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Knowledge Sharing In The Era Of Artificial Intelligence: A Field Study On Students At The University Of Continuous Education

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Abstract:

Many educational systems emphasize the importance of knowledge-sharing behavior among students within the educational environment. However, hesitation to engage in this behavior persists due to a lack of understanding of the determinants of knowledge sharing. This study aimed to investigate the extent of knowledge-sharing practices among students of the Continuous Education University across Algeria. The study sample consisted of 479 male and female students from 24 centers. A knowledge-sharing scale was developed, and its validity was confirmed using Exploratory Factor Analysis (EFA) and convergent validity measures. Reliability was established through test-retest methods and McDonald's Omega coefficient. The study's findings revealed a high degree of knowledge-sharing practices among students. Additionally, the results indicated statistically significant differences in knowledge-sharing levels based on gender, favoring male students. However, no statistically significant differences were observed based on the academic level.

Keywords: Academic level, Artificial intelligence, Educational Environment, Gender differences, Knowledge sharing.

1. Introduction

The rapid shift to remote working during the COVID-19 pandemic has brought the challenges of managing knowledge in remote teams to the forefront. The transition to remote work, accelerated by the pandemic, has altered traditional work dynamics, introducing unique challenges related to supervision, social isolation, and communication breakdowns (McFadden & McClain, 2024, p.1).

Artificial intelligence (AI) has significantly transformed the way information is managed. However, knowledge and information management remain equally vital for AI itself. The data used to train AI models in knowledge management can substantially influence their performance. AI is more likely to provide accurate responses when trained with precise and up-to-date information. Moreover, AI holds immense potential to contribute across service and industrial sectors, offering capabilities such as summarizing lengthy research documents and project files within organizations, reducing the need for detailed manual review by researchers (Al-Harassi & Al-Siyabi, 2024, p.104).

The world is witnessing significant technological advancements, fueled by the rapid evolution of AI and its diverse tools across various fields. These advancements have created mounting pressure on all sectors, particularly educational institutions and universities, which now face challenges in keeping pace with this accelerated progress. Such challenges include retraining faculty and students in using modern technologies for education, investing in infrastructure, and addressing concerns such as academic integrity and plagiarism.

Knowledge is a strategic resource for 21st-century organizations striving for sustained growth and development amidst numerous challenges. To meet the demands of the knowledge economy dominating the contemporary world, organizations are compelled to prioritize knowledge management, including the acquisition, sharing, and generation of knowledge to foster innovation, enhance productivity, and achieve competitive advantage. This is particularly applicable to universities, where knowledge resources constitute both inputs and outputs. Higher education plays a vital role in advancing the knowledge economy by focusing on human capital development, promoting scientific research, and employing information technology effectively (Al-Harbi, 2021, p.144).

Universities play a pivotal role in the sustainable socio-economic, psycho-social, and political development of any society through teaching, research, and knowledge dissemination via publications. They establish industrial linkages, collaborate with business organizations and socio-cultural enterprises, and engage in joint projects for knowledge creation and workforce training. Consequently, it is logical to expect universities to adopt proactive knowledge management practices to optimize their knowledge assets. Knowledge sharing is particularly critical as academic institutions increasingly demand high-quality resource and expertise exchange among faculty members. Ramayah, Yeap, and Ignatius (2014) emphasized that the continuous sharing of knowledge justifies the existence of universities, as academicians "strive for intellectual prowess, accumulation, and dissemination of a critical mass of knowledge."

Academicians, as the primary representatives of their institutions, bear the responsibility for creating and disseminating knowledge through teaching and research (Asghar & Naveed, 2021, p.2).

These rapid transformations have driven societies toward embracing knowledge management, which focuses on intellectual creativity and knowledge production as essential assets for sustainable development. This shift has exerted pressure on higher education institutions to innovate their methods, enabling them to keep pace with these developments and contribute effectively to building knowledge societies. The university environment is viewed through two primary dimensions: the physical dimension, encompassing buildings, facilities, and laboratories that serve as hubs for research, teaching, training, and knowledge sharing; and the psychological dimension, which pertains to the prevailing psychological and social atmosphere among human resources, fostering motivation and enthusiasm for knowledge exchange, analysis, and innovation (Al-Qaddah, 2022, p.136).

