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Cloud technology as a mediator between knowledge management processes and job burnout: A case study of research professors in Algerian universities

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Abstract:

This study seeks to uncover the impact of cloud technology as a mediator between knowledge management processes and job burnout among research professors in Algerian universities. The results showed that the use of cloud technology significantly contributes to improving knowledge management processes, such as storing and sharing information, which leads to reduced levels of job burnout by reducing work-related stress and pressure. Based on these findings, the research recommends increasing the adoption of cloud technology in universities to enhance knowledge management and reduce job burnout among research professors.

***Sara Gherrab**

1. Introduction:

In recent decades, academic institutions have undergone a radical transformation due to the digital revolution and rapid technological developments. Cloud technology has become one of the most prominent of these developments that have changed the way knowledge is managed within universities. Knowledge management is an essential axis for achieving academic excellence and promoting innovation in higher education, but many challenges still stand in the way of faculty, most notably the increasing work pressures that lead to job burnout.

Burnout is a widespread phenomenon that negatively affects the academic performance and mental health of research professors, necessitating the search for effective solutions to mitigate this phenomenon. In this race, cloud technology emerges as an effective tool that contributes to improving knowledge management and easing access to academic material, and improving the academic work environment.

Problematic study:

The paper attempts to uncover the role that cloud technology plays in enhancing knowledge management processes, and how it contributes to mitigating job burnout among research professors in Algerian universities, and in light of the above, the research tries to answer this problem:

What is the role of cloud technology in enhancing knowledge management processes and mitigating job burnout among research professors in Algerian universities?

Study hypothesis:

In order to answer the previous questions, the main hypothesis of the study was formulated:

There is a statistically significant role between cloud technology and knowledge management processes in mitigating job burnout among research professors in Algerian universities.

Where the main hypothesis branches from the following set of hypotheses:

- There is a statistically significant role between cloud technology and the knowledge transfer process in mitigating job burnout among f research professors in Algerian universities.

- There is a statistically significant role between cloud technology and the knowledge sharing process in mitigating job burnout among research professors in Algerian universities.
- There is a statistically significant role between cloud technology and the knowledge transfer process in mitigating job burnout among research professors in Algerian universities.

Study importance:

The study explores the role of cloud technology in enhancing knowledge management processes and mitigating job burnout among research professors in Algerian universities. In light of the rapid technological development and the increasing reliance on digital solutions, cloud technology has become a vital tool to improve knowledge exchange and sharing within academic institutions. The study seeks to provide insights on how this technology can be used to alleviate job burnout, which contributes to improving the well-being of research professors and enhancing the quality of education and scientific research.

Study objectives:

- Highlight the reality of Algerian universities and their level of cloud technology.
- Exploring the role of cloud technology in enhancing knowledge management processes.
- Studying how cloud technology contributes to alleviating research professors burnout.
- Reaching conclusions and proposing some recommendations to draw the attention of decision makers to the importance of using cloud technology because of its great role in achieving excellence in higher education institutions.

Method and materials:

In this study, a descriptive-analytic approach was adopted to understand the relationship between cloud technology, knowledge management, and job burnout among research professors in Algerian universities. The data was collected through an electronic questionnaire distributed to a sample of research professors, SMART PLS was used to analyze and identify relationships between variables.

1. **Theoretical aspect:**

Cloud technology definition:

The cloud technology is not new, but it has become more common in recent times due to the great expansion of global businesses and investments that rely mainly on Internet services to carry out tasks accurately and professionally. The IT sector has witnessed intense competition among major telecommunications and technology companies to offer their cloud technology services. These companies offer attractive offerings, especially for startups, providing them with ready-made cloud applications and services without the need to establish a technical infrastructure. These solutions allow organizations to focus on their core business, while delegating hardware and data management to the service provider. (lyad, 2014, p. 3)

cloud technology is the most popular term in information technology, and the term "cloud computing" is frequently used in conferences, conventions, and meetings related to the technology and telecommunications sector around the world (Al-Ajili & Al-Ahwal, 2019, p. 158)

It is defined as a technology that provides a service for storing data and files on cloud servers, allowing the user to access them over the Internet from anywhere at any time without the need to understand the details of operating the service simply (Khalil, 2015, p. 175) This technology transfers processing and storage operations from the local device to cloud servers, making programs and services available over the network). In this system, the user's device becomes an interface to access data and services stored in the cloud, where they can manage and store files from any internet-connected device (Al-Ghuwairi, 2022, p. 896) We may not be fully aware of the extent to which we use cloud services in our daily lives or in work environments. In fact, these services are widely used across many applications and services available on the Internet. For example, email services such as Google's Gmail and Yahoo's Gmail are among the popular cloud applications. Google applications such as Google Docs for word processing and Google Calendar for organizing appointments are part of this wide range of cloud services that contribute to facilitating our daily tasks and enhancing our efficiency.

From the above definitions, we conclude that cloud technology is a technology that provides processing and maintenance services, information transfer, and storage space in a virtual cloud that can be accessed via the Internet and control the infrastructure without the need for expertise on the part of users.

