

The Mediation Effect of Organizational Culture between Knowledge Management Processes and Creative Thinking: A Case of COVID 19 Healthcare Workers in Northern Iraq

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Abstract

Employees have to be more creative and knowledgeable during crisis times, because they are among the most important intangible assets of an organization. However, employees should also be supported by the managerial parts to increase the capacity of intangible assets. This study focuses on identifying whether organizational culture (OC) plays a mediating role between knowledge management processes (KMP) and creative thinking (CT) in the healthcare industries in Northern Iraq. A Quantitative approach has been used in this study, and 400 healthcare workers are considered for collecting data. 100% response rate is reached. Factor analysis, structural equation modelling, and path analysis techniques were used for identifying the mediation effect between the dependent and independent variables. The results indicate that positive relationships have been found among the variables. However, the correlation between KMP and CT was found to have insignificant direct effects as the p-value was found to be greater than the significant value. The correlation between KMP and OC, as well as that between OC and CT were found to be positive and significant. In addition, OC was found to have a mediating role in the relationship of KMP and CT as revealed in the hypotheses test. The study suggested that the management put a measure in place to promote CT through enhancing KMP. Some of the directions were suggested for future research in the study.

Keywords: knowledge management processes, organizational culture, creative thinking, Northern Iraq, Healthcare Workers

INTRODUCTION

The world has faced many changes that have impacted the dynamics of business, economies, lives, and the way work is done. These have ranged from financial crises, world wars, revolutionary technological advancements, and some pandemic diseases. However, the Covid-19 pandemic took the world by storm in 2020. It brought the world to a standstill. The virus had a disruptive effect and is a global crisis that led to countries shutting down borders and putting restrictions on business activities and it changed how people live, interact and exist. They made it clear that linear thinking alone is not enough to bring about developments in tackling the pandemic and managing it. Organizations have had to rely on creative thinking

in order to find some creative solutions to allow businesses to be conducted amid the pandemic.

However, the pandemic has also opened doors regarding knowledge management processes and the world has relied on this to create, share and apply knowledge. According to Tehrani et al (2018), knowledge is one of the most essential assets that promotes competencies and enhances the decision-making process. Organizations have had to tap into creative thinking and innovation intelligence to ensure continuity and implement survival strategies. According to Halpern (2001), creative thinking involves finding alternative solutions to new situations, and the pandemic is definitely a new situation that should prompt creative thinking. Chelmecka (2018), contends that the success of an organization is hinged on creativity as it affects the creation of solutions. Uslu (2015), pointed out a possible relationship between organizational culture and creative thinking. The scholar explained that creative thinking was a

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learned skill and it occurred when people were supported and sufficiently motivated but would be redundant if not nurtured.

The aim of this paper is to determine how knowledge management has been utilized through creative thinking and innovation intelligence to develop life saving strategies. In the past, creative thinking and innovation intelligence have managed to help organizations, economies and countries at large survive various crises. The same can also be noted in the current times of corona virus.

The study will also be useful in policy implementation and preparedness in the business sector. The study will show how creative thinking can promote knowledge thinking and help an organization to survive amid a crisis. This information can be used to develop important policies that enable the organization to be prepared and be proactive in times of turbulence.