The explosion of web-based technologies has increased the volume and complexity of knowledge, fostering the proliferation of virtual learning communities. These technologies, rooted in cyberspace, enable individuals and learners to achieve their educational goals. Over recent years, such communities have gained prominence in business organizations, educational institutions, and governments as initiatives to track and mobilize knowledge online (Chen et al., 2009).

Knowledge sharing involves activities of transferring or disseminating knowledge from one person or group to another. It is characterized by behaviors aimed at providing task-related information to assist or collaborate with others in generating new ideas and solving problems. According to several researchers, knowledge sharing entails the mutual exchange of information among colleagues, with the terms "knowledge sharing" and "knowledge exchange" often used interchangeably (Tiffany, 2018, p.7).

The openness of employees towards their colleagues and the sharing of knowledge undoubtedly support the achievement of organizational goals. Sharing knowledge benefits both the individual and others who reciprocate by sharing their own knowledge. Employees may experience a sense of satisfaction and self-esteem when they recognize the benefits their shared knowledge brings to others. Additionally, helping colleagues can lead to better, faster, and more efficient completion of tasks. As a result, knowledge sharing enables individuals to solve problems more swiftly, reduce costly duplication of effort, and foster innovative solutions through collaboration (Abdel Hafiz & Al-Mahdi, 2015, p. 486).

Given the significance of knowledge sharing, Abdel Hafiz and Al-Mahdi (2015) recommended shifting from the idea that "knowledge is power" to the concept that "shared knowledge is power." This importance was further emphasized by Zhang (2017), who stated that knowledge sharing is the cornerstone and initial step in the journey toward reform, development, and sustainability of contemporary institutions (Al-Shahrani, 2022, p. 4). Riege (2005) asserted that better sharing of useful knowledge translates into rapid individual and organizational learning and innovation, enabling the development of superior products that reach target markets faster (Riege, 2005, p. 18).

In educational settings, successful collaborative learning hinges on active and voluntary information sharing among students. Knowledge exchange facilitates answering questions, solving problems, learning new concepts, finding swift solutions, and enhancing understanding of specific topics. Knowledge sharing among university students plays a critical role in developing their academic and employability skills (Salih & Hatunoglu, 2019, p. 39). Additionally, it impacts the professional development of faculty members, as evidenced in studies conducted at Najran University (Al-Yami & Al-Douan, 2021). Knowledge sharing is thus an essential aspect of academic and professional development, particularly for university students.

Several studies have explored knowledge sharing within university institutions. For instance, Cheng et al. (2009) examined knowledge-sharing behaviors among academics at a private Malaysian university, identifying incentives and personal expectations as key drivers. The findings indicated that compulsory participation is not an effective strategy for fostering knowledge-sharing behaviors. Similarly, Tan (2016) explored the influence of knowledge management factors on encouraging knowledge sharing among academics. The results highlighted that trust, rewards, and organizational culture significantly impact knowledge-sharing practices. Riege (2005) emphasized that trust and administrative support are critical for fostering effective knowledge-sharing practices within universities.

Michalová et al. (2023) underscored the vital role of knowledge sharing in a university's success and graduates' future employability. Key factors such as trust, willingness to exchange knowledge, and positive attitudes were identified as primary motivators for students' participation in knowledge-sharing activities. Universities are increasingly adopting collaborative learning approaches, such as group assignments and laboratory work, to promote knowledge sharing among students. This highlights its importance in modern educational environments, as fostering a conducive knowledge-sharing environment is crucial for enhancing learning outcomes and preparing students for professional challenges. Gamlath and Wilson (2017) emphasized that active knowledge exchange not only enhances learning and understanding but also contributes to the broader intellectual discourse within the academic community.

