

## Knowledge Management and Innovative Culture in Higher Education: Testing the Mediation of Organizational Citizenship Behavior at the University of Algiers 3.

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*Received: .01/07/2025*

*Accepted: 12/09/2025*

*Published: 15/09/2025*

### Abstract:

This study aimed to test the impact of knowledge management in promoting innovative culture through the mediating role of organizational citizenship behavior. A questionnaire was developed and distributed to 200 male and female professors working at the Faculty of Economic, Commercial and Management Sciences at the University of Algiers 3, who were selected randomly. After collecting the data, the software (Smart PLS) was used to analyze it and using structural equation modeling (SEM) to test the hypotheses formulated according to the model of Preacher and Hayes (2008). One of the most important findings of the study is that there is a direct impact of knowledge management on both innovative culture and organizational citizenship behavior, while there is no indirect impact of knowledge management on innovative culture through the mediating role of organizational citizenship behavior.

**Keywords:** Knowledge Management; Innovation Culture; Organizational Citizenship Behavior; Structural Equation Modeling (SEM).

**JelClassificationCodes:** M12, M14, M15.

## 1. INTRODUCTION:

The higher education sector is one of the sensitive and important sectors for any national economy because of its role in enhancing competitive capabilities. The university has a large and decisive role in creating these innovations through education, research, development, and community service. However, the university is experiencing several challenges that hinder the implementation of innovation, including a weak culture of exchange. Knowledge: Strengthening Knowledge Management mechanisms, including: laboratories and multidisciplinary research centers, support and guidance programs, Cooperative agreements with major universities. All of this would enhance the Innovative Culture (IC) that represents shared values and beliefs that support creativity and innovation in ideas.

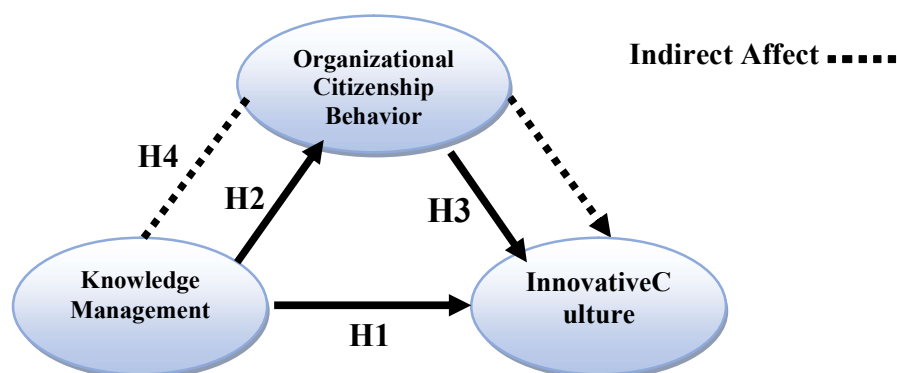
Organizational Citizenship Behavior (OCB) plays a pivotal role in driving innovations by creating an enabling environment based on knowledge by making individuals voluntarily commit to behaviors that go beyond the requirements of their formal roles. These behaviors include: volunteering for additional tasks, helping colleagues make suggestions. However, there is a gap in understanding how Knowledge Management contributes to Promoting Innovative Culture (IC) through organizational citizenship behavior. To our knowledge, there are not many studies that determine the relationship between Knowledge Management, innovative culture, and citizenship behavior in the higher education sector in Algeria.

While existing literature has extensively examined knowledge management and innovative culture as independent constructs, studies exploring their integrative relationship through the mediating role of organizational citizenship behavior (OCB) remain scarce, particularly within higher education contexts. Furthermore, the Algerian academic environment remains significantly underexplored in this domain. Consequently, this study provides empirical validation for the proposed mediation model, enhancing scholarly understanding of the mechanisms through which knowledge is transformed into sustainable innovative practices among faculty members within collaborative, socially engaged academic settings that serve as ideal incubators for unlocking latent innovative capacities.

