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THE ROLE OF INTERNAL COMMUNICATION IN ACTIVATING KNOWLEDGE MANAGEMENT PROCESSES: A STUDY OF THE OPINIONS OF A SAMPLE OF PROFESSORS AT ALGERIAN UNIVERSITIES

The study aimed to investigate the role of internal communication in enhancing knowledge management processes from the perspective of university professors at Algerian universities. An electronic questionnaire was distributed to university professors across various Algerian universities via social media and email, resulting in 115 analyzable forms. Using the SmartPLS V4 program, structural equation modeling was used to examine these shapes. The analysis yielded several key findings, most notably the presence of a positive and moderate role of internal communication across all knowledge management procedures, such as the production, archiving, sharing, and application of knowledge. The study also recommended delving deeper into the importance of digital transformation and its mechanisms for activating internal communications and their significance in knowledge management processes across different contexts.

Keywords: internal communication, knowledge management processes, knowledge creation, knowledge storage, knowledge sharing; knowledge application.

1. INTRODUCTION

Given the significant advancements in information and communication technology we are experiencing today, along with the rise of artificial intelligence, which has become a central topic of discussion, there has been a substantial impact on the accessibility of information and knowledge for individuals. While knowledge used to change at a rate

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measured in years, it now evolves within minutes and seconds. This rapid flow underscores the impact of multiple forms of communication. Communication is considered one of the most enduring social processes because individuals are inherently social beings who need to belong to a group with which they can interact. Through these interactions, individuals can exchange knowledge and experiences. In his study on the importance of communication in modernization and technological change, Ithiel de Sola Pool argued that modernization is essentially the process of acquiring new perceptions or mental images, such as directed perception or the perception of development potential. He also noted that public communication media will play a significant role in imparting these new perceptions to people (Ithiel de sola, 1980). Many studies have indicated that approximately 60% of problems in organizations stem from ineffective and inaccurate communications (Holá, 2012). Therefore, communication is a critical element for the sustainability of organizations of all types. This is because it helps gather, analyze, and organize information from the external environment and transforms processed messages into the internal environment. Amid these challenges, organizations can build a positive reputation both internally and externally (Nagachevska, Dzhereleiko, Kushk, 2023). Given the success achieved by Japanese and American organizations, particularly in the production sector, many countries have attempted to apply knowledge management in academic institutions. This is because universities are inherently knowledge-generating and producing entities with an infrastructure conducive to communication processes. All members of these institutions possess a level of education that facilitates the activation of knowledge management processes.

1.1. Study Importance

The significance of the subject addressed by the current study is highlighted by researchers' and scholars' interest in delving into the essence of the study variables and exploring their relationships from various perspectives. Internal communication is considered one of the most critical and fertile topics for research due to its importance in modern organizations. It plays a vital role in enhancing trust between employees and management and is a crucial element in the processes of transferring, exchanging, and sharing knowledge. It is crucial to research how internal communication and knowledge management procedures interact. In today's knowledge economy, which emphasizes valuing and leveraging knowledge to create value.

1.2. Study Objectives

This study aims to underscore the impact that internal communication has in activating knowledge management processes. Understanding the importance of internal communication that occurs between individuals will contribute to activating the four knowledge management processes considered in this study. Furthermore, it will assist university professors in making decisions regarding their knowledge, particularly tacit knowledge.

1.3. Study Problem

The current study problem revolves around analyzing the role of internal communication in activating the four processes of knowledge management (application, sharing, storage, and creation) from the perspective of university professors. The hypothetical model of the study can be illustrated through Figure 1.

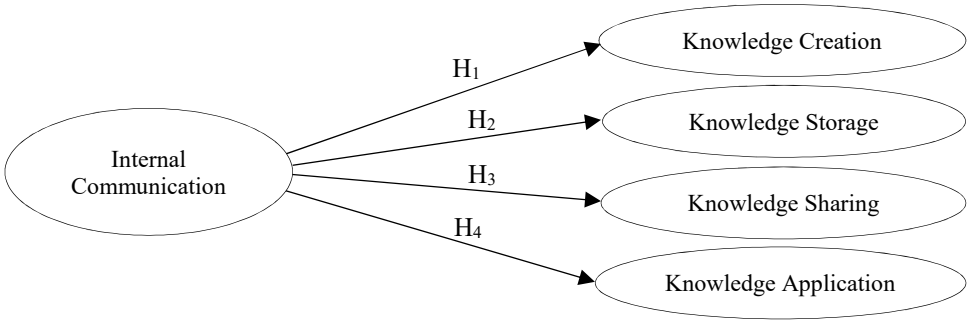

Figure 1. Conceptual Model

Source: Prepared by the researches based on previous studies.