McFadden and McClain (2024) asserted that effective knowledge sharing is a critical component of organizational success, particularly in today's digital landscape, where remote teams play a significant role. Nathan et al. (2017) highlighted knowledge sharing in educational institutions as a vital element for fostering creativity and stimulating intellectual dialogue. Their study found that students demonstrated social openness and trust in sharing knowledge with

peers. Yi (2005) further noted that individuals are likely to share knowledge only when the perceived benefits outweigh the costs, thus emphasizing the importance of incentive systems for successful knowledge-sharing practices.
Ting and Majid (2007) explored students' attitudes toward knowledge sharing and found positive inclinations. However, barriers such as peer competition and relationships were identified. Alsaadi (2018) investigated the individual and personal factors contributing to academics' willingness to share knowledge in higher education institutions. The findings indicated that Saudi academics generally exhibited positive attitudes towards knowledge sharing, preferring face-to-face exchanges primarily related to teaching strategies, followed by research. Trust and time were identified as key factors influencing the willingness to share knowledge. Similarly, Al-Khalaf (2021) examined knowledge-sharing practices among faculty members at the College of Education in Damascus, finding no significant relationship between knowledge sharing and individual factors but highlighting gender-based differences in favor of females.
In light of the aforementioned studies and the scarcity of research on knowledge sharing among university students in the Algerian context, this study aims to address the gap by investigating the level of knowledge sharing among students at the University of Continuing Education amidst the artificial intelligence revolution.

Study Hypotheses
Based on the above discussion and a review of previous studies, the following hypotheses have been formulated:
1. It is expected that the degree of knowledge-sharing practices among the study sample will be high.
2. There are differences in the degree of knowledge-sharing based on gender (male/female) among the study sample.
3. There are differences in the degree of knowledge-sharing based on academic level (Bachelor/Master) among the study sample.

Study Objectives
The study aims to:
- Investigate the degree of knowledge-sharing practices among the sample.
- Examine the differences in knowledge-sharing practices among the sample based on the variables of gender and academic level.

Study Significance
The significance of the study lies in:
- Enriching the theoretical field with a study on knowledge-sharing in higher education, especially considering the lack of studies in Algeria on this topic within the university environment.
- Highlighting the increasing importance of the topic of knowledge-sharing, as the study could reveal best practices to encourage knowledge exchange, leading to faster innovation and more effective solutions to educational problems encountered by students.
- Shedding light on how to effectively transfer knowledge from senior students to junior students, ensuring the preservation of the university's institutional memory.
- Assisting university decision-makers in gaining insight into the current state of knowledge-sharing among students and working to activate these practices, as they play an important role in generating knowledge and fostering competition among students. Additionally, the study can help students understand the challenges they face in sharing knowledge with one another.

Study Boundaries
- **Human Boundaries**: The study included 479 male and female students from the University of Continuous Education in Algeria. What distinguishes this sample is that most of them are employees and workers.
- **Time Boundaries**: The study was conducted during the second semester of the academic year 2023/2024.
- **Spatial Boundaries**: The study covered 24 centers of continuous education across the country, characterized by their wide geographical spread and distribution across various provinces of Algeria.
- **Subjective Boundaries**: The results of the study are determined by the characteristics of the knowledge-sharing scale. The objectivity of the sample members in answering the scale also plays an important role, as the scale relies on self-reporting, which is known for potential exaggeration in responses.

Operational Definition of Knowledge-Sharing:
Knowledge-sharing is the process of students exchanging and sharing information, ideas, experiences, and tools—both explicit and implicit—that are related to the learning process, to enhance their understanding and create new knowledge. It is operationally defined as the total score obtained by a student on the knowledge-sharing scale applied in this study.

Theoretical Framework

Definition of Knowledge Sharing:

Knowledge sharing is a complex social interaction process that draws on both formal and informal mutual learning processes between individuals. It involves the behavior of giving knowledge to others and receiving knowledge from others. This process requires students or a group of students to interact with each other, either through face-to-face contact or other non-physical means (MICHALOVÁ, et al., 2023, p.461).

Brink (2003) views knowledge sharing as the process of converting the knowledge available to individuals into forms that are understandable and practically applicable by other individuals, thereby making it useful and valuable for everyone (Al-Shahrani, 2022, p.19).

