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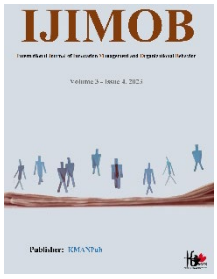

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Modeling the Effects of Reducing Barriers to Creating Learning Organizations Using Structural Equation Modeling (Case Study of Al-Qadisiyah and Kufa Universities, Iraq)

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A B S T R A C T

Objective: The objective of this research was to model the reduction of barriers to the establishment of learning organizations at Al-Qadisiyah and Kufa Universities in Iraq.

Methodology: The current study is an applied research and utilizes a mixed-methods (qualitative-quantitative) approach. The research population consists of 12 experts whose opinions were used to identify the effects in the qualitative part, and the population for modeling included a group of faculty members from Al-Qadisiyah and Kufa Universities. The precise sample size of 91 individuals was obtained using Cochran's formula. The sampling method employed in this research was simple random sampling. The modeling of the effects of reducing barriers to creating learning organizations was initially identified using the Delphi technique, and then modeled and ranked using structural equation modeling and confirmatory factor analysis.

Findings: The research results demonstrated that the model of the effects of reducing barriers to creating learning organizations is underpinned by 10 causal conditions, 5 contextual conditions, 4 intervening factors, and 6 strategies, resulting in 6 major outcomes for the universities of Al-Qadisiyah and Kufa, Iraq, which include: development of organizational learning in universities, organizational outcomes, collective experiential learning, social learning, knowledge enhancement, and organizational entrepreneurship.

Conclusion: As the results indicate, communications play a crucial role in reducing barriers, being one of the most important causal conditions in this area. As it is evident, communication refers to all the means of connection among employees within Al-Qadisiyah and Kufa universities. Having internal communications will ensure that the cycle of knowledge and learning flows within the organization in an orderly manner. Possessing a wide array of communication tools such as telephones, email, the internet, and clear verbal communications between employees and various organizational departments is a pathway to reducing learning barriers.

Keywords: *Modeling, Barrier Reduction, Learning Organizations, Al-Qadisiyah University, Kufa University*

1 Introduction

Organizational learning is the process of enhancing an organization's ability to perform work effectively and efficiently. Therefore, learning within an organization occurs when, firstly, managers and key agents gain understanding and insight regarding phenomena related to their organization, and secondly, this understanding is reflected in their behavior and performance, as well as throughout the organization (Aghajani et al., 2016; Antunes & Pinheiro, 2020; Fridell et al., 2020; Goula et al., 2020; Huang & Yao, 2017; Kumar et al., 2021; Marquardt, 2019). Organizations learn through the learning of their employees. One way to enhance organizational learning capacity is to establish learning organizations (Aghajani et al., 2016; Antunes & Pinheiro, 2020). A learning organization is an entity that has created the capacity to strengthen and develop learning skills within itself. Establishing such capability in organizations will have significant achievements. It means that, on one hand, organizations will not be passive in the face of environmental changes and will create desirable organizational changes in response to these changes. On the other hand, strengthening and practicing learning processes and skills leads to the creation and generation of new organizational knowledge (Kumar et al., 2021). In every organization, learning occurs at various levels, such as individual, group, and organizational levels. Although individuals and organizational teams or groups are spontaneous representatives from whom organizational learning originates, organizational learning specifically focuses on learning at the systems level (Lima et al., 2021). Learning at the systems level goes beyond the sum of the knowledge and learning of employees and occurs when organizations merge, thus establishing the rational and intelligent force of individuals and embedding learning in their memory, culture, educational systems, and current affairs, making it visible as a competitive principle. Employees may come and go and management may change, but the organization's memory, behavior, norms, values, and thought processes are mostly preserved (Huang & Yao, 2017).

According to Carlson (2007), a learning organization is a place where individuals continually use their capacities to create outcomes they truly desire. It is a place where new and broader patterns of thinking are nurtured, and hopes and dreams freely reside, and individuals continuously learn how to learn from each other (Fridell et al., 2020). Many researchers have agreed on the following characteristics for learning organizations, and there are other characteristics that have not received much attention: a) Open communication b) Risk-taking c) Support for learning d) Teamwork e) Encouragement for learning f) Training and educational environment g) Knowledge management. They have emphasized that organizations focusing on systemic features of communication, culture, and structure are likely to achieve higher levels of organizational performance, adaptability to changes, and creativity compared to organizations that rely solely on learning and its applications (Hecht et al., 2019).