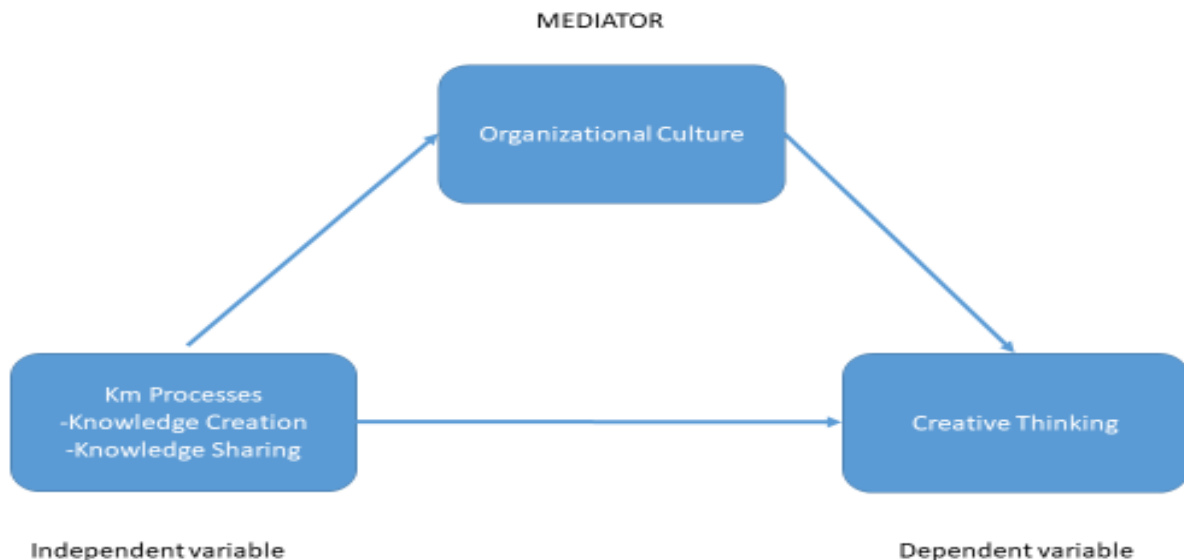
Furthermore, the study has the potential of uncovering new contribution in relation to knowledge management in times of crisis. In addition, creative thinking and innovation intelligence are the fields that have not been researched deeply before in the knowledge management literature. Therefore, the study has the potential of contributing to the little that exists in the literature. It will also be valuable as reference and foundation material for future studies, seeing

how the corona virus is a new pandemic and a phenomenon that will likely garner much interest in the foreseeable future.

Problem Statement of the Study

There have been numerous studies about knowledge management, especially with regards to its association with creativity. However, the researcher could not find any studies that relate to knowledge management during a global crisis. There have also been no studies to determine the role organizational culture plays between these variables. This creates a huge gap that the researcher seeks to fill and potentially be groundbreaking research into the role of these variables in the COVID 19 pandemic. At this point, some of the research questions could be designed as below:

Is there any correlation between creative thinking and knowledge management processes? If so, which methods of knowledge management have an impact on creative thinking? Is it possible to argue that organizational culture may mediate the relationship between creative thinking and knowledge management processes? How organizational culture has an impact on creative thinking? These fundamental research questions will allow us to design four important hypotheses based on the following research model.



H1 knowledge management processes have an impact on creative thinking.

H2 knowledge management processes have an impact on organizational culture.

H3 Organizational culture has an impact on creative thinking

H4 organizational culture mediates the relationship between knowledge management processes and creative thinking.

To test the hypothesis, the literature in the variables should be reviewed.

LITERATURE REVIEW ON THE RELATIONSHIP BETWEEN KNOWLEDGE MANAGEMENT PROCESSES, CREATIVE THINKING AND ORGANIZATIONAL CULTURE

Knowledge management and creative thinking

Creative thinking cannot be denied from knowledge management processes for several industries, especially in higher education. According to Klukken et al (1997), creativity is essential for survival, given how the world is technologically advancing every time. Halpern (2001) defined creative thinking as the ability to develop good responses to problems through the use of unique or unusual skills and strategies. They explained that it means coming up with alternative solutions, redefining goals, recognizing and applying critical thinking skills to new situations.

Sternberg (2012) pointed out that for creative thinking to occur, one must possess the required knowledge. The individual must therefore have sufficient working knowledge of the situation under investigation. This allows deeper thinking and promotes learning. Haefele, 1962; Torrance, 1980, Halpern, 2001; Bacanlı, 2011). Deejing (2016) argues that knowledge management has to develop creative thinking for higher education with project-based learning consisting of five components: project-based learning, learning resources, scaffolding, KM for collaborative learning, and KM for coaching. As Mazhar and Akhtar (2018) indicated, a positive and significant relationship between knowledge management and its dimensions includes process, leadership, culture, technology, and measurement with creativity. According to Riza and Hassan (2019), organizational creativity plays a mediation role that leads to invigorating organizational performance. Pharmaceutical professionals should consider that employees' intentions towards knowledge management processes, are critical to serving the system's purpose. There is a relationship between knowledge management and creativity in the bachelor and master's degree, which is necessary to corroborate the Efforts for the implementation of strategies for knowledge management in all its dimensions (Sağsan, 2016; Sağsan and Zorlu, 2007; Sağsan, Medeni and Medeni, 2016). Therefore, the education environment can help develop students' knowledge and skills (Tehrani et al, 2018). Fascinating result was found by (Uslu and Cubuk, 2015), which indicates that knowledge management and self-organization are effective in organizational creativity. Still, the most important factor determining organizational creativity is

organizational communication followed by corporate innovativeness. They also suggested that the managers increase organizational creativity in their institutions; they should use knowledge management and corporate innovativeness effectively to increase the efficiency of organizational communication.