According to (Pradip, Giri, Chatterjee, & Biswa, 2019, p. 896) cloud technology consists of five key dimensions that distinguish it and make it an attractive option for many organizations:

- **Infrastructure:** Computing resources are hosted in a public, private, or hybrid cloud, where companies can move part or all of their infrastructure from local data centers to the cloud. These resources are managed by cloud service providers and include compute hardware,

networking and storage, as well as other hardware and software, and are offered at low costs.

- **Software:** Software is delivered via the cloud, making it a leading model for online software distribution. Customers use the software without actually owning it, paying only for its use.
- **Connectivity:** After Connectivity is one of the cloud solutions that companies offer to their customers, it includes managing the required software for VoIP services such as VoIP, instant messaging, video conferencing, chat, voicemail and web collaboration.
- **Flexibility and ease of use:** Cloud servers provide massive capacity to meet bandwidth needs anytime, anywhere, enhancing the flexibility of employees both on and off the job. They can easily access files across web-enabled devices such as smartphones, laptops, and tablets.
- **Costs:** cloud technology is faster and easier to deploy, reducing startup costs. It also provides a more cost-effective solution for maintenance and upgrades compared to traditional desktop software that requires high license fees. Thus, the cloud can significantly reduce a company's IT expenses.

Cloud technology applications in higher education:

Recently, the importance of integrating cloud computing into higher education has been increasingly recognized globally. Cloud computing enables educational institutions to focus on teaching and research rather than IT complexity, and simplifies technical aspects, supporting the application of collaborative learning methods and social learning theories (Othman, 2018, p. 160).

Higher education institutions are seeking to improve their services by integrating technology into their organizational processes, many researchers believe that (ICT) is a magic bullet that improves teaching and learning, prepares students as the skilled workforce of the future, and promotes democracy in all educational institutions (Mazhoud, 2022, p. 105) which requires a clear vision to move towards digital transformation by adopting the cloud, which contributes to the effective implementation of new ideas.

Educational institutions must adopt strategies that are in line with the nature of their activities and the services they provide, with a focus on how modern technology can affect the effectiveness of these strategies. This idea is exemplified by a project approved by the Algerian government in November 2019, which includes the creation of a national agency specialized in the development and regulation of digitization at the level of Algerian institutions and administrations, reflecting the government's new orientation towards promoting digitization in various sectors (Algerian News Agency, 2019).

Despite this trend, we observe in our Arab environment that educational institutions are still in the introductory stage of using clouds. Learning institutions, which may lack sufficient resources due to financial or other constraints, can access cloud computing resources for a nominal fee. The cloud allows universities to use software, servers, network devices, textbooks, and multimedia, enhancing scientific research and improving the student experience. Cloud computing also supports teaching and assessment activities, and reduces IT infrastructure costs thanks to the management of cloud service providers.

Knowledge management processes:

Knowledge is the foundation that enable organizations to maintain their competitive advantages where knowledge is defined as "the full and intensive use of information, which is related to the original and acquired human abilities, which provides him with perception, visualization and understanding of the information obtained through data (Redha, 2016, p. 96)

Turban & Etal pointed out that knowledge management is the process of effectively collecting and generating knowledge, managing the repository of knowledge, and facilitating its use and sharing in order to apply it effectively in the organization (Fenni, 2021, p. 1139).

Knowledge management includes a set of processes that aim to facilitate knowledge acquisition, storage, sharing, and application within the organization:

- **Knowledge transfer**: According to Coakes, knowledge transfer means communicating the correct knowledge to the correct person at the correct time, in the appropriate manner and at the appropriate cost, in higher education institutions, knowledge transfer and use refers to those processes through which professors and university personnel transfer their knowledge to the external and internal community through seminars, meetings or meetings, and use it to solve the issues of society and its institutions and participate in development (Sharqi, Yahyaoui, & Aishoush, 2022) .
- **Knowledge sharing:** According to Nonaka & Takouchi, it is the process by which tacit individual knowledge is passed on to others in a clear and understandable way, thus it is the process of transforming the individual knowledge that an individual possesses from his experiences and expertise into collective knowledge that benefits others (MERAZI & KOUDID, 2022), there is an essential need for knowledge sharing within higher education institutions, as this enhances their ability to innovate and compete. On the social level, it contributes to strengthening bonds and human relations between colleagues, and on the professional level, it supports an individual's professional development (Khaled & Ben Ha, 2021, p. 238).
- **Knowledge transformation:** Besides the processes of knowledge sharing and transfer, knowledge sharing can also be enhanced through several sub-processes related to knowledge transformation. According to Takeuchi Nonakal's

> knowledge hierarchy model, knowledge transformation takes place across four dimensions. First, social interaction, where tacit knowledge is shared through direct experience when academics meet in activities such as discussions, seminars, and task forces. Then comes output (embodiment), which involves transforming tacit knowledge into explicit knowledge using tools such as conceptual words, metaphors, and stories, which help document academic ideas and make them accessible to students and colleagues. Next, internalization, which is the process of converting stored knowledge into visible knowledge by practical application and personal experience. In this context, faculty and students learn by practicing acquired knowledge and acting according to guidelines and standards set by others (Khamgani, 2022, p. 42)