The study model comprises one independent variable, which is internal communication, and four dependent variables, which are the knowledge management processes as illustrated in the figure. Accordingly, the main research questions of the study can be outlined as follows:

- Does internal communication play a role in activating knowledge creation in Algerian universities?
- Does internal communication play a role in activating knowledge storage in Algerian universities?
- Does internal communication play a role in activating knowledge sharing and distribution in Algerian universities?

Does internal communication play a role in activating the application and utilization of knowledge in Algerian universities?

2. LITERATURE REVIEW

2.1. Knowledge Management

Today, the unparalleled focus on knowledge arises because it serves as the source and driver of revolution. The transition from emphasizing humans during the agricultural era to focusing on machinery during the industrial era has now led to the knowledge economy era, which places primary importance on knowledge. In this regard, there has been increased attention to knowledge in recent years, as we notice that institutions of all kinds are striving to attract individuals with knowledge and expertise. They provide these individuals with comfort to ensure their stability, thereby encouraging them to work on innovative ideas.

Knowledge is described as

> an evolving mix of experience, values, contextual information, and expert insight that provides a framework for evaluating and integrating new experiences and information. Often, knowledge is embedded within organizations in the form of documents or repositories and in organizational routines, practices, etc. (Murray, 2007).

Knowledge is the primary driver of innovation and the renewal and updating of institutions through the development of their members' capacities (Abu saleh, Umana,

2009). Gamascia states that there is no single type of knowledge but rather a multitude of knowledge types (Ragaa, 2021). Here, we can mention the main types of knowledge introduced by Michael Polanyi, which include explicit and tacit knowledge. Following him, (Nonaka, 2007) elaborated further, providing explanations for these two types. Explicit knowledge refers to formal knowledge that can be obtained in the form of books or conveyed through conferences and meetings; it is characterized by ease of transfer and exchange among individuals and is cost-effective. In contrast, tacit knowledge is acquired through personal experiences and is non-verbal, challenging to formalize, can be learned through practice and application, is expensive to acquire, and is conveyed through conversations or interactions among individuals. Tacit knowledge gives an institution its unique character by enhancing its ability to create knowledge, enabling it to achieve exceptional performance and strengthen its competitive advantage (Charfi, 2012).

Regarding the concept of knowledge management, Wiig defines it as "a deliberate and explicit process through which knowledge is built and identified based on an applied approach to achieve the maximum effectiveness of the organization concerning the knowledge and intellectual assets available at its level" (Girard, J., Girard, J., 2015).

The World Intellectual Property Organization adds that knowledge management is "a discipline that encourages a consistent and integrated approach to identifying information and knowledge, which can enhance the institution's value by drawing on past experiences in current or future decision-making processes" (Dumitriu, 2016). Daisy (Nonaka, Kobayashi et al., 2008) view it as "a system based on utilizing organizational resources starting from the development of individuals' capabilities and advancing them, which contributes to achieving the desired performance" (Nonaka, Kobayashi et al., 2008). They further note that information technology is part of knowledge management but not the entirety, and that human capital is what makes the difference. Moreover, knowledge management is centered around innovation, which must be radical and impact all aspects of the organization. It is the task of intelligent individuals, and its success depends on how people share their knowledge and generate new insights (Talisayon, 2007).

2.2. Knowledge Management Processes

Studies indicate that knowledge management encompasses numerous processes, and consolidating these into a single set is challenging to agree upon, as different perspectives often define these processes. Duffy identifies five processes within his model: preservation, acquisition, organization, retrieval, and distribution (Alharithy, 2015). Meanwhile, Gilbert identifies six processes, including knowledge identification, acquisition, development, distribution, preservation, and utilization (Gilbert, 1998). Wiig categorizes these into four processes: knowledge building, capturing, compilation, and utilization (Wiig, 1993). Marquardt also presents a knowledge management model outlining six processes: acquisition, generation, storage, information extraction, transfer and dissemination, and finally, application and validation (Marquardt, 2002). Nonaka, who proposed the most renowned knowledge management model, illustrates how knowledge is generated through four key processes: socialization, externalization, combination, and internalization. According to him, these stages form a continuous cycle referred to as the "knowledge spiral" (Nonaka, 2007).

