management capability on organizational effectiveness in Taiwan: the moderating role of social capital. *International Journal of Management*, *24*(3), 549-573. https://www.researchgate.net/profile/Badri-Sukoco/publication/281964272_The_Effects_of_Entrepreneurial_Orientation_and_Knowledge_Management_Capability_on_Organizational_Effectiveness_in_Taiwan_The_Moderating_Role_of_Social_Capital/links/5d8492a2a6fdcc8fd6fb2e85/The-Effects-of-Entrepreneurial-Orientation-and-Knowledge-Management-Capability-on-Organizational-Effectiveness-in-Taiwan-The-Moderating-Role-of-Social-Capital.pdf

Miri Rami, S. F., Delgoshaei, Y., & Mahmoudi, A. H. (2022). Identification and Analysis of Effective Factors on the Strategic Intelligence of Education Districts Managers of Tehran City and Provide an Appropriate Model [Research Article]. *Iranian Journal of Educational Sociology*, *5*(1), 113-125. https://doi.org/10.61186/ijes.5.1.113

Miyahi, F., Maref Zadeh, A., & Hosseinpour, M. (2023). Management of Knowledge Management Establishment in Farhangian University of Khuzestan Province. *Quarterly Journal of Educational Leadership and Management*, *17*(3), 179-202. https://www.sid.ir/fileserver/je/39877-282458-en-1161758.pdf

Neefe, D. O. (2001). Comparing levels of organizational learning maturity of colleges and universities participating in traditional and non-traditional (Academic quality improvement project) accreditation processes. https://minds.wisconsin.edu/bitstream/handle/1793/40079/2001neefed.pdf?sequence=1

Nilipour Tabatabaei, A., Taqsimi, J., & Fatemi, T. (2018). Proposing a Knowledge Management Model With an Organizational Learning Capability Approach. *Quarterly Journal of Knowledge Studies*, *11*(40), 15-27. https://www.noormags.ir/view/en/articlepage/1490898/%D8%A7%D8%B1%D8%A7%DB%8C%D9%87-%D9%85%D8%AF%D9%84-%D9%85%D8%AF%DB%8C%D8%AA-%D8%AF%D8%A7%D9%86%D8%B4-%D8%A8%D8%A7-%D8%B1%D9%88%DB%8C%DA%A9%D8%B1%D8%AF-%D9%82%D8%A7%D8%A8%D9%84%DB%8C%D8%AA-%DB%8C%D8%A7%D8%AF%DA%AF%DB%8C%D8%B1%DB%8C-%D8%B3%D8%A7%D8%B2%D9%85%D8%A7%D9%86%DB%8C-%D9%85%D8%B7%D8%A7%D9%84%D8%B9%D9%87-%D9%85%D9%88%D8%B1%D8%AF%DB%8C-%D8%B4%D9%87%D8%B1%D8%AF%D8%A7%D8%B1%DB%8C-%D8%A7%D8%B5%D9%81%D9%87%D8%A7%D9%86

Quarchioni, S., Paternostro, S., & Trovarelli, F. (2022). Knowledge management in higher education: a literature review and further research avenues. *Knowledge Management Research & Practice*, *20*(2), 304-319. https://doi.org/10.1080/14778238.2020.1730717

Rafiee, M., & Saeedian, N. (2017). Relationship between knowledge management and psychological empowerment with teachers' creativity. *Scinzer Journal of Accounting and Management*, *3*(4), 1-7. https://doi.org/10.21634/SJAM.3.4.17

Ramazani, A., Madhooshi, M., Fallah Lajimi, H. R., & Razaghi, N. (2019). Proposing a Model for Establishing Knowledge Management at Mazandaran University. *Scientific Journal of Productivity Management*, *13*(50), 90-118. https://www.sid.ir/paper/181824/en

Rastorgueva, N., & Zecca, F. (2017). Knowledge management as a key stone of sustainable welfare in the Italian rural areas. *Rivista di studi sulla sostenibilità*, *VII*(1), 183-201. https://doi.org/10.3280/RISS2017-001012