Types of Knowledge:

There is a common classification of knowledge into two types, as follows (Al-Khamim, 2022, p.107):

- **Explicit Knowledge**: This is the written knowledge found in references, books, documents, reports, scientific information storage media, and stored information. It is easy to describe, define, and can be easily transferred from one language to another or from one form to another. It is shareable, can be reread, reproduced, and thus stored and retrieved.
- **Tacit Knowledge**: This is the knowledge that resides in the minds and behaviors of individuals. It refers to intuition, instinct, and internal feelings. It is based on experience and is difficult to transfer through technology. Rather, it is passed through social interaction.

Importance of Knowledge Sharing :

The importance of knowledge sharing can be classified according to the literature into the following (Qoura & Al-Arabi, 2023, p.5):

1. Individual Importance:

Knowledge sharing holds significant importance at the individual level, as it helps individuals to:

- Perform daily activities
- Achieve goals, reduce errors, invest time effectively, and acquire knowledge and experience
- Enhance personal development and career advancement
- Adapt to their environment in the workplace, while also enabling geographically dispersed individuals to exchange information to improve performance.

2. Organizational Importance:

Knowledge sharing contributes greatly to the value of university institutions in the following ways:

- It improves efficiency and reduces training costs
- It helps disseminate innovative ideas and facilitates both individual and organizational learning
- It prevents institutions from repeating mistakes, increasing organizational efficiency through continuous improvement of best practices
- It provides institutions with the opportunity to discuss "what you know" and "how you know" to drive expansion and growth.

3. Social Importance:

The social importance of knowledge sharing aims to build strong human relationships within the community, leading to:

- Promoting a spirit of knowledge sharing and solidarity among academic community members
- Addressing various problems facing the community and reinforcing the idea of knowledge dissemination
- Changing the misconception of not sharing or exchanging knowledge.

Theories Explaining Knowledge Sharing:

The behavior of knowledge sharing takes various forms, and the following are theories that explain the knowledge-sharing behavior of individuals:

1. Theory of Reasoned Action (Fishbein, 1967): This theory, developed by American-German researcher Martin Fishbein (1936-2009), represents a proposed model in social psychology that seeks to explain the reasons behind the formation of various behavioral intentions in humans. It became widely adopted by many researchers as an effective tool for accurately identifying individual behavioral intentions from a multidisciplinary perspective. The theory focuses on two types of individual behaviors: prevailing attitudes, which are the predominant inclinations that drive individuals to make positive or negative responses toward themselves, others, and their environment; and social norms, which refer to individuals' thought patterns and their expectations of others concerning their efforts, activities, and actions.

2. Theory of Planned Behavior (Ajzen, 1985): Developed by American-Polish social psychologist Icek Ajzen, this theory extends the Theory of Reasoned Action by emphasizing the importance of behavioral control perceptions. These perceptions refer to individuals' control over their personal skills, available opportunities, and the ability to regulate their own behaviors. Additionally, this theory focuses on individuals' self-confidence, which determines their ability (or lack thereof) to perform the required behaviors.

3. Social Exchange Theory (Homans, 1958): Developed by American sociologist George Homans, this theory is based on the premise that a valuable resource exchange occurs, with the expectation of mutual benefits for the two parties involved. It strongly emphasizes the importance of social interactions and exchanges that aim to maximize returns while minimizing costs, ultimately influencing the actions and individual behaviors in specific situations.

Barriers to Knowledge Sharing:
University institutions face significant challenges due to students' reluctance to share knowledge. The reasons for this reluctance to engage others in sharing their knowledge are as follows (Al-Blawi, 2019, p. 585):

- A desire to retain knowledge and fear of sharing it with others to preserve material gains.
- Knowledge owners' fear of losing their status and power when sharing knowledge, especially tacit knowledge.
- Concerns about the potential negative impact of knowledge sharing on the competitiveness of the institution they belong to.
- Uncertainty about possessing the correct knowledge, which may expose the organization to harm and errors.
- If the knowledge holder perceives that there is no benefit to sharing knowledge with others, they may refrain from doing so, fearing harm to their personal interests.