Job Burnout:

Job burnout is a common ailment in today's era, resulting from the work pressures that workers face and hinder them from achieving their professional goals. There are many reasons for these pressures, such as poor internal organization, delays in important decisions, unclear responsibilities, and a lack of necessary resources and equipment. Long and irregular working hours, lack of recognition, inadequate rewards, and the assignment of unnecessary routine tasks also contribute to burnout (Bouchwit & Ben Zaghda, 2022, p. 484).

according to (Arimah, Rajm, & Boukhloua, 2023, p. 122)"it is the process in which a professional known for his commitment withdraws, while Carter defined burnout as "fatigue that affects the body and emotions of the employee, as he begins to feel uncomfortable at work.

Job Burnout occurs when an employee faces stressful demands, such as a workload that increases his obligations and responsibilities. With repeated exposure to these pressures, the employee feels emotionally exhausted, causing him to use the loss of the human element in dealing with others. In the end, he or she feels underachieving, especially in environments that lack proper feedback and rewards (Al-Kelabi & Mazen, 2015, p. 119).

2. Applied aspect

Testing Study Hypotheses:

Hypothesis testing has become one of the most critical features distinguishing field and experimental research. The primary objective of hypothesis testing is to infer the characteristics of a population or some of them from the observation of a sample taken from it.

In this study, we employed Structural Equation Modeling based on Partial Least Squares (PLS) to test the study hypotheses. PLS Path Modeling, Covariance-based modeling is typically used to test and validate research theories, while Partial Least

Squares Structural Equation Modeling (PLS-SEM) is focused on theory development by explaining the variance in dependent variables within descriptive research

We also relied on the Bootstrapping method, a resampling technique attributed to Hayes and Preacher. The key advantage of this method is that it does not require the assumption of normal distribution, making it suitable for small sample sizes. Additionally, it has an edge over the Sobel test, as it can more reliably determine mediation effects.

The average of all Bootstrap estimates is calculated through the point estimate of the indirect effect (ab), and its importance lies in deriving the indirect effect (ab) from the confidence interval of the Bootstrap distribution, especially if the confidence interval does not include zero (Badawy & Abu Al-Qasim , 2019, p. 241).

First: Testing the Study Model

To ensure the validity of the model, we must first assess the measurement model before proceeding to evaluate the structural model. To evaluate the measurement model, we use indicators of convergent validity, check for multicollinearity issues, and assess discriminant validity.

Convergent Validity, Model Reliability, and Multicollinearity Check:

As observed in the following tables, the factor loadings for all factors exceeded 0.70. Additionally, Cronbach's Alpha, Composite Reliability, and RHO-A values all surpassed the acceptable minimum threshold of 0.7. We also observe that the Average Variance Extracted (AVE) for all variables was significant and statistically acceptable, with all variables having an AVE greater than 0.50. This indicates that each latent variable accounts for more than half of the variance in its factors. Furthermore, the model does not exhibit multicollinearity issues, as all VIF values are below the permissible limit of 5. Therefore, we conclude that the conditions for convergent validity, model reliability, and absence of multicollinearity are met, all in accordance with the criteria established (by Hair, Hult, Ringle, and Sarstedt ,2017).

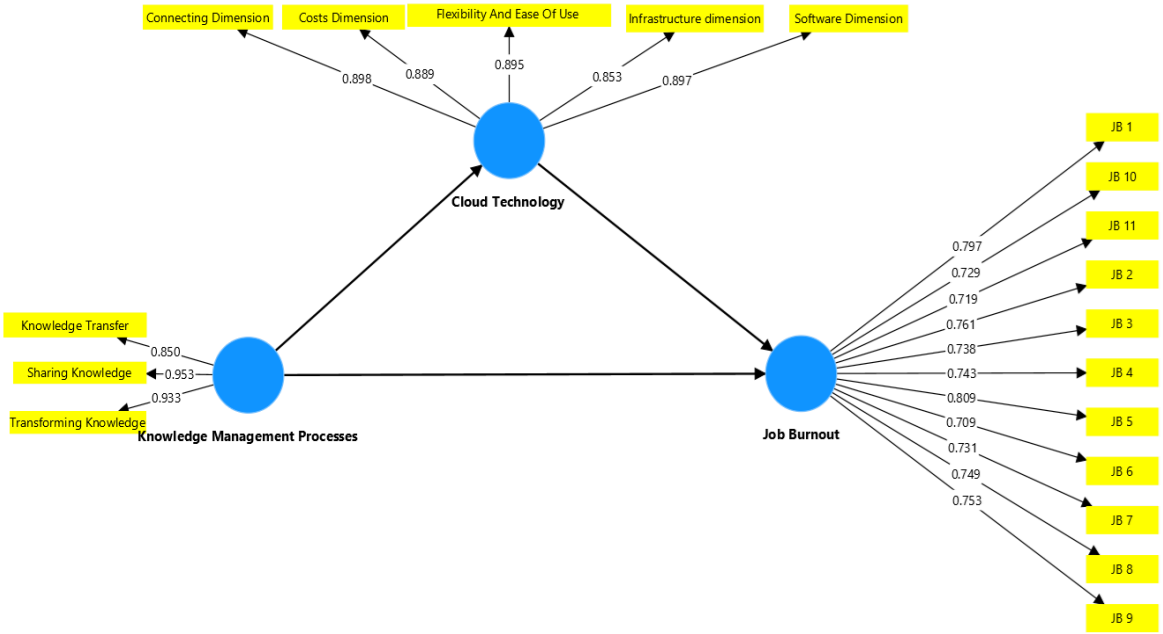
Table No. (1) Convergent validity, model reliability, and verification of the absence of multicollinearity problem