Sadri, A. (2018). Establishing Knowledge Management in Iranian Universities. *Quarterly Journal of Research in Educational Systems*, *12*(43), 41-63. https://www.researchgate.net/publication/359232213_Provision_of_a_Knowledge_Management_Model_for_the_Branches_of_the_Islamic_Azad_University_of_West_Azerbaijan_Province

Safari, K., Haghighi, S., Rastegara, A., Jamshidi, A., & Akbar. (2011). The relationship between psychological empowerment and organizational learning. *Procedia - Social and Behavioral Sciences*, *30*, 1147-1152. https://doi.org/10.1016/j.sbspro.2011.10.224

Safari, M., Pashaei, M. R., & Bakhshi, G. (2020). Identifying Factors Influencing the Implementation and Establishment of Knowledge Management in Tehran's Education System. *Quarterly Journal of Knowledge Retrieval and Semantic Systems*, *7*(25), 95-120. https://jks.atu.ac.ir/article_11932.html

Sahibzada, U. F., Jianfeng, C., Latif, K. F., Shafait, Z., & Sahibzada, H. F. (2022). Interpreting the impact of knowledge

management processes on organizational performance in Chinese higher education: mediating role of knowledge worker productivity. *Studies in Higher Education*, *47*(4), 713-730. https://doi.org/10.1080/03075079.2020.1793930

Sobhani Nejad, M., Shahabi, B., & Youzbashi, A. (2006). *The Learning Organization: Theoretical Foundations, Research Models, and Assessment*. Yastaron Publishers.

Soloki, M., Ghorbani, M., Zabihi, M. R., & Niroomand, H. A. (2020). Designing a Knowledge Management Deployment Model With an Organizational Learning Approach. *Iranian Journal of Educational Sociology*, *3*(4), 19-30. https://doi.org/10.52547/ijes.3.4.19

Taghizadeh, H., Soltani Fesghandis, G., & Mahdavi Loi, R. (2010). Investigating the Implementation of Knowledge Management Processes in a Service Organization. *Beyond Management*, *3*(12), 33-48. http://journals.iau.ir/article_518541.html?lang=en

Taheri, B., Hosseini, L., & Haddadpour, A. (2019). Feasibility of Knowledge Management Establishment Based on Required Infrastructure at Isfahan University of Medical Sciences. *Quarterly Journal of Library and Information Science Studies*, *11*, 145-160. https://slis.scu.ac.ir/article_13130.html?lang=en

Thuy Pham, N., & Swierczek, F. W. (2006). Facilitators of organizational learning in design. *The Learning Organization*, *13*(2), 186-201. https://doi.org/10.1108/09696470610645502

Zamani Tabkadehi, A., Hosseini Tabkadehi, L., & Momeni Mahmoei, H. (2022). Components and Indicators of Knowledge Management Model Establishment in the Education System. *Scientific Journal of Education and Human Resources Development*, *9*(34), 192-217. http://ensani.ir/fa/article/522079/%D9%85%D9%88%D9%84%D9%81%D9%87-%D9%87%D8%A7-%D9%88-%D8%B4%D8%A7%D8%AE%D8%B5-%D9%87%D8%A7%DB%8C-%D8%A7%D9%84%DA%AF%D9%88%DB%8C-%D8%A7%D8%B3%D8%AA%D9%82%D8%B1%D8%A7%D8%B1-%D9%85%D8%AF%DB%8C%D8%B1%DB%8C%D8%AA-%D8%AF%D8%A7%D9%86%D8%B4-%D8%AF%D8%B1-%D8%B3%D8%A7%D8%B2%D9%85%D8%A7%D9%86-%D8%A2%D9%85%D9%88%D8%B2%D8%B4-%D9%88-%D9%BE%D8%B1%D9%88%D8%B1%D8%B4