Looking at the research background, most previous studies on the concept of learning organizations and factors influencing their implementation have been based on Senge's model. For example, Chiu (2010) conducted research to develop a model for change at Jente University. He believes that one of the criteria for change is learnability. In this way, he uses the philosophy and commands of Senge's learning organization to bring about change at the university. He believes that the traditional way of doing things is changing, and the need for change in universities and higher education institutions is keenly felt (Chiu, 2000).

Therefore, no research has been conducted to examine the barriers to learning organizations and efforts to reduce them among universities in Iraq. On the other hand, the current era is the era of globalization, and all organizations are moving towards competitiveness, and managing organizations in a traditional way is no longer possible. Organizations and higher education centers such as Al-Qadisiyah and Kufa Universities are among the most extensive organizations. For these organizations to adapt to environmental changes and withstand environmental transformations and deliver forces to society that can adequately respond to these changes and transformations, special attention must be paid to organizational learning and learning organizations. Higher education in Third World countries is a very important institution, not only because it is responsible for the training of elites and creates a basis for a technologically proficient society, but also because it is the most important intellectual institution with a very extensive influence on culture, politics, and beliefs. Universities contribute to the creation and especially the promotion of knowledge in societies where there are few scientific elites. Universities not only play a major role in societal advancement through their publications but also by providing consulting to the government and the industrial sector, they participate in intellectual life and similar matters. Perhaps by describing the characteristics and features of learning organizations and

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removing the barriers facing them, a more complete picture of these organizations can be provided and practically applied in an educational organization (including Al-Qadisiyah and Kufa Universities). As stated, this research seeks to identify the factors and barriers to the establishment of learning organizations in these two university centers. With the rapid evolution and modernization of businesses, organizations are looking for the next big step to distinguish themselves from their competitors and always stay one step ahead. Sometimes the desired solution is conceptually simpler than expected. According to industry experts, the only sustainable competitive advantage is the ability to learn faster than competitors. Thus, when the organizations under study in this research are able to remove the barriers to creating learning organizations, they will be able to respond quickly to environmental changes and enhance their performance by gaining a competitive advantage. Since only a percentage of organizations train and develop their employees, the shortage of specialists is not surprising. For this reason, encouraging learning as an organizational culture is very important. By expanding the culture of organizational learning, employee interaction with each other increases. They continuously use their skills, knowledge, and creativity, thereby generally improving the business. It is undeniable that becoming a learning organization leads to increased productivity.

2 Methods and Materials

This research is descriptive in nature and employs a mixed qualitative-quantitative approach. It is applied in purpose. The research population in the qualitative part consisted of 12 faculty members from Al-Qadisiyah and Kufa Universities in Iraq. For modeling, the population comprised a group of experts from Al-Qadisiyah and Kufa Universities, totaling 91 individuals. The sampling method used in this research was simple random sampling. Data were collected using a researcher-developed questionnaire, which was validated by experts. The questionnaire was based on a Likert scale and its reliability was measured using Cronbach's alpha, resulting in a total value of 0.890, indicating suitable reliability. The validity of the questionnaire was also confirmed by experts, and both content validity and AVE validity were calculated and validated. Data analysis and hypothesis testing were conducted using structural equation modeling with the partial least squares method and Smart PLS software.

Initially, with the help of the Delphi technique, effective factors were identified and finalized. In this technique, each member of the group was given a questionnaire including the criteria of interest. Then, these indices were reviewed individually by the selected 12 experts familiar with all matters using the Delphi method. For the initial screening, the identified indices were assigned scores between 1 to 9, and indices with scores below 7 were eliminated. The Delphi technique was concluded in the third round with the achievement of final agreement. As the average of all dimensions was above 0.7, these dimensions were finalized as the main outcomes and formed the basis for measuring and designing the research questionnaire for modeling.