Knowledge management promotes diffusion of ideas, which improves creativity (Davenport, 1998, Girard, 2015, Sagsan, 2016). According to Dalkir (2008); Arun and Kumar, Sulaiman et al, (2015), knowledge creation involves bringing something new into existence. It nurtures a good working environment for creativity (Arun and Kumar, 2015). However, Kianto (2008) pointed out that for the organization to improve outcomes and processes, the knowledge must be transformed into creativity.

Uriarte (2008) and Absweilem and Abualoush (2019) also agreed with this notion and encouraged organizations to encourage their employees to acquire knowledge to promote knowledge creation regularly. According to Wang et al 2014, knowledge sharing leads to the generation of ideas and problem-solving. Organizations need to strengthen knowledge sharing systems as they lead to increased competitive position and creativity (Zhou and Li, 2012, Michailova, 2010, Salkhi et al, 2014). The organization environment and culture have to promote knowledge sharing by employees (Brcic and Mihelic, 2015; Kovacic et al 2006). It should support knowledge sharing formally and informally. This motivates employees to discuss issues, and incentives can also be put in place to encourage knowledge sharing among employees (Wang et al 2014). Knowledge-sharing culture results in people coming together and providing a platform for airing out grievances and other organizational issues (Memon, 2015).

Impact of organizational culture on KM Process and Creative Thinking

Kampylis and Berkyl (2014) explained that cultural practices have a significant bearing on creativity. They pointed out that some cultures would place more emphasis on collective creativity such that individual creativity may not shine. It was also explained that if the individuals are not usually expected to show their creative side, then they would need some guidance. This was also supported in prior studies by Amabile (1997) in their Componential Theory of Creativity that the environment influences the process of creative thinking. Turkmen and Sertkahya (2015) also explained that social factors affect creative thinking as the environment can determine whether

creative expression is encouraged or hindered.

According to Arun and Kumar (2015) one of the characteristics of knowledge management is that it has an impact on people and culture. They also explained that there are some cultural barriers that affect the process of knowledge management. Szczepanska (2014), also mentioned this and explained that organizational culture could promote or hinder the exchange of knowledge. Maki (2015) recommends that management should strive to come up with a knowledge management nurturing environment to promote knowledge creation, creativity, innovation, and knowledge sharing. This notion was also supported by Kaya and Sagsan (2015). They explained that new ideas are prevented from being created and shared due to the absence of an environment for questioning and criticism. A weak culture promotes redundancy in employees, and they do not realize their potential with regards to coming up with new ideas or innovative behavior (Shafee et al 2010).

An open culture characterized by employee participation and employee initiatives is conducive to creating and sharing knowledge. A flexible culture, however, promotes pro-activeness to changes. A culture of individualism where one wants to dominate discourages knowledge transfer, while in an organization that fosters co-operation, knowledge sharing and knowledge transfer are high (Ahmady et al 2016). A learning culture that emphasizes continuous learning is thus essential and brings success to knowledge management.

Auernhammer and Hall (2013) pointed out that certain factors needed to be in place for knowledge creation, creativity, and innovation to occur. They pointed out that the organization should be open to the idea of change, encourage unusual ideas to be suggested, motivate their staff in intrinsic ways, and challenge and encourage their staff to be innovative. Auernhammer and Hall (2013) also mentioned that the staff should also be willing to experiment to create knowledge and be given the space to do this.

RESEARCH METHODOLOGY

Quantitative analysis has been used in this study by collecting and analyzing data. This study's population is all the workers affected by the COVID 19 pandemic in Northern Iraq, which consists of the frontline workers in the health sector. These were chosen as they are the people most exposed to the deadly disease as they work on infected patients daily, and some are in most contact with possible patients.

The researchers have conducted the study on a sample of 400 front line workers by equally distributed between 3 public hospitals and 5 private hospitals in Northern Iraq. The sample size was selected according to the guide by Israel (1992), which provided numbers to be sampled according to different populations. Populations above 100000 were given samples of 400 on a 95% confidence interval. The researcher will employ a simple random sampling method after determining the groups of frontline workers. The sampling technique will be selected because it offers equal probability of being selected for the study.