Variables	Factors	FL	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)	VIF
Cloud Technology	Providing the infrastructure	0.853	0.933	0.963	0.948	0.786	3.004
	Software	0.897					4.759
	Connectivity	0.898					4.995
	Flexibility and ease of use	0.895					2.930
	Costs	0.889					3.328
K no wl	Knowledge transfer	0.850	0.924	0.942	0.934	0.562	2.593

	Knowledge sharing	0.953					3.143
	Transforming knowledge	0.933					3.602
Job Burnout	01	0.797	0.907	1.054	0.938	0.834	4.734
	02	0.761					3.181
	03	0.738					3.155
	04	0.743					3.587
	05	0.809					4.708
	06	0.709					2.894
	07	0.731					2.558
	08	0.749					3.942
	09	0.753					4.166
	10	0.729					3.005
	11	0.719					3.431

Source: Based on SMART PLS 4 outputs

Figure No. (1) Convergent validity, model reliability, and verification of the absence of multicollinearity problem



Source: Based on SMART PLS 4 outputs

Discriminant Validity:

Here, we assess the distinctiveness of the variables. According to Fornell-Larcker criteria, the relationship value between a variable and itself should be greater than its relationship with any other variable to confirm that the dimensions are independent (Hair, Hult, Ringle, & Sarstedt, 2017, p. 148).

Table No. (2) Discriminant Validity

	Cloud Technology	Job Burnout	Knowledge Management Processes
Cloud Technology	**0.887**		
Job Burnout	-0.379	**0.750**	
Knowledge Management Processes	0.348	-0.309	**0.913**

Source: Based on SMART PLS 4 outputs

Based on the table above, we observe that all latent variables have a stronger relationship with themselves compared to any other latent variable. Therefore, we can accept the discriminant validity of the model.

Structural Model Evaluation:

The structural model is evaluated using goodness-of-fit indicators, as outlined below.

Coefficient of Determination (R Square):

The most commonly used metric for assessing the structural model is the coefficient of determination (R^2). This measure represents the predictive power of the model and is calculated as the square of the correlation between the actual values of the dependent construct and the predicted values of the endogenous variable. The R^2 value reflects the total effects of the external latent variables on the internal latent variable, meaning it represents the amount of variance in the internal constructs explained by all associated external constructs. Since R^2 is the square of the correlation between the actual and predicted values, it includes all the data used in estimating the model to judge its predictive power. Below are the R^2 values obtained in the study:

Table No. (3) coefficient of determination R^2

	R-square	R-square adjusted
Cloud Technology	0.463	0.443
Job Burnout	0.501	0.464

Source: Based on SMART PLS 4 outputs

Based on the table above, we observe that all R^2 values are statistically significant and acceptable, indicating a moderate explanatory power. Additionally, the adjusted R^2 values are close to the R^2 values, with minimal differences, which suggests the model's quality and significance.

Effect Size (F-Square):

In addition to evaluating the R^2 values for all endogenous constructs, the change in R^2 when a specific exogenous construct is removed from the model can be used to assess whether the excluded construct has a substantial impact on the endogenous constructs. This measure is referred to as the effect size (F^2) and is increasingly recommended by journal editors and reviewers. As a general rule for

evaluating effect size, a value less than 0.02 indicates a small effect of the exogenous latent variable, a value between 0.15 and 0.34 represents a medium effect, and a value greater than 0.35 indicates a strong effect. An effect size smaller than 0.02 suggests that the exogenous latent variable has no effect by (Hair et al., 2020, p. 267).

Table No. (4) Effect Size Coefficient (F-Square)

	f-square
Cloud Technology -> Job Burnout	0.311
Knowledge Management Processes -> Cloud Technology	0.861
Knowledge Management Processes -> Job Burnout	0.053

Source: Based on SMART PLS 4 outputs

The effect size analysis reveals that Knowledge Management Processes have a very strong impact on Cloud Technology ($F^2 = 0.861$), indicating it is a critical factor in the model. Cloud Technology, in turn, has a medium effect on Job Burnout ($F^2 = 0.311$), highlighting its significant role as a mediator. Conversely, the direct effect of Knowledge Management Processes on Job Burnout is small ($F^2 = 0.053$), suggesting that while there is some influence, it is not as substantial as the impact through Cloud Technology. These findings underscore the importance of Cloud Technology in the relationship between Knowledge Management Processes and Job Burnout. To further validate the model's quality and its potential for future application, we calculated the Goodness of Fit (GoF) as follows:

The GoF criterion is used to determine whether the study model is valid based on specific GoF benchmarks (less than 0.1 = poor fit, 0.1 to 0.25 = small fit, 0.25 to 0.36 = medium fit, greater than 0.36 = large fit). The GoF is calculated using the following formula: $\boldsymbol{GOF} = \sqrt{(\overline{\boldsymbol{R^2}} \times \overline{\boldsymbol{AVE}})}$

In this study, the GoF value was 0.51, indicating that the study model has a large fit.