3 Findings and Results

The sample comprised 91 individuals, evenly distributed across several demographic variables. Regarding gender, a majority of the participants were male (71.42%, n=65), while females represented 28.57% (n=26) of the sample. In terms of age, the distribution was somewhat varied, with the largest age group being those over 46 years old, constituting 39.56% (n=36) of the participants. This was followed by individuals aged 36 to 40 years (30.76%, n=28), 41 to 45 years (27.47%, n=25), and 31 to 35 years (13.18%, n=12). Educational level was predominantly high among the participants: 46.15% (n=42) held a doctoral degree, 41.75% (n=38) had a master's degree, and 12.08% (n=11) had a bachelor's degree.

The results of convergent validity and Cronbach's alpha are visible in Table 1.

Table 1

Results of Convergent Validity Assessment with AVE Criterion and Reliability Value

Variables	AVE	CR	CR > AVE	(Alpha > 0.7)
Scientific Leadership Management	0.599	0.777	OK	0.764
Mental Models	0.598	0.798	OK	0.723
Organic Structure	0.580	0.735	OK	0.780
Individual Skills	0.666	0.796	OK	0.712
Personal Capability	0.625	0.914	OK	0.730
Environmental Factors	0.648	0.963	OK	0.845

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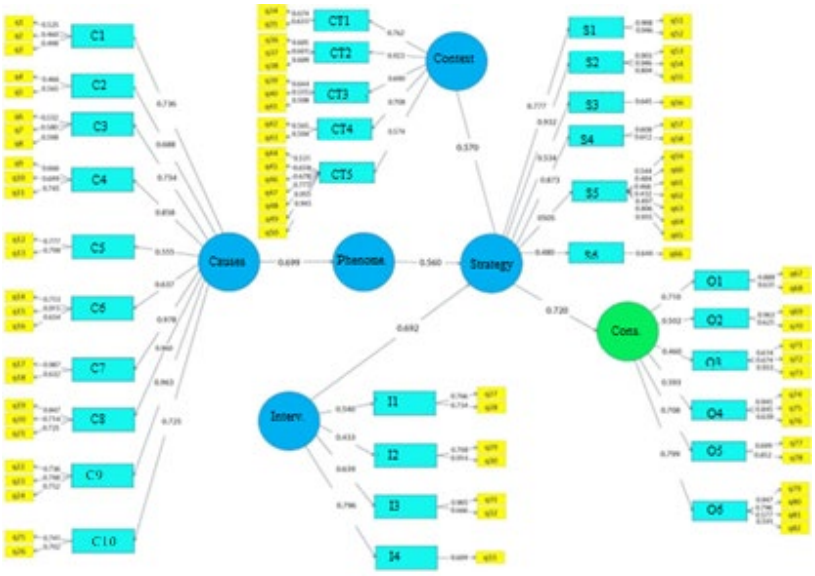
Communications	0.631	0.951	OK	0.825
Cultural Barriers	0.547	0.935	OK	0.863
Management Resistance	0.591	0.852	OK	0.888
Organizational Behavior	0.699	0.862	OK	0.899
Utilization of Idea-Generating Capacities	0.644	0.845	OK	0.805
Application of Learned Knowledge	0.639	0.888	OK	0.844
Shared Vision and Ideals	0.614	0.945	OK	0.733
Awareness	0.674	0.933	OK	0.758
Learning-Supportive Culture	0.582	0.948	OK	0.715
Learning Workforce	0.591	0.905	OK	0.849
Evaluation, System Creation, and University Structure Reform	0.577	0.836	OK	0.7345
Psychological Factors of University Employees	0.655	0.855	OK	0.765
Structural Factors of the University	0.603	0.825	OK	0.798
Learning-Focused Strategy	0.678	0.833	OK	0.712
Learning System and Knowledge Dissemination	0.640	0.764	OK	0.825
Internal and External Organizational Considerations	0.683	0.888	OK	0.831
Supra-organizational Factors	0.528	0.736	OK	0.866
Educational Factors	0.536	0.798	OK	0.777
Collective Learning	0.509	0.958	OK	0.798
Organizational Learning Development	0.577	0.944	OK	0.741
Organizational Outcomes	0.584	0.936	OK	0.753
Group Experiential Learning	0.607	0.820	OK	0.765
Social Learning	0.799	0.846	OK	0.815
Knowledge Enhancement	0.613	0.805	OK	0.945
Organizational Entrepreneurship	0.504	0.967	OK	0.835

As observed in Table 1, since a suitable value for AVE is 0.5, in Table 3 all variables have an average variance extracted above 0.5, confirming the accuracy of the convergent validity results using this indicator. Additionally, the reliability value is also greater than 0.7, indicating appropriate reliability for the variables studied.