Data collection procedures

This involves a systematic collection of data in an organized manner (Stockemer, 2019). The method is appropriate when the researcher intends to study a large group, after which a sample can be derived to represent the whole population. The researchers collected primary and secondary data from the respondents. The researcher will employ questionnaires from Nonaka and Takeuchi, (1994) and Soltan and Mousavi (2013) on knowledge management processes. Randsip et al (2012) and Torrance (1980) were utilized for creative thinking measurements. A Likert scale was employed to measure responses.

Data analysis procedures

The researcher analyzed the data using the SmartPLS. He determined the reliability of the research instrument through the Cronbach Alpha. The research instrument's validity was checked using several methods like the construct reliability and validity, Fornell-Larcker, and the heterotrait-monotrait ratio. Structural equation modeling analysis was conducted to determine the extent of association between variables, and path analysis used to determine the direction of the relationships.

The study draws insights from 400 responses. Such was composed of 214 male employees and 186 female employees, and 44.8% of the employees were between the age group of 26-30 years, 18.8% between 31-35 years, 13.5% between 36-40 years, 12% between 18-25 years and 11% 40 years and above. 39.8% of the employees had bachelor's degrees, 32.3% had diplomas, 17.5% were Master's degrees, 6.3% had been PhD degrees, and 4.3% have above PhD degrees. 146 employees had 7-9 years of experience, and 46 employees had the least amount of experience of 1-3 years, 150 employees had 4-6 years of experience of with that 58 employees had 9 years

above of experience.

0.70 (see Table 2).

Factor analysis

Factor analysis was conducted to determine which factors strongly influenced the variables Knowledge management processes (KMP), and Organizational culture OC, Creative thinking CT. Six OC variable elements were established to have strong influences on the respective variables in question. That is, their factor loadings were above the standard 0.70 needed to warrant a variable element as having a strong influence on a major variable (Peterson, 2000). The results are depicted in Table.1.

After determining the required variable elements of influence, the study examined the Construct reliability and validity of the established variables. The variables creative thinking, knowledge management, and Organizational culture had high internal consistencies of above

Table 1. Factor analysis results

	CT	KMP	OC
CT10	0.826		
CT7	0.821		
CT9	0.787		
OC3			0.761
OC4			0.777
OC6			0.787
OC7			0.758
OC8			0.747
OC9			0.733
TKM1		0.909	
TKM2		0.852	
TKM3		0.909	
TKM4		0.905	
TKM5		0.881	

Table 2. Construct reliability and validity tests

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
CT	0.742	0.750	0.853	0.659
KMP	0.935	0.937	0.951	0.795
OC	0.854	0.855	0.892	0.579

Table 2the table above depicts the reliability and validity of the items used to measure the variables. The table above shows that the Cronbach Alpha values were all above 0.70. This implies that the research instrument used employed items that can be relied upon to measure what they are intended. The instrument is thus highly reliable. The results also show that the creative thinking, knowledge management, and Organizational culture' rho_A values were above 0.70. This implied that they had high construct validity.

Moreover, all the variables had the desired composite reliability (CR>0.80), and AVE values were above 0.60. Values that are above 0.70 are deemed great values. This entails that all the variables had high convergent validity. In addition, the diagonal values are greater than the column and row values.

Table 3. Fornell-Larcker Criterion

	CT	KMP	OC
CT	0.812		
KMP	0.352	0.892	
OC	0.679	0.487	0.761

Table 3 results confirm that knowledge management processes, creative thinking, and organizational culture have high validity. The

Fornell-Lacker criterion tests discriminant validity. A Fornell-Lacker criterion used alone can lack sensitivity or specification if used with estimates, according to Voorhees et al (2016) and Ronkko and Evermann (2013). As a result, a heterotrait-monotrait test is conducted as it more accurately depicts discriminant validity.

Table 4. Heterotrait-Monotrait Ratio (HTMT)

	CT	KMP	OC
CT			
KMP	0.421		
OC	0.841	0.543	

The table above shows the heterotrait-monotrait ratio, which evaluates discriminate validity of correlations between variables. A value of 0.90 is generally accepted as a differentiation between pairs of variables (Hensler et al, 2015).

The researcher also established the inflationary value factor (VIF). This is used to establish the extent of correlation between variables. According to Zuur et al (2010), the acceptable correlation should fall between 1 and 2. The above table shows that all the items were in this range, and thus they are deemed acceptable.