Riege (2005, p. 25) also identifies additional barriers to knowledge sharing:

- Lack of leadership and managerial direction in clearly communicating the benefits and value of knowledge sharing practices.
- Insufficient formal and informal spaces for sharing, reflecting, and generating new knowledge.
- Lack of transparent reward and recognition systems to motivate individuals to share their knowledge.
- The existing corporate culture does not provide adequate support for knowledge-sharing practices.
- Inadequate infrastructure to support knowledge-sharing practices.
- Communication and knowledge flows are restricted to certain directions (e.g., top-down).
- A hierarchical organizational structure that inhibits or slows down knowledge-sharing practices.

II- Methodology and Tools:
Research Method:
In this study, we employed a descriptive method due to its appropriateness for the nature of the study's objectives. This approach ensures accuracy and objectivity in addressing the study's questions.

Study Population:
The study population consists of all students at the University of Continuous Education across 54 centers nationwide, enrolled for the 2023/2024 academic year, totaling 72,000 students.

Sample:
To calculate the sample size, we relied on the "Stephen Thompson" formula to determine the minimum representative sample size for the study population (Al-Sebai, 2012, p. 11).

$$n = \frac{N \times p(1-p)}{\left[\left[N-1\times\left(d^2 \div z^2\right)\right]+ p(1-p)\right]}$$

- Total population size : N
- The standard deviation corresponding to the significance level of 0.95, which equals 1.96: z
- The margin of error equals 0.05: d
- The proportion of the characteristic and neutrality equals 0.50p

After applying the equation, the minimum sample size was (382). However, we selected a sample of (479) to ensure proper representation of the study population. The sample was chosen using a stratified random sampling method, which is the most suitable, especially when the geographical distribution of the sample is wide. There are (04) regional districts across the country, and the center was used as a random selection unit through a lottery method. Afterward, (06) centers were selected from each district, and the total number of selected centers was (24) out of the total (54) centers. The distribution of the sample according to the variables was as follows:

Table (01): Distribution of the Sample According to the Regions and Centers

Regional areas	Centers	Number	Percentage
Southern region	Ouargla, Touggourt, El Oued, Laghouat, Ghardaia, Illizi	124	25.88%
Central region	Algiers, Boumerdes, Medea, M'sila, Bouira, Chlef	120	25.05%
Eastern region	Batna, Sétif, Oum El Bouaghi, Tebessa, Annaba, Skikda	130	27.13%
Western region	Oran, Tlemcen, Mostaganem, Saida, Relizane, Tiaret	105	21.92%
Total		479	100%

Table (02): Distribution of the Study Sample According to Variables: Gender, Level, and Age

Variable	Category	Number	Percentage
Gender	Male	268	55.90%
	Female	211	44.10%
Level	Licence	339	70.80%
	Master	140	29.20%
Age	Less than 40 years	279	58.20%
	40 years and above	200	41.80%
Total		479	100%

And we calculated the validity and reliability on a sample of (50) students. The exploratory factor analysis was applied to a sample of (429) students.

3. Study Tool :

Given the lack of available scales in the Algerian context and the inappropriateness of foreign scales for the study sample, we designed a knowledge-sharing scale after a comprehensive review of the theoretical background and literature to identify the basic requirements and activities associated with knowledge-sharing behavior. We also reviewed similar scales, such as :

- The scale of Tiffany (2018), which included (36) items distributed across two dimensions.
- The scale of Lin (2007), which included (30) items distributed across (5) dimensions.

After determining the theoretical and operational definition of the concept of knowledge sharing, it was necessary to understand the areas of interest in the context of the learning process for the students at the University of Continuing Education, which is characterized by a hybrid education model (face-to-face and remote). The items (28 in total) measuring knowledge-sharing behavior were formulated and divided into two dimensions as follows:

- **First Dimension**: Includes items from 01 to 14.
- **Second Dimension**: Includes items from 15 to 28.

We adopted a five-point Likert scale to measure knowledge sharing with the following weights: Always (5), Often (4), Sometimes (3), Rarely (2), Never (1).

Psychometric Properties of the Study Tool:

The knowledge-sharing scale was applied to a pilot sample of (50) students to verify the scale's validity and reliability.