### 1.1 Research Hypotheses:

The study hypotheses were formulated to test the mediating effect of Organizational Citizenship Behavior (OCB) between knowledge management (KM) and Innovative Culture (IC) by the method of Preacher and Hayes (2008), and the following figure shows this:

**Figure 1: Conceptual Framework**



**H1:** There is a statistically significant direct effect of Knowledge Management (KM) on promoting Innovative Culture (IC) at a significance level ( $0.05 \geq \alpha$ ).

**H2:** There is a statistically significant direct effect of Knowledge Management (KM) on Organizational Citizenship Behavior (OCB) at a significance level ( $0.05 \geq \alpha$ ).

**H3:** There is a direct, statistically significant effect of Organizational Citizenship Behavior (OCB) on promoting Innovative Culture (IC) at a significance level ( $0.05 \geq \alpha$ ).

**H4:** There is a direct, statistically significant effect of Knowledge Management (KM) on enhancing Innovative Culture (IC) through Organizational Citizenship Behavior (OCB) as an intermediate variable at a significance level ( $0.05 \geq \alpha$ ).

## **2. Literature Review:**

### **2.1 Definition of Knowledge Management (KM)**

Many writers have provided definitions of Knowledge Management (KM), and each of them has a point of view on which he based his definition. In general, most definitions were based on the following elements:

**Table 1: Knowledge Management (KM) Definitions**

| <b>Element</b>            | <b>Definition</b>                                                            |
|---------------------------|------------------------------------------------------------------------------|
| <b>Data/Information</b>   | Providing useful information and facilitating assimilation.                  |
| <b>Cognitive State</b>    | Enhancing critical thinking and comprehension.                               |
| <b>Objective</b>          | Building/managing organizational knowledge repositories.                     |
| <b>Process</b>            | Creating, sharing, and distributing knowledge.                               |
| <b>Information Access</b> | Enabling rapid, low-cost access to knowledge bases.                          |
| <b>Capability</b>         | Developing competent individuals capable of creativity and <i>know-how</i> . |

**Source:** developed by Researchers based on multiple sources

Synthesizing these, KM is: constitutes the systematic cultivation and organization-wide distribution of intellectual capital, designed to elevate individual cognitive capabilities and deepen procedural understanding, thereby serving as a foundational driver of sustained organizational innovation (Darroch, 2003, p. 41).

**2.1.1 KM processes:** Through our review of many study literature, we found that knowledge management goes through four processes (Gonzalez & Martins, 2017, pp. 253-257):

 **Knowledge acquisition:** It is the process of creating implicit or explicit knowledge within the organization through the learning process or from outside the organization through cooperative work with other organizations or conducting consultations with universities or educational institutes.

- 📚 **Knowledge storage:** It is the process of forming organizational memory by storing knowledge formally in physical memory systems, or informally within values and beliefs that fall within the culture and structure of the organization.
- 📚 **Knowledge distribution:** It is the process of sharing new information from different sources, which leads to the creation of knowledge and understanding of new information, and this can only be done through the availability of an environment that facilitates knowledge sharing among members of the organization.
- 📚 **Use of knowledge:** This process means the ability of an organization's individuals to locate, access, and use information and knowledge stored in formal and informal memory systems to develop new knowledge by expanding the existing knowledge base to make the right decisions.

## **2.2 Organizational Citizenship Behavior (OCB)**

1988 (organ) definition as "optional individual behaviour, which is not directly or explicitly recognised by the formal reward system, and which in the aggregate enhances the effective functioning of the organisation" (Organ, 1988, p. 04).

**2.2.1 OCB Dimensions:** We can see citizenship behavior in the following three Types (Nosratabadi, Khedry, & Parvaneh, 2015, pp. 60-61):

- 📚 **Obedience:** It means the tendency of individuals to accept and obey organizational rules and procedures.
- 📚 **Loyalty:** It is when individuals put the organization's interests ahead of personal interests, sacrificing them for the benefit of the organization.
- 📚 **Participation:** It is the tendency of employees to participate effectively in the dimensions of organizational life.