Table 5. Outer VIF values

	VIF
CT10	1.454
CT7	1.481
CT9	1.494
OC3	1.728
OC4	1.981
OC6	2.087
OC7	1.902
OC8	1.701
OC9	1.609
TKM1	3.628
TKM2	2.585
TKM3	3.643
TKM4	3.563
TKM5	3.068

Model fit

The researcher sought to determine if the model fit and the independent variables could predict the dependent variable to fulfill the intended study purposes. The table below shows the comparison between the saturated and estimated model as well as the chi square values.

No discrepancies were observed between the saturated and estimated models as noted by the SRMR values, which were below 0.8. Both d_ULS and d_G were insignificant at 0.05, while the Chi-square values were significant and the NFI values were above 0.70, and this indicates that the model

was fit for fulfilling this study's intended purpose of explaining the harnessing of knowledge management processes to promote creative thinking.

Table 6. Model fit

	Saturated Model	Estimated Model
SRMR	0.067	0.067
d_ULS	0.471	0.471
d_G	0.212	0.212
Chi-Square	481.939	481.939
NFI	0.860	0.860

Path Analysis

One of this study's prime aim was to answer how knowledge management processes (knowledge creation, knowledge sharing) influence creative thinking during the pandemic. This was accomplished using path analysis results established from the computed SEM results, which were done with the aid of SmartPLS. The results depict that improvements in knowledge management trigger a significant increase in hospital employees' creative thinking abilities by 0.366. This is supported by similar findings established by Bacanlı (2011), suggesting that knowledge management fosters flexibility, originality, efficiency, and elaboration which are the key elements to developing and promoting creative thinking among hospital employees.

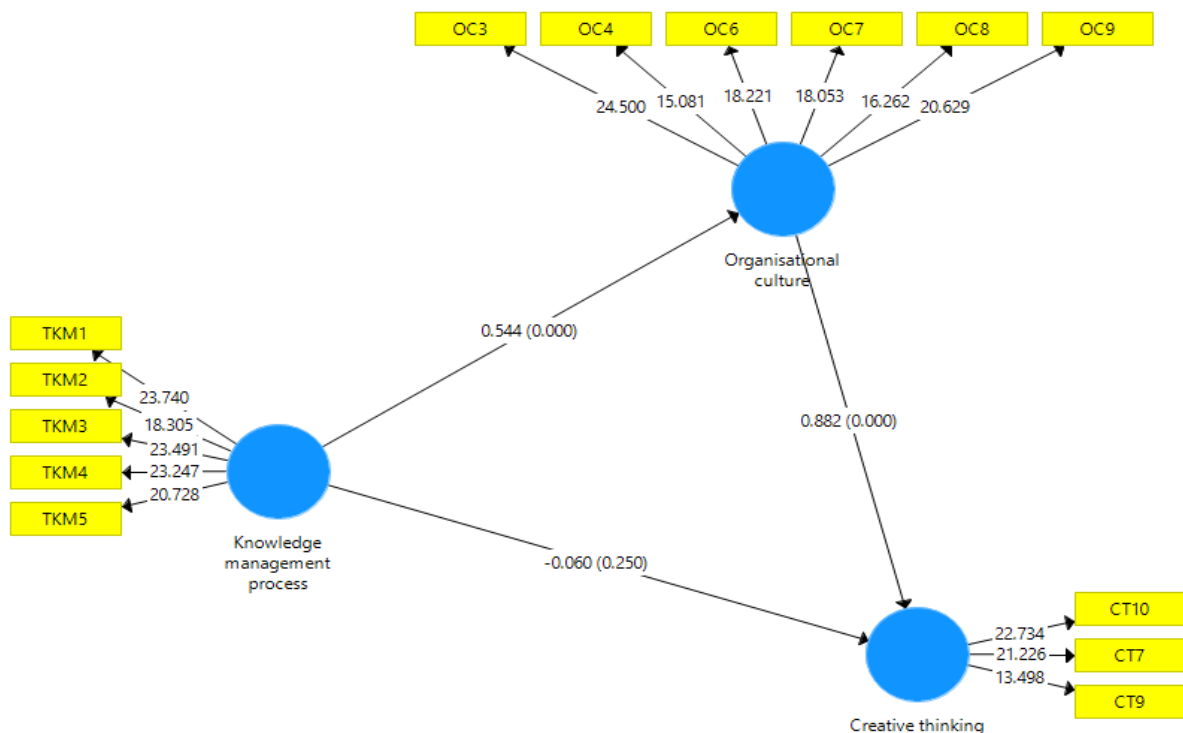


Figure 1. Path analysis

Table 7. Direct effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
KMP ->CT	-0.060	-0.062	0.052	1.153	0.250
KMP->OC	0.544	0.548	0.042	12.971	0.000
OC->CT	0.882	0.883	0.043	20.375	0.000