Based on the classifications of procedures for knowledge management, it is evident that there is overlap among these processes, with at least three being commonly agreed upon. Thus, we can extract the most important of these processes and summarize them into four

primary processes: knowledge creation, knowledge storage, knowledge sharing, and knowledge application. Below is a simplified definition of these processes:

- Knowledge Creation: This is the process through which a transformation occurs between tacit and explicit knowledge, moving knowledge from the individual to the collective level (Nonaka, Takeuchi, 1995). Soler notes that knowledge generation is a collective process based on both tacit and explicit knowledge (Siadat, Hoveida, Abbaszadeh, Moghtadaie, 2012).
- Knowledge Storage: This involves storing both individual and organizational knowledge in an easily retrievable manner. It employs technical structures such as information software, equipment, and human processes for storage (Koech, Boit, Maru, 2015).
- Knowledge Sharing: This term refers to the process of transferring and exchanging experiences and ideas among individuals or groups. Knowledge transfer from one person to another aims to enhance understanding and collective capabilities within the institution or community (Zamiri, Esmaeili, 2024). Various mediums facilitate knowledge sharing and transmission, such as email, phone conversations, or face-to-face interactions like meetings and conferences (Diab, 2021).
- Knowledge Application: The success or failure of institutions hinges on the extent to which they apply acquired knowledge, addressing their knowledge gaps. Effective knowledge application reduces these gaps through effective communication with individuals, meetings, and teamwork, which will help highlight their tacit knowledge, thereby contributing to knowledge generation and creation (Dhamdhere, 2015). Thus, it is essential to find new ways to leverage integrated resources where knowledge serves as the foundational element, applied in as many methods and competitive fields as possible. Performance depends on these integrated knowledge assets (Alosaimi, 2016). Consequently, knowledge application enhances administrative competencies and increases individuals' knowledge productivity to gain a competitive advantage (Lehyani, 2019).

2.3. Internal Communication and its Importance

2.3.1. Concept of Internal Communication

It refers to "the process through which information is exchanged within the organization effectively and efficiently" (Sawagvudcharee, Yolles, 2022). It is also defined as "the connection established between individuals and groups across different administrative levels and fields to design and coordinate activities for both executive and strategic planning, building appropriate relationships between management and employees" (Altuntaş, Semercioz, Noyan, 2013). Internal communication serves the functions of the organization; individuals need it to perform their assigned tasks effectively and efficiently. The integrative function of communication starts from task coordination, whether it concerns work tasks, team coordination, or unit integration, all aimed at achieving the organization's objectives (Jakubiec, 2019). Therefore, the importance of internal communication lies in its ability to enhance operations through its effectiveness among individuals, which reduces uncertainty and fosters loyalty to the organization they belong to, making the university institution more dynamic and adaptive to its operating environment (Verghese, 2017). Internal communication is the central nerve of the organization, as it conveys its culture, disseminates its objectives, strategy, and mission (Harrouz, Aissat, 2023).

2.3.2. Internal Communication and Its Impact on Knowledge Management Processes

Davenport & Prusak indicate that internal communication is one of the critical enablers of knowledge management and sharing within an organization, emphasizing electronic and computer-based communications (Davenport, Prusak, 1998). Effective communication inevitably contributes to better exchange of best practices in the knowledge field, allowing individuals to optimally utilize this knowledge to perform their duties or assigned tasks, positively reflecting on the organization's overall performance, or the quality of the teaching and research process within higher education institutions as knowledge-intensive organizations. Direct communication is considered one of the most successful and commonly used mechanisms in knowledge-sharing processes (Sarka, 2014). In a study conducted by (Gumus, 2007) on the relationship between communication and knowledge management processes, the importance of communication in influencing individuals' behavior and actions, particularly their inclination toward knowledge sharing, was highlighted, viewing it as a form of communication (Gumus, 2007). Kosir's study also confirms that achieving efficient knowledge management is linked to inducing broad behavioral, cultural, and organizational change, which can only be achieved through an effective internal communication system that aligns individual goals across different organizational levels and embraces various changes to ensure quality in higher education institutions (Kosir, 2014). Similarly, (Luther, Dahiya, 2017) studied the role of effective communication in knowledge management within organizations and considered it one of the essential tools that facilitate knowledge management processes through effective communication between top management, various managers, and their subordinates. Luthra emphasized that managers lacking communication skills cannot engage with their teams, thus failing to share crucial and valuable information and knowledge that contribute to forming a knowledge management system (Luther, Dahiya, 2017). As a result of the implications of the COVID-19 pandemic and its widespread impact, most communication methods have shifted towards electronic communications, utilizing various mechanisms such as email, video conferencing, and remote communications. This shift has increased the importance of digitization and digital transformation across various fields. Information and communication technologies inherently enable knowledge management processes, significantly contributing to their success. Additionally, these technologies are part of the essential technical foundations required for knowledge management. By providing an internal network for the organization and enhancing communication processes, substantial benefits will be achieved, including attaining desired performance and reducing costs that burden the organization (Otto, Andreas, 1997). According to UNESCO, information and communication technology plays a crucial role by increasing communication, serving as a tool for social interaction aimed at exchanging and circulating knowledge and information. Individuals capable of managing it and interacting with others in work teams will open the door to knowledge production, storage, dissemination, and application. Therefore, knowledge management based on information and communication technology should be established (Molero, Contreras, Casanova, 2017).