As stated, structural equations have been used to examine variables affecting the reduction of barriers in learning organizations, and ultimately the research model is displayed as Figure 1, where all dimensions in the model become significant.

Figure 1

Final Model of The Study



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In the significant state, the relationship or lack thereof between independent and dependent variables is examined. If the T-statistic value between two variables is higher than the absolute value of 1.96 and the significance level is less than 0.05, this means there is a significant relationship between the two variables with a 95% probability. Also, the second condition for establishing convergent validity is that the factor loadings be greater than 0.4.

Table 2

Results of the Overall Model Fit with GOF Criterion

GOF	Mean Communality	Mean R^2
$\sqrt{(\overline{\text{Communalities}} \times \overline{R^2})} = \sqrt{(0.410 \times 0.620)} = 0.504$	0.410	0.620

According to the results in Table 2, the GOF value obtained is 0.504, greater than 0.36, indicating a strong fit for the overall research model.

4 Discussion and Conclusion

As the results indicate, communications play a crucial role in reducing barriers, being one of the most important causal conditions in this area. As it is evident, communication refers to all the means of connection among employees within Al-Qadisiyah and Kufa universities. Having internal communications will ensure that the cycle of knowledge and learning flows within the organization in an orderly manner. Possessing a wide array of communication tools such as telephones, email, the internet, and clear verbal communications between employees and various organizational departments is a pathway to reducing learning barriers.

Furthermore, the next significant factor considered is the resistance of managers concerning organizational learning. Managers can either reduce barriers with their attitude towards learning and its necessity, or they can act as a major obstacle by not believing in it. When managers understand that learning is beneficial for both employees and the organization, and realize that they themselves need it, it leads to an increase in the learning culture within the organization. If they do not overcome their traditional beliefs, they will act as barriers. Managers must recognize that traditional beliefs such as planning, organizing, and controlling will no longer be beneficial and must create dynamic and capable conditions to lead employees towards innovation.

Cultural barriers have been the third important criterion. Cultural barriers actually represent a poor cultural assessment in the successful implementation of a learning organization, indicating that adequate cultural readiness is essential for the successful implementation of a learning organization, particularly in knowledge sharing. The lack of a suitable culture or the presence of cultural barriers if a learning organization is implemented likely increases the chance of project failure, with cultural barriers in knowledge sharing being very likely from a change management perspective. If there is a better sense of psychological security in these aspects among individuals, it significantly increases their participation and cooperation in the project and helps remove this barrier.

Individual skills have also been a significant causal condition. In general, individual skills include all factors that enable university employees to optimally use situations to focus on organizational challenges according to their capabilities and create an environment where the training learned by employees in these situations can emerge.

Scientific leadership management was the fifth causal condition. Management and leadership in a learning organization have been emphasized as dimensions that influence style and method in the organization. Organizations in the 21st century are continuously facing change. For them to be able to compete effectively in competitive markets, a key point will be how they learn and generate new knowledge and how they are prepared to move. The organization must change itself willingly rather than merely adapting. Thus, in a learning organization, the leader is not just a decision-maker but also a teacher, designer, and facilitator of change. University managers can only acquire significant data and play a stronger role in learning through direct involvement. Leaders should promote systems thinking to facilitate individual and organizational learning. Management over employees is a broader concept than just amending job descriptions and pay scales. University managers indeed have tremendous power to create a learning environment and can establish a system that encourages learning. They are also able to develop and enhance their employees' knowledge, skills, and capabilities through personal development programs, job rotations, and responsibilities across different departments.