Testing the first main hypothesis

There is a statistically significant role between cloud technology and knowledge management processes in mitigating job burnout among research professors in Algerian universities.

Table No. (5) Main Hypothesis Result

Path coefficients for direct effect					
Variables	**Original Sample (O)**	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
Cloud Technology -> Job Burnout	-0.537	-0.523	0.242	2.217	0.027

Source: Based on SMART PLS 4 outputs

Knowledge Management Processes -> Cloud Technology	0.680	0.686	0.117	5.833	0.000
Knowledge Management Processes -> Job Burnout	-0.223	-0.238	0.274	0.813	0.416
Path coefficients for the indirect effect					
Variables	**Original Sample (O)**	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
Knowledge Management Processes -> Job Burnout	-0.366	-0.349	0.167	2.188	0.029
	Confidence Interval				
	%2.5			**97.5%**	
	0.028			**0.178**	

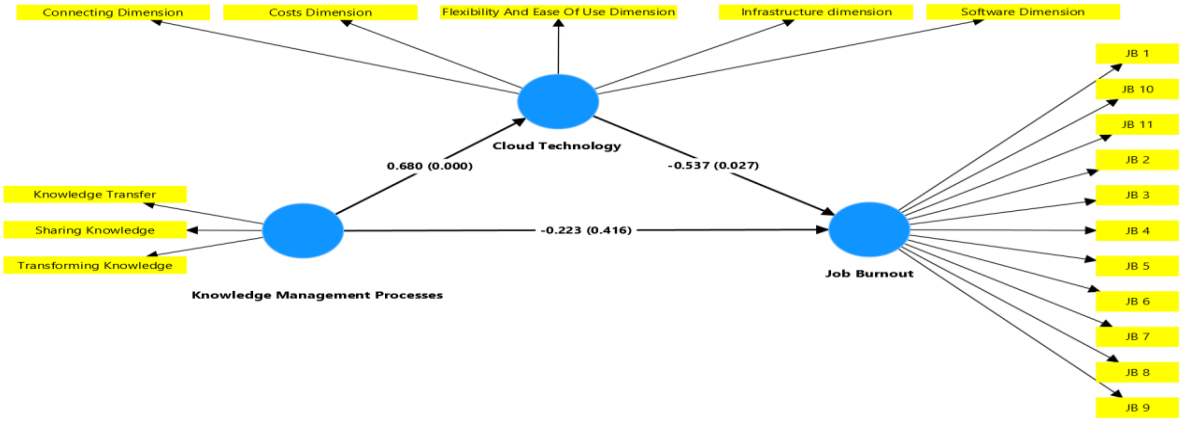
The analysis of the first main hypothesis reveals a statistically significant relationship between cloud technology, knowledge management processes, and job burnout among research professors in Algerian universities. The path coefficient for the direct effect of cloud technology on job burnout is -0.537 with a p-value of 0.027, indicating that cloud technology plays a significant role in reducing job burnout. This suggests that the adoption of cloud technology in academic environments can effectively alleviate the stress and exhaustion associated with job burnout, likely by enhancing efficiency, accessibility, and collaboration.

Furthermore, the relationship between knowledge management processes and cloud technology is strong and highly significant, with a path coefficient of 0.680 and a p-value of 0.000. This result highlights the critical role of effective knowledge management in facilitating the adoption and utilization of cloud technology.

The strong linkage suggests that universities that invest in robust knowledge management processes are better positioned to leverage cloud technology for improving operational efficiencies and reducing research professors burnout, the direct effect of knowledge management processes on job burnout is weaker and not statistically significant, with a path coefficient of -0.223 and a p-value of 0.416. This finding implies that while knowledge management processes alone do not directly mitigate job burnout, their impact is mediated through cloud technology. This mediation effect is confirmed by the significant indirect effect, with a path coefficient of -0.366 and a p-value of 0.029, indicating that knowledge management processes reduce job burnout primarily by enabling and enhancing the use of cloud technology.

these results underscore the importance of integrating cloud technology into knowledge management strategies within academic institutions. By doing so, universities can create a more supportive and efficient environment for research professors, ultimately reducing the incidence of job burnout. The findings also suggest that while knowledge management is vital, its benefits are maximized when paired with advanced technological solutions like cloud computing.

Figure No. (2) Main Hypothesis Result



Source: Based on SMART PLS 4 outputs

Testing the first sub-hypothesis

There is a statistically significant role between cloud technology and the knowledge transfer process in mitigating job burnout among research professors in Algerian universities.