A- Construct Validity:

To extract the significance of the construct validity of the scale and to determine the factors (dimensions) that form the scale, exploratory factor analysis was used for the scale items (without specifying the number of factors). One of the conditions for using factor analysis is to verify the normal distribution of the data, which was done using the Kolmogorov-Smirnov test. The table below shows the results:

Table (3): Values for Tests of Normality

Test	Statistic	df	Sig.
Kolmogorov-Smirnov Test	0.034	429	0.200
Shapiro-Wilk Test	0.997	429	0.706

It can be seen from the table that the significance values for both tests were (0.200) and (0.706), which are greater than (0.05), thus we conclude that the data follows a normal distribution. Subsequently, the adequacy of the sample size for conducting factor analysis was verified using the Kaiser-Meyer-Olkin (KMO) measure, which had a value of (0.93), greater than the threshold of (0.50). Bartlett's Test of Sphericity also showed a Chi-square value of 6635.20 with a significance level of 0.000, which is statistically significant, indicating the adequacy of the sample data for factor

analysis. The absolute value of the determinant of the correlation matrix was 1.269, which is greater than zero, indicating that there is no overlap or similarity between the items forming the correlation matrix.
Stevens (as cited in Tigza, 2012) suggests that the loading factor used in the interpretation of the factor should not be less than 0.40, as it indicates that the factor explains 16% of the variance in a particular variable. The value of 0.40 as the minimum factor loading, regardless of other considerations, has become widely used in research.
The exploratory factor analysis was conducted using the Principal Axis Factoring method with oblique rotation (Promax). The results of the factor analysis extracted two factors that explained 58.45% of the total variance in the matrix. The results indicated that all 28 items of the scale had factor loadings greater than 0.40. The factor structure derived after analysis and rotation is outlined as follows:

Factor 1: The eigenvalue for this factor was 10.023, and it explained 35.79% of the variance. This factor included 14 items: 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, and 14, with factor loadings ranging from 0.57 to 0.79. These items reflected the meanings of sharing ideas, lessons, providing explanations, references, and applications. Therefore, this factor was named **Knowledge Sharing**.

Factor 2: The eigenvalue for this factor was 6.345, and it explained 22.66% of the variance. This factor included 14 items: 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, and 28, with factor loadings ranging from 0.43 to 0.80. These items reflected the meanings of requesting information, lessons, activities, and applications. Therefore, this factor was named **Knowledge Request**.

Table (4) : Rotated Component Matrix

Item number	Component One	Item number	Component Two
01	0,663	15	0,427
02	0,684	16	0,607
03	0,694	17	0,687
04	0,550	18	0,776
05	0,622	19	0,731
06	0,710	20	0,736
07	0,789	21	0,788
08	0,689	22	0,813
09	0,812	23	0,806
10	0,704	24	0,660
11	0,623	25	0,844
12	0,721	26	0,736
13	0,680	27	0,777
14	0,590	28	0,698
Eigenvalue	10.023	Eigenvalue	6.345
Cumulative	%35.796	Cumulative	%22.661

B- Convergent Validity:
Convergent validity refers to the extent to which a measure correlates positively with alternative measures of the same construct. Using the domain sampling model, indicators of a reflective construct are treated as different approaches to measuring the same construct. Therefore, the items that serve as indicators of a specific construct should converge or share a high proportion of variance. To establish convergent validity, researchers consider the outer loadings of the indicators as well as the Average Variance Extracted (AVE). The value of AVE must be greater than or equal to 0.50 and must be less than the value of Composite Reliability (CR) (Hair et al., 2014, p. 102).

Table (5): Indicators of Convergent Validity

Factors	CR	AVE
Giving knowledge	0.92	0.54
Asking knowledge	0.93	0.53

It is evident from the table that the values of the Average Variance Extracted (AVE) are greater than 0.50, indicating that the factor structure explains more than half of the variance of its indicators. Additionally, the AVE values are lower than the Composite Reliability (CR) values, thus confirming the validity of convergent validity.