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The organic structure also ranked sixth. A learning organization insists that structures should be decentralized hierarchies with low formalization and more group-oriented to facilitate cooperation and access to necessary information. Such a structure is called an organic structure. An organic structure is a critical infrastructure of a learning organization because in this structure, solving problems related to different units and tasks is considered a major challenge. Roles are flexible, tasks are performed in multi-tasking systems, and cross-training, multiple job assignments, and job rotation are used to make the workforce flexible. An organic structure in universities will ensure that the system is organic, flat, decentralized, flexible, and accompanies minimal formal procedures. In these structures, the level of control and formalization is low, which facilitates the learning processes within the organization.

Organizational behavior also prioritized seventh. The variable of organizational behavior includes a series of behaviors that, if not present within the organization, can pose problems for organizational learning and even prevent the formation of a learning organization in a university, an essential environment. These include the commitment of employees and their competence, and motivation. The variable of mental models ranked eighth. In the university, employees should be able to align their mental assumptions with other employees about enhancing corporate learning and adapt their mental plans to the company's goals about enhancing corporate learning. If employees cannot act correctly in this area, they may become a barrier to organizational learning.

Environmental factors were the ninth priority. In this study, environmental factors were actually elements forming the internal environment of the university, with colleague support being the most important internal organizational factor considered. Networking education, creating a group support network, accepting behavioral changes among colleagues, sharing experiences, and sharing learned content will accelerate the formation of a learning organization.

Personal capability was the tenth priority. In this regard, employees of Al-Qadisiyah and Kufa universities in Iraq, in addition to the key factors mentioned, must also focus on their capabilities and align themselves with changing conditions and nurture their creativity to adapt to new situations, abundant challenges, and the presence of innovative managers. Undoubtedly, if they do not excel in this important aspect, they will act like a barrier that will challenge learning in the organization.

The learning workforce was the first priority among the contextual conditions since learning organizations learn through their employees. Therefore, employees of a learning organization must be knowledgeable to be useful to their organization. Knowledgeable employees are responsible for mastering their jobs, transferring important information to other organizational employees, updating their skills, and trying to maintain their value in the organization by acquiring new knowledge and skills. They will also be able to discover and develop their capabilities and talents and transfer their tacit and explicit knowledge to other organizational parts.

The culture supporting learning also ranked second. In fact, it can be stated that the set of customs, values, beliefs, norms, and understandings that professors, staff, and students at the university share is called a culture supporting learning. Like welcoming new ideas, tolerating mistakes, a favorable learning environment, and receptivity to criticism, it will increase and accelerate the pace in the learning organization.

Psychological factors of university employees also ranked second. Among the contextual factors that can affect the reduction of barriers to a learning organization, psychological factors of employees can be mentioned. In this category, feelings of self-confidence, a spirit of teaching, a compassionate spirit, and a spirit of progress, both internal and external motivation, a desire to enhance learning, employees' attitudes towards learning, and an increased interest of learners in participating in the learning process are all factors that originate from within employees and can efficiently transform organizational learning.

The assessment of the creation of systems and the reform of the university structure also ranked third. In Al-Qadisiyah and Kufa universities in Iraq, the issue of assessment and structural reform should be considered because with the evaluation and solving of problems and defects, steps can be taken to attract efficient labor, employ learning experts, and hire competent individuals. The implementation of a management system, the clarification of educational expectations, the education and empowerment system, needs assessment, and modern information technologies will only be possible if the university structure is first evaluated and the necessary reforms are applied, and with the actions mentioned, the organization is led towards learning.

Structural factors of the university also ranked fourth. As stated, the structure of the university should first be evaluated and reformed, and by reducing structural barriers, action should ultimately be taken to reduce learning factors.

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The more political and relational play within the university structure is reduced, the more meritocracy will prevail, and employees as an important pillar of this structure will cause the university to move towards learning.