Table No. (6) Testing the first sub-hypothesis

Path coefficients for direct effect					
Variables	**Original Sample (O)**	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
Cloud Technology -> Job Burnout	-0.542	-0.541	0.219	2.482	0.013
Knowledge Management Processes -> Cloud Technology	0.663	0.663	0.106	6.233	0.000
Knowledge Management Processes -> Job Burnout	-0.222	-0.227	0.248	0.898	0.369
Path coefficients for the indirect effect					
Variables	**Original Sample (O)**	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
Knowledge Transfer -> Job Burnout	-0.359	-0.353	0.150	2.391	0.017
	Confidence Interval				
	%2.5			**97.5%**	
	0.032			**0.163**	

Source: Based on SMART PLS 4 outputs

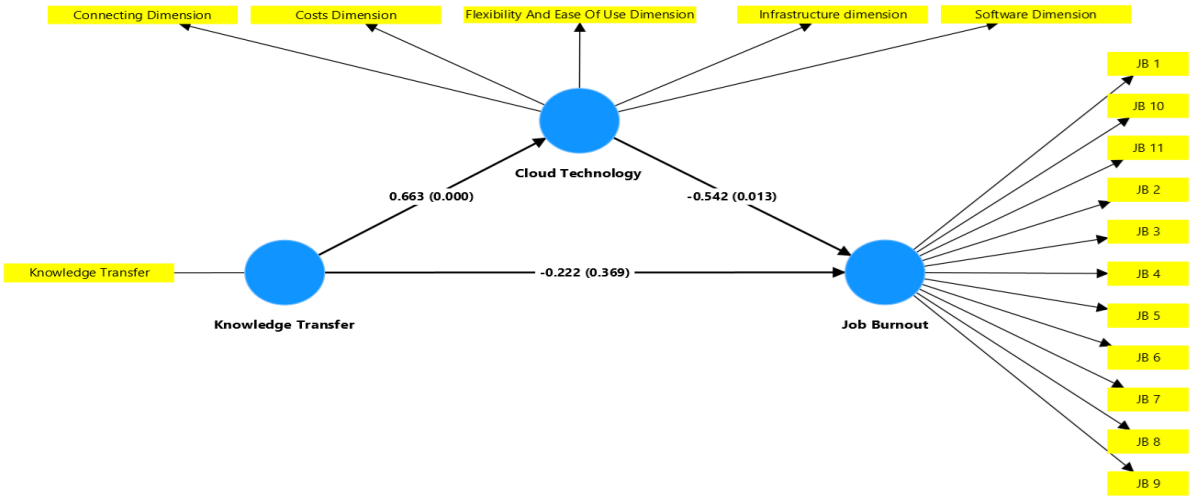
The results of testing the first sub-hypothesis reveal significant insights into the interplay between cloud technology, knowledge management processes, and job burnout among research professors in Algerian universities. The direct effect of cloud technology on job burnout is notably negative and statistically significant (path coefficient = -0.542, p = 0.013), indicating that the adoption of cloud technology is associated with a substantial reduction in job burnout. This suggests that cloud technology contributes effectively to lessening research professors

stress and enhancing job satisfaction, likely through its capacity to streamline work processes, improve resource accessibility, and facilitate collaboration. Additionally, the strong and significant effect of knowledge management processes on cloud technology (path coefficient = 0.663, $p < 0.001$) underscores the critical role of well-managed knowledge systems in maximizing the benefits of cloud technology.

This relationship highlights that efficient knowledge management is crucial for the effective implementation of cloud solutions, which in turn, positively impacts job burnout. However, the direct impact of knowledge management processes on job burnout is not significant (path coefficient = -0.222, $p = 0.369$), suggesting that knowledge management alone does not directly mitigate burnout without the mediation of cloud technology. The significant indirect effect of knowledge transfer on job burnout (path coefficient = -0.359, $p = 0.017$) reinforces the notion that the process of transferring knowledge, when supported by cloud technology, plays a pivotal role in alleviating job burnout. This finding indicates that the benefits of knowledge management processes are most pronounced when integrated with technological solutions, which enhance their effectiveness.

Collectively, these results emphasize the importance of leveraging cloud technology to support knowledge transfer processes as a strategic approach to reducing job burnout, thereby improving faculty well-being and productivity in academic settings.

Figure No. (3) Testing the first sub-hypothesis



Source: Based on SMART PLS 4 outputs

Testing the second sub-hypothesis

There is a statistically significant role between cloud technology and the knowledge sharing process in mitigating job burnout among research professors in Algerian universities.