Reliability:

Test-Retest: The scale was applied to the pilot sample, and after two weeks, it was reapplied to the same sample. The correlation between the two applications was calculated using Pearson's correlation coefficient, which resulted in a value of 0.82, indicating a high value and providing a good indicator of the scale's reliability.

McDonald's Omega: Cronbach's alpha coefficient is widely used to measure reliability. However, methodologists have cautioned against its use, as it is not an ideal measure of reliability compared to McDonald's Omega coefficient. McDonald's Omega is calculated by dividing the sum of the squared loadings by the sum of the squared loadings plus the sum of the error terms (Hayes & Coutts, 2020). Omega reliability is one of the proposed alternative methods to Cronbach's alpha, and one of its characteristics is that it does not require equal loadings but takes their differences into account. It is noted that McDonald's Omega coefficient often outperforms Cronbach's alpha, especially when there is increased variability in the loadings on the factor (Tigza, 2017, p. 15). The reliability of the scale was calculated using McDonald's Omega coefficient, with the results presented in the following table:

Table (6): Value of McDonald's Omega

Factors	Number of Items	McDonald's Omega
Giving Knowledge	14	0.911
Asking Knowledge	14	0.925
Total	28	0.930

It appears from the table that the values of McDonald's Omega for the dimensions and the total score ranged between (0.91 and 0.93), indicating that the scale scores exhibit high reliability.

III- Results and Discussion:

1. Presentation of the First Hypothesis Result:

The hypothesis states that "we expect the degree of cognitive sharing practice among the sample members to be high." To test this hypothesis, a one-sample t-test was used to calculate the differences between the average cognitive sharing scores of the sample members and the hypothesized mean of the scale, which was estimated at (84). The results are as shown in the following table :

Table (7): Differences Between the Average Scores of Sample Members on the Scale and the Hypothesized Mean

N	DF	M	SD	Hypothetical Mean	Test (T)	SIG
429	428	92.44	17.84	84	9.796	0.000

From the table, it can be observed that the average scores of the sample members on the knowledge sharing scale was 92.44, which is higher than the hypothesized mean of the scale, estimated at 84. Using a one-sample t-test to test the differences between the means, the t-value was found to be 9.796 with a significance level of 0.000, which is less than 0.05. This indicates that the result is statistically significant, suggesting that the level of knowledge sharing practice among students at the University of Continuing Education is high. This may be attributed to the hybrid learning model (in-person and remote) used at the university, which requires knowledge sharing. Students are required to download lessons from the educational platform and complete activities, research, and exercises within deadlines, which necessitates collaboration and assistance from peers. In many cases, the activities are complex, and the questions are indirect, requiring students to seek help from their peers and share ideas, suggestions, and knowledge regarding the required method and approach. Another reason that makes students more convinced of the importance of knowledge sharing with others is their belief that it makes them more valuable to the organizations they will work for in the future and better prepared to secure a job.

This result aligns with the findings of Al-Yami and Al-Douan (2021), Al-Qaddah (2022), and Al-Kameem (2022), which concluded that the level of knowledge sharing among faculty members is high. Similarly, the study by Salih and

Hatunoglu (2019) found that a large proportion (70%) of the sample had a positive attitude towards knowledge sharing and were aware of its importance in the learning process. However, this result differs from the findings of Al-Harbi (2021) and Abdel Hafidh and Al-Mahdi (2015), whose studies concluded that knowledge sharing practices across all dimensions were moderate.

Presentation of the Results of the Second Hypothesis:
The hypothesis states, "There are statistically significant differences in the level of knowledge sharing attributed to gender (male/female) among the study sample members." To test this hypothesis, an independent samples t-test was used. The results are as follows:

Table (8): Results of the T-test for Significant Differences Between Males and Females on the Knowledge Sharing Scale

Statistical indicator		N	M	SD	(T) Test	DF	Sig
Scale	Male	241	94.64	17.45	2.920	427	0.004
	Female	188	89.61	17.98			

