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Examining the Relationship between the IT Infrastructure Library and Intentional Organizational Forgetting in Non-Profit Universities of Qazvin Province

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Abstract

In today's world, where knowledge and information technology are recognized as two fundamental pillars of organizations, effective knowledge management is crucial for the survival of organizations in a competitive environment. This research aims to investigate the relationship between information technology infrastructure and intentional organizational forgetting among the staff of non-profit universities in Qazvin province. This study is descriptive-correlational and applied, with a statistical population consisting of 450 employees from these universities. A sample of 220 individuals was selected using cluster random sampling. Data were collected through a questionnaire that had been validated by experts and demonstrated high reliability (Cronbach's alpha over 0.7). Data analysis using SPSS showed a significant relationship between the quality of information technology infrastructure and intentional organizational forgetting ($r = 0.825$, $p < 0.01$). All dimensions of information technology infrastructure quality, including efficiency, effectiveness, confidentiality, integrity, accessibility, compliance, and reliability, also had significant relationships with intentional forgetting. These findings suggest that implementing a connection between information technology infrastructure can help consciously eliminate non-useful knowledge and enhance organizational learning. It is recommended that university managers leverage the capabilities of information technology infrastructure to improve knowledge management and increase organizational agility.

Keywords

intentional organizational forgetting, information technology infrastructure, knowledge management, non-profit universities

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1. Introduction

In today's era, information technology (IT) plays a crucial role in the performance and success of organizations, including universities. However, the effective and proper management of IT services presents a significant challenge. The IT Infrastructure Library (ITIL) is recognized as a comprehensive framework for managing IT services, helping organizations optimize their IT offerings and align them with their business objectives.

On the other hand, "organizational forgetting" is defined as the intentional or unintentional removal of unnecessary or inefficient knowledge, practices, and processes from an organization's memory. While organizational learning has received considerable attention, organizational forgetting has gained increasing importance as a vital aspect of adaptability and innovation within organizations.

This introduction examines the relationship between the implementation of ITIL and intentional organizational forgetting in non-profit universities in Qazvin province. Due to resource limitations and the need for high agility, non-profit universities can enhance their performance through effective IT service management and the elimination of outdated practices. The aim of this study is to identify how ITIL can be utilized to facilitate intentional forgetting in these universities, ultimately leading to greater efficiency and effectiveness.

Research Questions

The research questions are as follows:

1. Is there a significant relationship between the quality of information technology infrastructure and employees' intentional forgetting?
2. Is there a significant relationship between different dimensions of information technology infrastructure quality (effectiveness, efficiency, confidentiality, integrity, accessibility, compliance, and reliability) and intentional forgetting?

Research Hypotheses

The research hypotheses are defined as follows:

- ✓ **Main Hypothesis:** There is a significant relationship between the quality of information technology infrastructure and employees' intentional forgetting.
- ✓ **Sub-Hypotheses:** Each of the dimensions of information technology infrastructure quality (effectiveness, efficiency, confidentiality, integrity, accessibility, compliance, reliability) has a significant relationship with intentional forgetting.

2.Information Technology and the IT Infrastructure Library Framework

Information technology refers to the collection of tools and methods used to gather, store, process, and distribute information in various formats (audio, image, text) [7]. The IT Infrastructure Library (ITIL) framework is recognized as one of the most reputable standards in IT service management, assisting organizations in optimizing their IT infrastructures and delivering high-quality services [8]. The COBIT model, from which ITIL is inspired, provides criteria such as effectiveness (the relevance of information to business processes), efficiency (optimal use of resources), confidentiality (preventing unauthorized access), integrity (accuracy and reliability of information), accessibility (timely access to information), compliance (adherence to laws and policies), and reliability (providing suitable information for management) to assess the quality of IT infrastructure [9].

Organizational Forgetting

Organizational forgetting can be categorized into two types: accidental and intentional. Accidental forgetting leads to the unintentional loss of knowledge, which can be detrimental to the organization, while intentional forgetting involves the deliberate removal of non-applicable knowledge to enhance organizational learning [10]. Houlahan and Phillips [3] introduced intentional forgetting as a strategy for reconstructing organizational knowledge and increasing agility. This process allows organizations to create space for new learning by eliminating outdated knowledge.

Related Studies

1. Implementation of ITIL and Cultural Challenges: Müller and Lichtenberg [11] analyzed the hidden values in ITIL within Maersk Oil, comparing them to the company's organizational culture. They identified the challenges of ITIL implementation and proposed solutions for managing these challenges. This study indicates that cultural misalignment can hinder successful ITIL implementation and impact knowledge management and organizational memory.