3. METHODOLOGY

The study was conducted to investigate the role of internal communication in activating knowledge management processes in Algerian universities from the perspective of professors. To test this, the Structural Equation Modeling (SEM) approach was utilized using the SmartPls4 software.

3.1. Questionnaire Design

The questionnaire was designed using a set of statements to measure the level of internal communication and knowledge management processes in Algerian universities, employing a five-point Likert scale according to the study by (Yahiaoui et al., 2022) as follows: “Strongly agree” = 5, “Agree” = 4, “Neutral” = 3, “Disagree” = 2, “Strongly disagree” = 1. The statements used were based on the scales of (Sun, Li, Lee, Tao, 2021; (Nguyen, Ha, 2023) for internal communication, and (McFadyen, Cannella, 2005; Kosir, 2014; Dhamdhere, 2015; Diab, 2021) for knowledge management processes.

3.2. Study Population and Sample

The study population consisted of university professors from various Algerian universities. The questionnaire was distributed electronically through various social media platforms as well as via email. The study sample comprised 115 university professors.

3.3. Validity and Reliability of the Study Tool

Table 1. Validity and Reliability of the Study Instrument

	Cronbach's Alpha	N of Items
Internal Communication	0.773	5
Knowledge Creation	0.758	3
Knowledge Storage	0.895	5
Knowledge Sharing	0.836	4
Knowledge Application	0.754	3
Total	0.937	20

Source: Prepared by the researchers based on the outputs of SPSSV26.

From the table, we observe that the Cronbach's Alpha value reached 0.937 for all the questionnaire statements, which exceeds the threshold of 0.7. This demonstrates the study tool's validity, dependability, and capability to accurately examine the role of internal communication in activating knowledge management processes. As a result, it can provide similar results if the study is repeated under the same conditions and circumstances.

The same applies to the statements for each variable individually, where the Cronbach's Alpha values were (0.773), (0.758), (0.895), (0.836), and (0.754) for internal communication, knowledge creation, knowledge storage, knowledge sharing, and knowledge application, respectively. All these values exceed 0.70, demonstrating the validity and reliability of the statements used to measure the study variables and accurately represent the phenomenon.

3.4. Analysis of Respondents' Answers Regarding the Study Variables

To understand the effectiveness of internal communication in Algerian universities and the extent to which knowledge management processes are adopted and practiced, this section analyzes the study sample's responses regarding the different variables.

3.4.1. Respondents' Answers Regarding the Internal Communication Variable

This section focuses on clarifying the study sample's responses concerning the internal communication variable and its statements using arithmetic means and standard deviations, as shown in the following table.

Table 2. Respondents' Answers Regarding the Internal Communication Variable

	N	Mean	Std. Deviation
Professors aim, through communication ,to help each other to solve problems and situations they face during work.	115	4.10	0.794
Communication between professors at the university is for the purpose of exchanging knowledge and information related to work and task performance (including scientific research).	115	3.91	0.960
Professors express their opinions and ideas comfortably during meetings held by the university.	115	3.37	1.054
Professors are informed of all changes that affect their tasks and functions at the university.	115	3.57	0.947
Information technology is used to exchange information between professors and their colleagues.	115	3.99	0.767
Valid N (listwise)	115	3.79	0.904

Source: SPSSV26.