## **2.3 Innovation Culture (IC)**

Interest in organizational culture began by organizations at the beginning of the eighties. At the beginning of the millennium, organizational culture was considered an important element for success, and is defined as the collectively shared core values and fundamental beliefs within an organization, which materialize through observable expressions such as behavioral norms, communication patterns, social dynamics, and physical workspace aesthetics (Dobni, 2008, p. 544). It represents a multiple context that includes the following dimensions: intention, innovation infrastructure, innovation impact, and innovation implementation. When an organization has a culture that allows employees to take initiative, overcome their mistakes, and supports personal growth and development, we say that this organization has an "Innovative Culture (IC)." (Donate & Guadamallas, 2010, p. 353).

## **2.4 The Relationship between Knowledge Management, Innovative Culture, and Organizational Citizenship Behavior**

Knowledge Management (KM) involves the processes of: generating, sharing, and using knowledge by individuals to allow tangible and intangible innovations to be achieved. However, these innovations are affected by the culture of the organization and depend heavily on personal interaction and participation (Donate & Guadamallas, 2010, pp. 83-84), from this standpoint, the

major role of citizenship behavior has emerged. Much research has shown that organizations that encourage Organizational Citizenship Behavior (OCB) possess a culture characterized by a spirit of teamwork, cooperation, and great motivation, which creates a work environment conducive to unleashing innovations based on altruism and love for others (Geus, Ingrams, Tummers, & Pandey, 2020, p. 267). Organizations that promote tacit knowledge sharing behaviors allow for the exchange of experiences, creating a culture in which individuals voluntarily submit innovative ideas without the need for incentives (Podsakoff, MacKenzie, & Bachrach, 2000). Based on this, it can be said that integrating (OCB) with (KM) contributes to enhancing the Innovative Culture (IC).

### **3. Methodology**

#### **3.1 Population and Sampling:**

The population of this study consists of all professors working at the Faculty of Economic, Commercial and Management Sciences affiliated with the largest university in Algeria, which is the University of Algiers 3, numbering (N=800) male and female professors. A simple random sample of 200 individuals was selected and the electronic questionnaire was distributed to it. 150 professors responded, and a response rate of 75% was achieved. After deleting the missing data, the final sample of 145 was used for analysis. Structural Equation Modeling (SEM) was used in the analysis process of the collected data (Smart PLSV.23).

#### **3.2 Instrumentation:**

A comprehensive review of the literature pertaining to knowledge management (KM), organizational citizenship behavior (OCB), and Innovative Culture (IC) was conducted. The study instruments comprised:

- A Knowledge Management Questionnaire consisting of 9 items (KM1-KM9), adapted from the work of Jenny Darroch (2003). Example item: "Administrators provide an open environment to help faculty acquire new knowledge".
- An Organizational Citizenship Behavior Scale, measured using 11 items (OCB1-OCB11) based on the instrument developed by Organ (1988). Example item: "I consider myself part of the university and view my departmental colleagues as my 'second family'".
- An Innovative Culture Scale comprising 7 items (IC1-IC7), derived from the questionnaire by Dobni (2008). Example item: "Administrators share information with all relevant stakeholders within the university".

Responses for all scales were recorded using a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). This scale format was employed to provide respondents with greater flexibility in expressing their level of agreement.

**4. Results:** Structural Equation Modeling (SEM) was employed to analyze the data and present the hypothesis testing results.

#### 4.1 Description of the studied sample:

**Table 2: Personal Data of the Study Sample**

| Characteristic   | Category            | Frequency | Percentage% |
|------------------|---------------------|-----------|-------------|
| gender           | Male                | 65        | 44.8        |
|                  | Female              | 80        | 55.2        |
| Age              | < 35 years          | 70        | 48.3        |
|                  | 36-45 years         | 55        | 37.9        |
|                  | > 46 years          | 20        | 13.8        |
| Years of Service | < 5 years           | 68        | 46.9        |
|                  | 6-15 years          | 60        | 41.4        |
|                  | < 16 years          | 17        | 11.7        |
| Academic Rank    | Assistant Professor | 83        | 57.2        |
|                  | Associate Professor | 40        | 27.6        |
|                  | Full Professor      | 22        | 15.2        |

Note :N=145

The results of Table 2 showed that the majority of the sample members were female (n=80), that their ages were less than 35 years (n=70), that their years of service did not exceed 5 years (n=68), and that they possessed the rank of assistant professor (n=83)

**4.2 Measurement Model Assessment:** Its aim is to ensure the reliability and credibility of variables and their indicators.