The table indicates that the mean score for males is 94.64, while the mean score for females is 89.61. It is also noted that the t-value is 2.920, with 427 degrees of freedom and a significance level of 0.004, which is below the threshold of 0.05. Thus, it can be concluded that there are statistically significant differences in cognitive sharing based on gender, favoring males.
The existence of differences between genders in cognitive sharing in favor of males may be attributed to females' tendency toward academic excellence, which may prevent them from sharing their knowledge and lead them to retain information and ideas related to their studies, out of fear of losing their authority and status, and in concern of others surpassing them. In contrast, males are characterized by altruism, sociability, and openness to social relationships. They see no reason to hoard knowledge, and thus, they share all their knowledge, information, and ideas for the benefit of others. This finding contradicts the results of Khalaf (2021), whose study found statistically significant differences in cognitive sharing based on gender in favor of females. It also differs from the findings of Al-Yami and Al-Douan (2021), who concluded that there were no statistically significant differences in cognitive sharing based on gender.

Presentation of the Third Hypothesis Result: The hypothesis states, "There are statistically significant differences in cognitive sharing based on academic level among the study sample." To test this hypothesis, an independent samples t-test was conducted, and the results are as follows:

Table (9): Results of the t-test for the significance of differences on the cognitive sharing scale based on the variable of academic level.

Statistical indicator		N	M	SD	(T) Test	DF	Sig
Scale	Licence	301	91.78	17.95	- 1.175	427	0.241
	Master	128	93.99	17.53			

The table shows that the mean score for Bachelor's students is 91.78, while the mean score for Master's students is 93.99. It is also observed that the t-value is -1.175, with 427 degrees of freedom and a significance level of 0.241, which is greater than 0.05. Therefore, we can conclude that there are no statistically significant differences in cognitive sharing based on academic level. This result may be attributed to the fact that students at both the Bachelor's and Master's levels receive the same form of distance education, with identical instructions, guidance, teaching methods, and evaluation techniques. This finding is consistent with the results of Al-Yami and Al-Douan (2021), who also concluded that there were no statistically significant differences in cognitive sharing based on academic qualification.

Conclusion:

Promoting knowledge-sharing behavior has become increasingly important in university institutions due to its numerous benefits for university students, the institution itself, and even for individuals working in the knowledge sector within business organizations. This study provides a framework for understanding knowledge-sharing behavior among students at the University of Continuing Education. The results indicate a high level of knowledge sharing among students, highlighting the significance of this behavior from the students' perspective in a virtual educational environment. These findings are consistent with the study by Chen et al. (2009), which demonstrated that knowledge-sharing behavior among peers fosters an environment that facilitates learning and encourages active participation in online discussions for acquiring or applying knowledge. Additionally, the study found statistically significant gender differences in knowledge-sharing behavior, favoring male students, thus emphasizing the need to encourage knowledge-sharing

behavior among female students. However, no statistically significant differences were found based on academic level. Based on these results, future studies should further investigate evidence of high levels of knowledge-sharing practices among students to strengthen this behavior. It is also recommended to explore the relationship between knowledge-sharing behavior and students' academic performance. This study introduces a new tool for measuring knowledge-sharing that is suitable for the virtual university environment in Algeria and offers a framework for future studies on knowledge-sharing behavior.

Recommendations:

In light of the findings of this study, the following recommendations are proposed:

- Promote knowledge-sharing behavior and culture among university students and faculty through study days and scientific clubs.
- Establish an incentive system to encourage knowledge-sharing behavior among students and faculty.
- Efforts should be made to improve and enhance relationships between students by providing opportunities for interaction through: volunteer work, student activities, scientific and literary clubs, and strengthening ties with the surrounding community.
- Focus on improving technological infrastructure and providing databases and information at the university, ensuring students have access to them.
- Activate the university's website to disseminate and share knowledge, as well as pedagogical, research, and scientific content with the university community.
- Informal knowledge-sharing practices among students may lead to the transmission of incorrect knowledge; therefore, it is essential to formalize knowledge-sharing activities within the university.
- Conduct studies on the psychological, technological, and organizational factors that contribute to promoting knowledge-sharing behavior.
- Investigate the determinants of knowledge-sharing behavior among higher education faculty and its relationship with teaching effectiveness.

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