From the responses related to internal communication statements, we observe that the primary purpose of communication among university professors is to exchange experiences and knowledge and to assist each other. This is evident from the arithmetic mean of the first statement, which reached (4.10) with a standard deviation of (0.794), indicating that most responses leaned towards “Agree”. This suggests that communication processes in Algerian universities largely utilize information and communication technology. Overall, the responses regarding the internal communication variable tend to be “Agree”, with an arithmetic mean of (3.79) and a standard deviation of (0.904), indicating good communication among various parties in Algerian universities.

3.4.2. Respondents' Answers Regarding the Knowledge Management Processes Variable

This section illustrates the trends in the study sample's responses concerning the knowledge management processes variable, which includes its four dimensions: knowledge creation, knowledge storage, knowledge sharing, and knowledge application. The arithmetic mean and standard deviation for each are presented in the following table.

The above table shows the respondents' trends concerning knowledge management processes. For the knowledge creation process, most responses lean towards “Moderately Agree”, with an arithmetic mean of (3.13) and a standard deviation of (1.005), indicating that the Algerian universities included in the study are moderately engaged in creating new ideas and knowledge. For the knowledge storage process, the arithmetic mean reached (3.07) with a standard deviation of (1.022), reflecting a “Moderately Agree” response trend, suggesting that the storage of acquired knowledge is done to a moderate degree.

Additionally, the arithmetic mean for the knowledge sharing process was (3.26), with a standard deviation of (1.087), also indicating a “Moderately Agree” response trend. This implies that knowledge sharing occurs to a moderate extent among professors, staff, and the university. The arithmetic mean for the knowledge application process was (3.28) with a standard deviation of (1.024), indicating that universities and professors are inclined to apply the knowledge and experiences they acquire, as well as implement creative ideas and benefit from them. Most professors agree that teamwork yields positive results and better performance.

Table 3. Respondents' Answers Regarding the Knowledge Management Processes Variable

	N	Mean	Std. Deviation
Your university involves you in solving the problems it faces.	115	2.83	0.973
Your university informs you of various knowledge updates.	115	3.38	0.979
Your university encourages professors with distinguished creative ideas.	115	3.18	1.064
Knowledge Creation	115	3.13	1.005
Your university is supported by an effective information system.	115	2.95	1.083
Your university records previous experiences and lessons to benefit from them later.	115	2.8	1.053
Your university relies on documents and archives to acquire knowledge.	115	3.23	0.909
Your university works on encoding knowledge to facilitate access to it.	115	3.21	0.913
Your university has modern devices used for storing knowledge.	115	2.84	1.152
Knowledge Storage	115	3.07	1.022
Your university has an internal information network that facilitates access to knowledge.	115	3.16	1.182
Information and knowledge are exchanged based on modern technological means.	115	3.33	1.006
Your university holds scientific seminars with professors possessing knowledge and expertise.	115	3.4	1.074
Your university attempts to disseminate the knowledge it possesses by issuing newsletters and journals	115	3.15	1.086
Knowledge Sharing	115	3.26	1.087
Your university possesses the necessary requirements (material. financial. and human) for knowledge application.	115	3.03	1.120
Professors use technology in the execution of their assigned pedagogical tasks.	115	3.68	0.874
Your university strives to implement innovative ideas in practice.	115	3.13	1.080
Knowledge Application	115	3.28	1.024
Valid N (listwise)	115	3.19	1.035

Source: Prepared by the researchers based on SPSSV26 outputs.

In summary, it can be stated that the trends in respondents' answers regarding the knowledge management processes variable tend towards “Moderately Agree”. This is reflected in the arithmetic mean of (3.19) with a standard deviation of (1.035), indicating that the adoption and practice of knowledge management processes in the Algerian universities included in the study are done to a moderate degree.

4. STRUCTURAL EQUATION MODELING

4.1. Convergent Validity

Convergent validity refers to the extent to which the statements are correlated and come together to measure a particular variable. The main indicators of convergent validity are presented in the following table.

Table 4. Convergent Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Internal Communication	0.779	0.786	0.848	0.527
Knowledge Application	0.755	0.779	0.859	0.67
Knowledge Creation	0.756	0.766	0.86	0.673
Knowledge Storage	0.897	0.903	0.924	0.709
Knowledge Sharing	0.838	0.849	0.891	0.671

Source: SmartPLS outputs.