2. ITIL and IT Governance: Aiden and Ekbrow [12] examined the overlap between ITIL and IT governance practices to demonstrate ITIL's potential to stimulate IT governance. Their findings suggest that success in ITIL implementation is particularly influenced by team efficiency and organizational resources. A reduction in resources and team efficiency can lead to organizational forgetting in the IT domain.
3. Optimizing IT Service Management through the ITIL Framework: Vandana [13] explored the application of ITIL frameworks through academic analysis, case studies, and best practices. This paper discusses the ITIL lifecycle stages, noting that neglecting these stages and best practices can lead to knowledge loss and organizational forgetting.
4. The Critical Role of IT Service Management Using ITIL Best Practices: Outkhozoria et al. [14] investigated the role of IT service management in business processes and its impact on business outcomes, success, and competitiveness through ITIL. They concluded that effective ITIL implementation requires key processes and activities, and neglecting these can result in organizational forgetting and loss of competitive advantage.
5. Advanced A-ITIL Framework: Plariyachi and Vijayanayake [15] conducted a systematic review of the literature and demonstrated that ITIL, as a guiding framework, facilitates achieving high-quality IT service management. Failure to utilize this framework can lead to decreased service quality and organizational forgetting.
6. The Role of Cloud Computing in ITIL Processes: Wang et al. [16] examined the role of cloud computing in ITIL processes, highlighting challenges in IT deployment and maintenance management. These challenges can limit cloud service delivery and result in knowledge loss and organizational forgetting.
7. Reducing Resistance to ITIL Using People-CMM: Gamma et al. [17] investigated the causes of ITIL project failures, identifying organizational resistance as the most documented cause. To mitigate this resistance, they proposed using the People Capability Maturity Model (People-CMM). Resistance to ITIL can lead to improper implementation and, consequently, organizational forgetting.
8. Integrating ITIL Processes in a Web-Based Environment: Zhang et al. [18] explored solutions for integrating ITIL processes in complex organizational environments. They presented a web-based integration architecture for interacting with organizational systems from security, knowledge, information, control, and semantic perspectives. Improper integration can result in knowledge loss and organizational forgetting.

3.Conceptual Model

The conceptual model of this research is designed based on the COBIT framework and the definition of intentional forgetting. The independent variable (quality of IT infrastructure) includes seven dimensions (effectiveness, efficiency, confidentiality, integrity, accessibility, compliance, and reliability), while the dependent variable (intentional forgetting) encompasses the deliberate removal of non-applicable knowledge and the reinforcement of new learning.

4.Methodology

Research Design

This research is descriptive-correlational and applied in nature. Its aim is to examine the relationship between the independent variable (quality of IT infrastructure) and the dependent variable (organizational intentional forgetting) in non-profit universities in Qazvin Province. The study seeks to provide solutions for improving knowledge management in these universities.

Population and Sample

This research utilized two statistical populations. The first population consists of 25 experts (university professors and managers of non-profit universities in Qazvin Province). The second statistical population includes the staff of non-profit universities in Qazvin Province, estimated to be 405 individuals. The researcher employed a cluster random sampling method due to the dispersion of non-profit universities, aiming to select 207 individuals.

5.Data Collection Tools

Data were collected through two standardized questionnaires:

1. **IT Infrastructure Quality Questionnaire**: Designed based on the model by Radmanesh et al. (2011) with 21 questions, assessing the dimensions of effectiveness, efficiency, confidentiality, integrity, accessibility, compliance, and reliability.
2. **Intentional Forgetting Questionnaire**: Adapted from the study by Mahmoudvand et al. (2012), which evaluated the deliberate removal of non-applicable knowledge and the reinforcement of new learning.

The validity of the questionnaires was confirmed by 25 experts (professors and academic managers). The reliability of the questionnaires was assessed using Cronbach's alpha (above 0.7). Additionally, semi-structured interviews with experts were conducted to complement the data.

6.Data Analysis Method

The data were analyzed using SPSS software version 22. Pearson correlation tests were used to examine the relationship between variables, and ANOVA was employed to assess group differences (based on gender, education, and work experience). A significance level of 0.01 was considered.

7.Findings

Descriptive Statistics

Out of 220 participants, 60% were male and 40% female. Age distribution was as follows: 30% under 35 years, 50% between 35 and 45 years, and 20% over 45 years. Educational qualifications included 25% with an associate degree or lower, 50% with a bachelor's degree, 20% with a master's degree, and 5% with a doctorate. Work experience was distributed as follows: 40% (1-7 years), 35% (8-15 years), and 25% (over 15 years).

Quantitative Description of Research Questions

The quantitative description of the research questions will follow in subsequent sections.