Table No. (7) Testing the second sub-hypothesis

Path coefficients for direct effect					
Variables	**Original Sample (O)**	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
Cloud Technology -> Job Burnout	-0.527	-0.495	0.262	2.007	0.045
Sharing Knowledge -> Cloud Technology	0.694	0.700	0.123	5.618	0.000
Sharing Knowledge -> Job Burnout	-0.233	-0.263	0.286	0.814	0.416
Path coefficients for the indirect effect					
Variables	**Original Sample (O)**	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
Sharing Knowledge -> Job Burnout	-0.365	-0.331	0.178	2.052	0.040
	Confidence Interval				
	%2.5			**97.5%**	
	0.021			**0.155**	

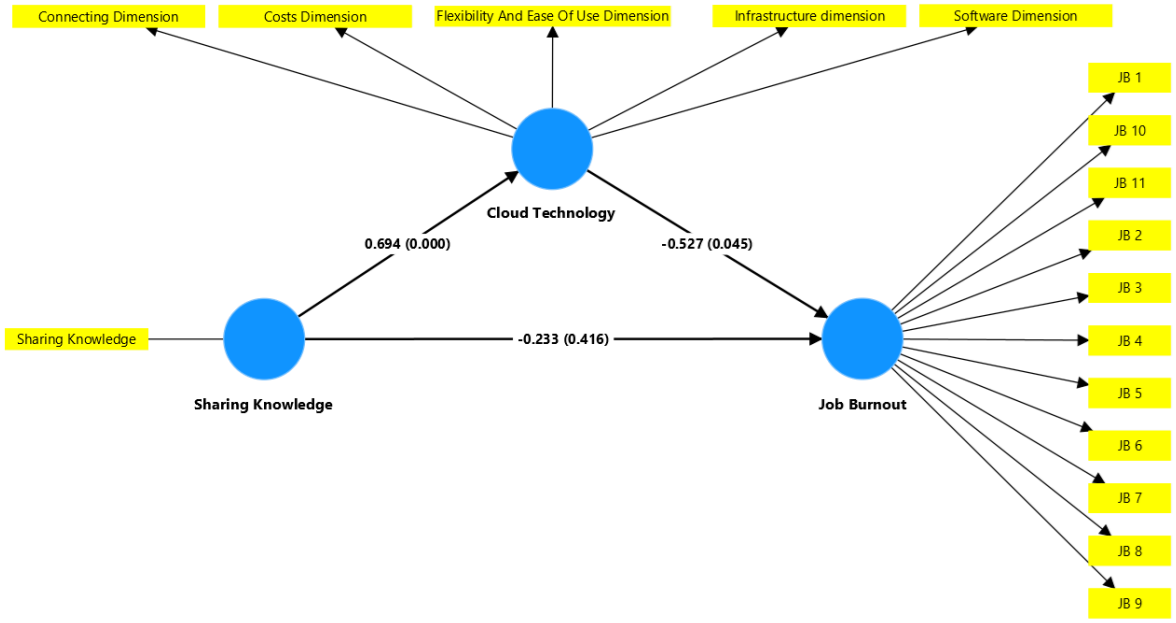
Source: Based on SMART PLS 4 outputs

The results of testing the second sub-hypothesis reveal important insights into the role of cloud technology and knowledge sharing in mitigating job burnout among research professors in Algerian universities. The direct effect of cloud technology on job burnout is significant and negative (path coefficient = -0.527, p = 0.045), indicating that cloud technology effectively reduces job burnout by streamlining work processes, improving access to resources, and enhancing collaborative opportunities.

This finding underscores the value of integrating advanced technological solutions in academic environments to alleviate stress and improve job satisfaction. Conversely, while the relationship between knowledge sharing and cloud technology is robust and significant (path coefficient = 0.694, $p < 0.001$), the direct effect of knowledge sharing on job burnout is not statistically significant (path coefficient = -0.233, p = 0.416). This suggests that knowledge sharing alone does not have a substantial direct impact on reducing burnout. However, the significant indirect effect of knowledge sharing on job burnout, mediated through cloud technology (path coefficient = -0.365, p = 0.040), highlights that the benefits of knowledge sharing are significantly enhanced when supported by cloud technology.

This result indicates that the positive impact of knowledge sharing on job burnout is realized primarily through its ability to improve the effectiveness of cloud-based tools and processes. Overall, the findings emphasize the importance of leveraging cloud technology to support and enhance knowledge-sharing practices, thereby contributing to a reduction in job burnout. This integration of technology and knowledge management practices is crucial for fostering a more supportive and less stressful work environment for research professors, ultimately leading to improved job satisfaction and reduced burnout.

Figure No. (4) Testing the second sub-hypothesis



Source: Based on SMART PLS 4 outputs

Testing the third sub-hypothesis

There is a statistically significant role between cloud technology and the knowledge transfer process in mitigating job burnout among research professors in Algerian universities.