The Cronbach's Alpha value exceeds 0.7 for all variables, indicating strong internal consistency among these variables and suggesting that the study variables exhibit high reliability. For composite reliability, both rho_a and rho_c also surpass 0.7, indicating high validity of the scales used for the variables. Additionally, the Average Variance Extracted (AVE) value exceeds 0.50 for all variables, implying that a significant proportion of the variance in the observed variables can be explained by the latent variable.

4.2. Discriminant Validity

Discriminant validity measures the extent to which the statements and dimensions are distinct from each other, meaning the ability of a variable to measure a phenomenon without overlapping with other variables. Here, cross-loading was used to assess discriminant validity, as shown in the following table.

Table 5. Cross Loading

Phrases	Internal Communication	Knowledge Application	Knowledge Creation	Knowledge Storage	Knowledge Sharing
Q1	0.711	0.356	0.277	0.198	0.413
Q7	0.42	0.505	0.79	0.492	0.486
Q8	0.518	0.621	0.881	0.593	0.617
Q9	0.412	0.685	0.582	0.881	0.668
Q10	0.404	0.638	0.624	0.865	0.678
Q11	0.318	0.532	0.435	0.738	0.631
Q12	0.375	0.653	0.487	0.873	0.66
Q13	0.399	0.605	0.468	0.846	0.629

Table 5 (cont.). Cross Loading

Phrases	Internal Communication	Knowledge Application	Knowledge Creation	Knowledge Storage	Knowledge Sharing
Q14	0.443	0.606	0.564	0.688	0.802
Q15	0.407	0.569	0.42	0.594	0.802
Q2	0.739	0.409	0.351	0.298	0.348
Q16	0.547	0.567	0.639	0.584	0.832
Q17	0.411	0.594	0.559	0.686	0.841
Q18	0.489	0.847	0.513	0.718	0.626
Q19	0.396	0.737	0.395	0.354	0.406
Q20	0.561	0.867	0.711	0.7	0.679
Q3	0.766	0.49	0.586	0.404	0.395
Q4	0.71	0.455	0.516	0.427	0.45
Q5	0.703	0.425	0.275	0.26	0.423
Q6	0.479	0.53	0.787	0.434	0.548

Source: SmartPLS outputs.

Cross-loading is based on the assumption that the loading value between a statement and the variable it measures should be higher than its loading value with other variables. From the table above, we observe that the loading value between the statements (Q1–Q5) and the internal communication variable is higher than their values with other variables. The same applies to the knowledge creation variable and its statements (Q6–Q8), the knowledge storage variable and its statements (Q9–Q13), the knowledge sharing variable and its statements (Q14–Q17), and finally, the knowledge application variable and its statements (Q18–Q20). This indicates a high level of discriminant validity for the variables and their dimensions.

4.3. Testing Study Hypotheses

This section examines the study hypotheses by first clarifying the relationship between the study variables, relying on the criteria of Fornell-Larcker. Next, using the SmartPLS program, the structural equation modeling results are displayed.

4.3.1. Relationship Between Latent Variables

In this part, the relationship between the study variables is tested using the Fornell-Larcker criterion. The square root of the average variance extracted (AVE) should be greater than the inter-variable correlations to indicate discriminant validity.

From the table, the following can be observed:

- Internal Communication has an AVE square root value of 0.726, which is high, indicating a clear distinction of this variable from the rest.
- The AVE square root values for the variables Knowledge Application, Knowledge Creation, Knowledge Storage, and Knowledge Sharing are 0.819, 0.820, 0.842, and 0.819, respectively. These high values indicate a high and clear distinction for these variables.
- The inter-variable correlation between Internal Communication and the variables (Knowledge Application, Knowledge Creation, Knowledge Storage, and

Knowledge Sharing) is less than the AVE square root for all variables, indicating the presence of discriminant validity among these variables.

Overall, it can be said that the variables clearly represent the theoretical structure they signify, with correlations indicating relationships while maintaining the uniqueness of each variable.

Table 6. Fornell-Larcker Standard

	Internal Communication	**Knowledge Application**	**Knowledge Creation**	**Knowledge Storage**	**Knowledge Sharing**
Internal Communication	0.726				
Knowledge Application	0.596	0.819			
Knowledge Creation	0.579	0.676	0.82		
Knowledge Storage	0.455	0.741	0.62	0.842	
Knowledge Sharing	0.56	0.711	0.675	0.774	0.819

Source: SmartPLS Outputs.