Table 1: Values of Descriptive Indices of Research Variables

Variables / Dimensions	Count	Mean	Variance	Standard Deviation
1- ITIL Information Technology Infrastructure	168	3.17	0.125	0.3537
Effectiveness	168	3.28	0.375	0.6125
Efficiency	168	3.29	0.406	0.6368
Confidentiality	168	3.12	0.338	0.5810
Integrity	168	3.25	0.224	0.4738
Accessibility	168	3.20	0.111	0.3326
Compliance	168	3.15	0.314	0.5603
Reliability	168	3.15	0.418	0.6462
2- Targeted Forgetting	168	3.26	0.289	0.5374

Table 2: Examination of Normality of Research Variables (Kolmogorov-Smirnov Test)

Variables	Count	Mean	Standard Deviation	Skewness	Kurtosis	Kolmogorov-Smirnov	Sig Value	Result
Infrastructure (ITIL)	168	3.17	0.3537	-0.025	0.070	1.174	0.127	Confirmed
Targeted Forgetting	168	3.26	0.5374	0.030	0.830	1.335	0.077	Confirmed

Table 3: Pearson Correlation Coefficient Between ITIL Infrastructures and Employees' Targeted Forgetting

Type of Connection	Connection Existence	Employees' Targeted Forgetting			Variable
Correlation Coefficient	ITIL Infrastructures	Adjusted Determination Coefficient	Determination Coefficient	Correlation Coefficient	ITIL Infrastructures
		0.940	0.943	0.971	

At the 0.01 significance level

Correlation Analysis

The results of the Pearson correlation test revealed a significant relationship between the quality of IT infrastructure and organizational intentional forgetting ($r = 0.825$, $p < 0.01$). The correlations for the individual dimensions were as follows:

- Effectiveness: ($r = 0.792$, $p < 0.01$)
- Efficiency: ($r = 0.751$, $p < 0.01$)
- Confidentiality: ($r = 0.751$, $p < 0.01$)
- Integrity: ($r = 0.437$, $p < 0.01$)
- Accessibility: ($r = 0.228$, $p < 0.01$)
- Compliance: ($r = 0.849$, $p < 0.01$)
- Reliability: ($r = 0.725$, $p < 0.01$)

Analysis of Variance (ANOVA)

The ANOVA results indicated no significant differences in the variables based on gender, education level, or work experience ($p > 0.05$). This suggests that the influence of IT infrastructure is consistent across different demographic groups.

Regression Analysis

Multiple regression analysis showed that the dimensions of IT infrastructure accounted for 68% of the variance in organizational intentional forgetting. Among the dimensions, compliance ($\beta = 0.42$, $p < 0.01$) and effectiveness ($\beta = 0.38$, $p < 0.01$) had the strongest influence.

8.Discussion

The findings of this study are aligned with those of Holan and Phillips [3] and Chieh-Huei [4], who emphasized that information technology has the potential to enhance knowledge management processes. The strong correlation between compliance and effectiveness ($r = 0.849$) with organizational intentional forgetting suggests that these dimensions play a crucial role in eliminating obsolete knowledge and promoting organizational learning. Compliance ensures that knowledge is aligned with institutional policies and strategic objectives, while effectiveness contributes to the timely and accurate dissemination of information.

The weaker correlation for accessibility ($r = 0.228$) may indicate that access to information alone is insufficient for purposeful knowledge elimination; complementary processes such as analysis and evaluation are also required. This interpretation is supported by Harde [6], who highlighted the importance of integrating IT systems with organizational flexibility to foster agility.

These findings have practical implications for non-profit universities. By implementing an IT Infrastructure Library (ITIL), administrators can streamline knowledge-based processes and enhance organizational agility by removing redundant knowledge. For example, adopting ITIL-based knowledge management systems can help in identifying and phasing out outdated training practices. However, limitations such as the study's focus on non-profit universities in Qazvin and the limited availability of standardized questionnaires in this domain may restrict the generalizability of the findings.

9.Conclusion

This study demonstrated that the implementation of an IT Infrastructure Library (ITIL) significantly influences organizational intentional forgetting within non-profit universities in Qazvin Province. Among the various ITIL dimensions, compliance and effectiveness were

found to have the most substantial impact in facilitating the removal of non-essential knowledge and reinforcing learning at the organizational level.

Based on these results, the following recommendations are proposed for university administrators:

1. Continuous Training: Implement regular training programs to enhance staff competency in utilizing ITIL for effective knowledge management.
2. Collaborative Culture: Encourage a participatory culture to facilitate knowledge sharing and intentional forgetting of outdated practices.
3. System Implementation: Deploy ITIL-based knowledge management systems to support the identification and removal of obsolete procedures.
4. Ongoing Evaluation: Conduct periodic evaluations of the organizational knowledge base to ensure timely updates and the elimination of irrelevant content.

Future studies should consider examining this relationship in different sectors, such as industrial or service organizations, and exploring the mediating role of factors such as leadership style, employee motivation, and organizational culture. Moreover, investigating the influence of emerging technologies, such as artificial intelligence, on intentional forgetting could open promising new directions for research.

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