The above table shows the direct effects of the variables. The table shows that the p-value for the effect of knowledge management on creative thinking is above 0.05 at 0.250. This leads to the decision of rejecting the hypothesis as the effect is insignificant. However, the p values for the relationship between knowledge management and organizational culture is 0.000, which is less than 0.05, therefore the hypothesis that knowledge management has a significant effect on organizational culture is supported. Lastly, the relationship between organizational culture and creative thinking shows a p-value of 0.000 which

means a significant and positive effect. The hypothesis that organizational culture affects creative thinking is thus supported.

Indirect effects

All the hypotheses suggest that knowledge management has significant indirect effects on creative thinking and significantly direct organizational culture. This is because the p-values for the former were insignificant, and the latter was significant at 0.05. A direct effect was also established on organizational culture and creative thinking.

Table 8. Indirect effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
KMP ->OC ->CT	0.480	0.485	0.048	9.971	0.000

The table above reflects the mediating role of organizational culture on the relationship between knowledge management processes and creative thinking. The table reveals a p-value of 0.000 which is less than the significant level of 0.05. Therefore, it means that the relationship is significant, and the hypothesis that organizational culture has a mediating role in the relationship between knowledge management processes and creative thinking is therefore supported.

DISCUSSION AND CONCLUSION

The study aimed to determine the mediating role of organizational culture in the relations between knowledge management and creative thinking. The findings indicated that all variables had high construct validity (Zait and Berteau, 2011; Dursun, 2020.) with each other. This was further supported by the Fornell-Larcker criterion results, which proved that all the variables had the acceptable discriminant validity required to warrant the results as valid to explain the harnessing of knowledge management processes to promote creative thinking. This is because the diagonal values are greater than column and row values (Ab Hamid, Sami & Sidek, 2017). The study placed emphasis towards determining if knowledge management processes influence organizational culture. The study revealed that organizational culture has a mediating effect on knowledge

management and creative thinking.

A study by Marynissen et al. (2013) suggests that knowledge management causes a positive change in employees' perceptions and the attributing of meanings to them that they deem necessary using their knowledge and previous experiences. The study also revealed a positive and significant relationship between knowledge management and organizational culture. These results corroborate Kaya and Sagsan (2015) results and Auernhammer and Hall (2013), who pointed out that an open culture where inquiry is encouraged, encourages knowledge management processes to flourish. The same was also corroborated by Turkmen et al (2020) when they posited that organizational culture had significant interorganizational citizenship behavior effects. Positive correlations were also found between knowledge management and creative thinking, but the relationship was deemed insignificant as the p-value was above 0.05. These results were similar to the findings of other scholars like Kampylis et al (2016) and Turkmen and Sertkahya (2015) in terms of positive relationships. It also corroborated the Component theory of creativity. A culture that promotes creative thinking ensures that some creativity that would have been suppressed is expressed. Creative thinking would help bring innovation to the organization (Ismael and Sagsan, 2020, Yasar and Sagsan, 2020).

Practical Implications, Recommendations and Research for Further Directions

Healthcare workers in Northern Iraq should focus on creating and sharing more and more knowledge-based on their hospital culture because, the cultural environment always stimulates both sharing and creating knowledge and being creative workers. Healthcare environmental culture supports being more knowledgeable and creative workers. For this reason, if Northern Iraq healthcare workers would like to create and share knowledge as well as to think creatively during the pandemic, they must focus on what hospital culture and organizational climate could be constructed by leaders such as collectivist culture, individual culture, and so on. The study had some limitations that needed to be acknowledged. It employed only the quantitative method of data analysis. A qualitative approach can dig deeper into the subject and offer more insights. Future studies could thus explore the possibility of using a mixed method approach to provide an in-depth analysis of the study. Some of the directions could be suggested to the researchers like; how innovative culture has an impact on the relationship between creative thinking and knowledge management processes; how organizational structure has a mediating role between knowledge management processes and creative thinking, and how critical thinking instead of creative thinking has an effect on knowledge management processes?

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