4.3.2. Correlation Matrix

Table 7. Correlation Matrix

	Internal Communication	**Knowledge Application**	**Knowledge Creation**	**Knowledge Storage**	**Knowledge Sharing**
Internal Communication	1000	0.596	0.579	0.455	0.56
Knowledge Application	0.596	1000	0.676	0.741	0.711
Knowledge Creation	0.579	0.676	1000	0.62	0.675
Knowledge Storage	0.455	0.741	0.62	1000	0.774
Knowledge Sharing	0.56	0.711	0.675	0.774	1000

Source: SmartPLS.

From the table, the following conclusions can be drawn:

- The correlation between Internal Communication and Knowledge Application is 0.596, a moderately positive correlation. This suggests that internal communication moderately contributes to the process of knowledge application. This can be attributed to the fact that the application process does not necessarily require extensive communication, as knowledge application can be carried out by individuals, groups, or organizational processes without needing significant communication.

- The correlation between Internal Communication and Knowledge Creation is 0.579, a moderate value. This indicates a moderate relationship between internal communication and the process of knowledge creation. This can be attributed to the fact that the professors involved in the study may not have a strong culture of knowledge sharing among themselves, which would enable them to blend their knowledge and produce new and original knowledge.
- The correlation between Internal Communication and Knowledge Storage is positive but ranges from moderate to somewhat weak, with a correlation of 0.455. This can be interpreted as indicating that the process of knowledge storage primarily depends on the available tools and technologies in institutions and universities to store knowledge and make it accessible to individuals, rather than relying on extensive and effective communication to achieve this.
- The correlation between Internal Communication and Knowledge Sharing is 0.560, a moderately positive correlation. Despite the significant role that communication plays in enhancing the sharing process, the correlation remains moderate. This reflects the culture prevalent in Algerian universities, which have not yet succeeded in adopting a high-sharing culture.

Looking at the overall relationship between knowledge management processes, it is evident that all correlations are positive and strong, reflecting the integration and interaction among knowledge management processes. Each process contributes to the success of the others, highlighting the necessity for all processes to be interconnected and synchronized to achieve the goals of knowledge management.

4.4. Results (SEM-PLS)

The following figure presents the results of structural equation modeling using the SmartPLS software version 4. Key indicators can be observed from Figure 2 and subsequently, the results are interpreted:

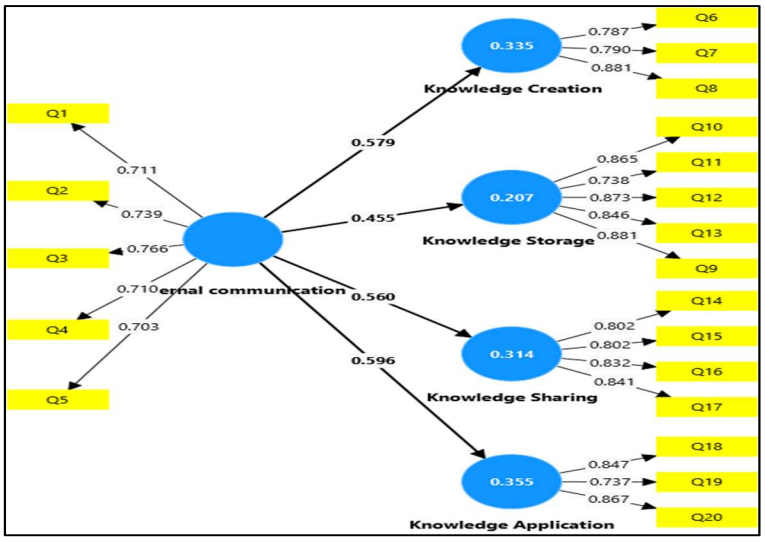

Figure 2. SEM-PLS

Source: SmartPLS Outputs.

The figure shows that the model is suitable for estimating the relationship between internal communication and knowledge management processes (Fornell, Larcker, 1981). All factor loadings for the statements used to measure the study variables exceeded 0.7, indicating good convergent validity and representation. Regarding the structural model, which focuses on the relationship between variables, the coefficients of determination (R^2 values) are considered acceptable. This indicates that the independent variable (internal communication) has the ability to explain variations in the dependent variables (the four knowledge management processes). To test the study hypotheses, the various path coefficients are detailed in the following table.