Table No. (8) Testing the third sub-hypothesis

Path coefficients for direct effect					
Variables	**Original Sample (O)**	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
Cloud Technology -> Job Burnout	-0.618	-0.634	0.165	3.747	0.000
Transforming Knowledge -> Cloud Technology	0.568	0.562	0.162	3.498	0.000
Transforming Knowledge -> Job Burnout	-0.128	-0.119	0.205	0.622	0.534
Path coefficients for the indirect effect					
Variables	**Original Sample (O)**	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
Transforming Knowledge -> Job Burnout	-0.351	-0.354	0.144	2.438	0.015
	Confidence Interval				
	%2.5			**97.5%**	
	0.048			**0.177**	

Source: Based on SMART PLS 4 outputs

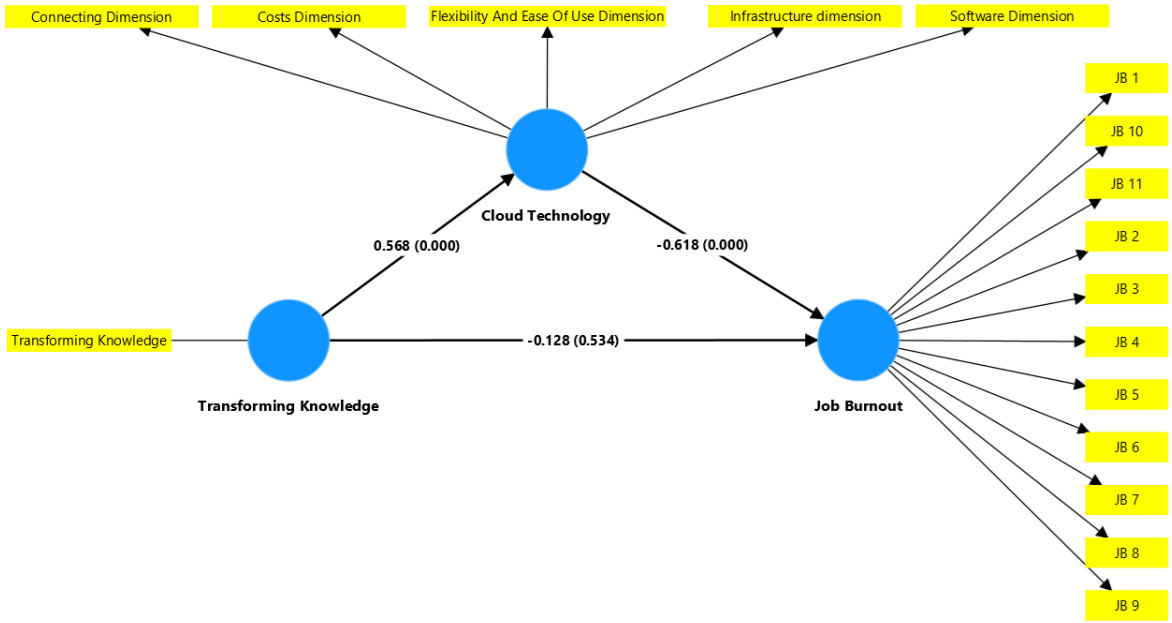
The results of testing the third sub-hypothesis provide a comprehensive understanding of how cloud technology and the knowledge transfer process interact to influence job burnout among research professors in Algerian universities. The direct effect of cloud technology on job burnout is highly

significant and negative (path coefficient = -0.618, p = 0.000), suggesting that the implementation of cloud technology is strongly associated with a reduction in job burnout.

This finding highlights the effectiveness of cloud technology in mitigating stress and enhancing job satisfaction by improving work processes and access to resources. The significant positive effect of transforming knowledge on cloud technology (path coefficient = 0.568, p = 0.000) indicates that effective knowledge transfer processes are essential for optimizing the benefits of cloud technology. However, the direct effect of transforming knowledge on job burnout is not significant (path coefficient = -0.128, p = 0.534), implying that knowledge transfer alone does not directly reduce burnout without the support of cloud technology.

The significant indirect effect of transforming knowledge on job burnout through cloud technology (path coefficient = -0.351, p = 0.015) reinforces the notion that while transforming knowledge does not have a direct impact on burnout, its positive effects are realized when mediated by cloud technology. This underscores the importance of integrating effective knowledge transfer processes with cloud technology to enhance its impact on reducing job burnout. Collectively, these findings emphasize the critical role of cloud technology in alleviating job burnout and the necessity of supporting it with robust knowledge transfer practices to maximize its benefits.

Figure No. (5) Testing the third sub-hypothesis



Source: Based on SMART PLS 4 outputs

3. Conclusion:

At the conclusion of this research, it is clear that cloud technology is an effective tool to improve knowledge management and reduce job burnout

among research professors in Algerian universities. Based on the results of the analysis using SMART PLS, the study showed that the use of cloud technology enhances the ability of academic institutions to store and transfer knowledge more efficiently, leading to an improved work environment and reduced levels of stress and pressure among employees, based on these results, we propose the following recommendations:

- The study recommends a wider adoption of cloud technology in universities to support more effective knowledge management processes. This includes the development of dedicated cloud platforms for storing and transferring knowledge, improving academic collaboration and reducing the administrative burden;
- It is recommended to organize intensive training programs that focus on how to use cloud technology to enhance knowledge management. The programs should include skills to collect, organize and share knowledge as well as how to reduce job burnout using digital tools;
- Create cloud-based knowledge communities, where faculty members can interact and exchange ideas on a regular basis. This promotes knowledge management and minimizes feelings of isolation, which contributes to lower levels of job burnout;
- Optimize the work environment by integrating cloud technology and knowledge management to reduce job burnout by providing continuous technical support and ensuring faculty members have easy access to educational resources, which reduces stress and contributes to a better quality of professional life.

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