The system of learning and dissemination of knowledge ranked first among the strategies. This aspect emphasizes the design of appropriate learning methods based on advanced teaching-learning technology suitable for the university conditions, which has benefited from the latest scientific and organizational findings and publishes them with maximum flexibility and dynamism for different levels, and members can benefit from them according to their needs. Supra-organizational factors ranked second among strategies and strategies for reducing barriers to the learning organization. The strategy-focused learning aspect, which ranked third, can be stated that the strategy-focused learning aspect emphasizes that the organization's vision must be clear and understood by employees, professors, and students, and they voluntarily engage in achieving it. In the written mission of the university, growth and learning are considered one of the central methods and are included in the university's programs. In fact, this aspect refers to an approach that considers the understanding and motivation of internal strategies to achieve learning capability as a turning point for the learning organization. Internal and external organizational considerations also ranked fourth among strategies and strategies, in fact, when policy-making organizations are in the learning stage, they must act in such a way that the implementation of changes resulting from organizational learning does not cause legal consequences, regulatory institutions are justified and synchronized with this change, and avoiding politicizing specialized issues. Adopting this approach in the learning organization will cause some of the obstacles ahead to disappear on their own. Educational factors also ranked fifth among strategies and strategies. This criterion indicates that in formulating strategies, it must first be possible to create a useful adaptation between educational items and organizational goals with the process of needs assessment, training of internal professors, providing educational materials for learning, a specialized look at content, matching the title with content, and suitable content, and based on the needs of the university, educational classes are scheduled and timed. Collective learning also ranked sixth among strategies and strategies. By adopting a strategy such as collective learning, employees can be encouraged to self-manage and self-control, and by organizing problem-solving groups, employees from different parts overlap tasks between different units, and training through work teams takes a step in creating team thinking and teamwork.

Awareness of intervening conditions ranked first. In other words, this result can be interpreted in such a way that when employees inside Al-Qadisiyah and Kufa universities know how and how they can access the information they need and that their knowledge is used in which parts of the organization and also university managers are able to provide internal organizational issues to employees so that they are also aware and by integrating information and preparing integrated information they can better solve problems then learning barriers will be reduced and conversely if these issues are neglected and ignored this factor will act as an intervening factor and will cause the goal of the set which is to form a learning organization to face problems.

The common vision and perspective of the intervening conditions ranked second. In fact, when university managers introduce the vision of the university and the values that all employees must adapt to themselves and with the approval and acceptance of the vision statement by the majority of people, they can reach a common vision between managers and employees, then they will be able to understand how to do things in the best way. The use of idea-generating capacities from the intervening conditions ranked third. In fact, it can be stated that when the thinking and desire of senior management of the organization, the recognition of the goal is on the organizational agenda of the university, then the suggestion system, the need and necessity of interaction with successful countries, constructive interaction at the international level will become the necessities of having a learning organization and these factors will cause the university to reach the learning organization sooner. Finally, the application of learned lessons from the intervening conditions also ranked fourth. In fact, when managers give their employees freedom of action and by granting authority to subordinates, trust in employees, giving independence to employees, creating a recording and classification process, and classifying employee findings will cause them to be able to better and more use their knowledge and lessons learned in the organization and use them to optimize work processes.

In the end, the results of the research showed that when all conditions and factors are properly observed in order to reduce the barriers to the learning organization, it will have positive consequences for the university, which can be interpreted as follows: In fact, organizational entrepreneurship is considered one of the main

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consequences of the learning organization because by reducing organizational learning barriers, opportunities for idea exchange and implementation of new ideas in the organization can be created, and with more collaboration and providing new services in a new way and using technology techniques, valuing innovation and trying to preserve it, taking a step in creating a positive attitude towards risk-taking in creating innovation, and in this direction, using all organizational employees at the university; and by creating a learning organization, in fact, public demand, participation, team thinking, teamwork, sense of commitment, competence, mastery and personal commitment, hardworking employees, employee interest, economic growth and justice, trust building, accessibility of information, financial resources, culture creation, creating motivation will be strengthened and all these factors will form a set that can lead the organization towards organizational development. Also, with the increase in information exchange by employees within the university, their resistance to change will be broken and they will learn to use each other's information and actually reach an acceptable level of social learning. Also, by understanding the existence of differences between employees and establishing a fair payment system, increasing rule-following, dealing with and treating employees based on organizational justice, appreciating efforts and supporting senior management, encouraging employees, organizational consequences can be achieved within the university and finally, by sharing content and experiences under the support of supervisors and a suitable organizational culture, group knowledge development can be achieved.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

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

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

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