Table 8. Path Coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Internal Communication -> Knowledge Application	0.596	0.604	0.068	8.719	0
Internal Communication -> Knowledge Creation	0.579	0.589	0.061	9.525	0
Internal Communication -> Knowledge Storage	0.455	0.465	0.092	4.955	0
Internal Communication -> Knowledge Sharing	0.56	0.569	0.079	7.052	0

Source: SmartPLS Outputs

Upon reviewing the table content, it can be observed that all T-values exceed 1.96, with a p-value less than 0.05. The T-values for the relationship between internal communication and the processes (knowledge application, knowledge creation, knowledge storage, and knowledge sharing) were 8.719, 9.525, 4.955, and 7.052, respectively, with a p-value of 0.000 for all hypotheses. This indicates the significance of the relationship, thus accepting all null hypotheses, implying a role for internal communication in activating all knowledge management processes from the professors' perspective. These results can be summarized as follows:

- There is a role for internal communication in activating knowledge creation in Algerian universities.
- There is a role for internal communication in activating knowledge storage in Algerian universities.
- There is a role for internal communication in activating knowledge sharing and distribution in Algerian universities.
- There is a role for internal communication in activating the application and utilization of knowledge in Algerian universities.

5. DISCUSSION

The findings of the current study highlight the importance of internal communication in universities, as they are knowledge-intensive institutions whose main activities focus on knowledge production. The results align with several studies, such as those by (Davenport, Prusak, 1998; Kosir, 2014), and (Sarka, 2014), all of which emphasized the essential role

of communication in activating and achieving knowledge management processes, considering it both an enabler and a motivator for these processes.

The current study also concurs with (Gumus, 2007) regarding the role of communication in enhancing knowledge-sharing behavior, viewing knowledge sharing as a form of communication that influences individuals' behavior and attitudes towards knowledge sharing. Furthermore, this study is consistent with the findings of (Luther, Dahiya, 2017), which highlighted that communication is a vital component and an effective tool for knowledge management processes. Managers with effective communication skills can create, manage, and share knowledge efficiently and effectively. The same applies to higher education institutions, particularly universities, where communication skills play a crucial role in equipping professors with the ability and willingness to share their knowledge with others, recognizing it as a positive practice and avoiding knowledge hoarding. This awareness stems from their understanding of the significance of teamwork and the impact of collaboration and knowledge exchange among them. Consequently, universities today are directing their efforts towards raising awareness and fostering a culture of sharing among individuals by facilitating communication among staff and faculty and leveraging the benefits of digital transformation and related technologies, which are at the forefront of current trends, to streamline knowledge management processes and highlight their outcomes.

6. CONCLUSION

Knowledge management has become one of the most important focuses for all sectors today, given the demands of the knowledge economy and its emphasis on the importance of knowledge as a fundamental resource for achieving competitive advantage and added value. This has led universities, as knowledge-intensive institutions, to adopt and emphasize this concept to ensure the preservation and dissemination of the core knowledge they possess across various levels, thereby ensuring its utilization, enhancement, and growth. Such growth can only occur through the existence of effective communication channels that facilitate the flow of knowledge to and from individuals, management, and all other stakeholders who need this knowledge. This is the focus of the current study, which seeks to explore the role of internal communication in activating the four knowledge management processes (creation, storage, sharing, and application) from the perspective of professors in Algerian universities. The study concluded that internal communication plays a positive role in activating these processes, albeit to a moderate degree. This finding has been interpreted as an indication that Algerian universities are still in the early stages of prioritizing knowledge management, which necessitates an increased awareness of the importance of knowledge management in the higher education sector. Additionally, there is a need for support from senior management to successfully implement knowledge management initiatives. It has become clear that internal communications work to build trust among individuals, thereby encouraging them to share their knowledge and benefit from it, whether to enhance knowledge productivity, improve pedagogical task performance, or in other scientific research activities.

7. STUDY LIMITATION

The current study attempted to explore the relationship between internal communications and their role in activating knowledge management processes in Algerian universities. However, it cannot be said to have covered all aspects, especially considering

that knowledge management is a comprehensive, multi-dimensional concept linked to numerous different concepts and practices. Consequently, some research perspectives and gaps could serve as future research topics for other scholars. These include strategies to enhance internal communications for fostering a culture of knowledge sharing in higher education institutions, as well as healthcare institutions. Additionally, there is a need to focus on digital transformation and its mechanisms in building knowledge-based institutions and enhancing knowledge management processes across various sectors.

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