##### 4.2.1 Convergent Reliability and Validity of the Measurement Model:

**Table 3: Internal consistency reliability and convergent validity**

| Constructs                          | Items | Loading | CR    | AVE   |
|-------------------------------------|-------|---------|-------|-------|
| Knowledge Management                | KM1   | 0.628   | 0.943 | 0.624 |
|                                     | KM10  | 0.875   |       |       |
|                                     | KM2   | 0.800   |       |       |
|                                     | KM3   | 0.772   |       |       |
|                                     | KM4   | 0.794   |       |       |
|                                     | KM5   | 0.826   |       |       |
|                                     | KM6   | 0.855   |       |       |
|                                     | KM7   | 0.717   |       |       |
|                                     | KM8   | 0.747   |       |       |
|                                     | KM9   | 0.850   |       |       |
| Organizational Citizenship Behavior | OCB1  | 0.691   | 0.898 | 0.547 |
|                                     | OCB2  | 0.598   |       |       |
|                                     | OCB3  | 0.724   |       |       |
|                                     | OCB4  | 0.542   |       |       |
|                                     | OCB5  | 0.651   |       |       |
|                                     | OCB6  | 0.643   |       |       |
|                                     | OCB7  | 0.615   |       |       |
|                                     | OCB8  | 0.663   |       |       |
|                                     | OCB9  | 0.621   |       |       |
|                                     | OCB10 | 0.777   |       |       |
|                                     | OCB11 | 0.787   |       |       |
| Innovation Culture                  | IC1   | 0.810   | 0.926 | 0.643 |
|                                     | IC2   | 0.787   |       |       |
|                                     | IC3   | 0.845   |       |       |
|                                     | IC4   | 0.811   |       |       |
|                                     | IC5   | 0.851   |       |       |
|                                     | IC6   | 0.729   |       |       |

|  |     |       |  |  |
|--|-----|-------|--|--|
|  | IC7 | 0.776 |  |  |
|--|-----|-------|--|--|

Notes: CR=Composite Reliability, AVE=Variance Extracted.

The reflective measurement model outlines strong psychometric qualities across all three latent constructs. Knowledge Management demonstrates remarkable internal consistency (Composite Reliability [CR] = 0.943) and convergent validity (Average Variance Extracted [AVE] = 0.624) with all indicator loadings (0.628–0.875) above the 0.50 threshold. Organizational Citizenship Behavior retains high reliability (CR = 0.898) with acceptable convergent validity (AVE = 0.547) supported by loadings from 0.542 to 0.787. Innovative Culture shows particularly strong measurement characteristics with exceptional reliability (CR = 0.926), good convergent validity (AVE = 0.643), and high loadings (0.729–0.851). All constructs meet the foundational psychometric criteria (CR > 0.70; AVE > 0.50) (Chin, 1998)( Hair Jr, Black, Babin, & Anderson, 2014)(Richter, Cepeda, Roldán, & Ringle, 2016), confirming sufficient reliability and convergent validity for structural analysis. These findings suggest low measurement error and coherent theoretical construct definitional operationalization.

#### 4.2.2 Discriminant Validity of the Measurement Model:

Through the differential reliability of the measurement model, it is verified that the indicators that measure a certain latent variable do not measure another latent variable, and to evaluate the differential reliability, **Fornell-Larcker criterion** is relied upon, as shown in Table 4.

**Table 4: Discriminate Validity (Fornell-Larcker Criterion)**

|                                          | KM           | OCB          | IC           |
|------------------------------------------|--------------|--------------|--------------|
| Knowledge Management(KM)                 | <b>0.790</b> |              |              |
| Organizational Citizenship Behavior(OCB) | 0.441        | <b>0.668</b> |              |
| Innovative Culture(IC)                   | 0.763        | 0.441        | <b>0.802</b> |

The evaluation results for discriminant validity using Fornell and Larcker's criterion are displayed in Table 4 (Fornell&Larcker, 1981). The diagonal values, which are the square roots of the Average Variance Extracted (AVE) for KM, OCB, and IC, are 0.790, 0.668, and 0.802 respectively. These measurements exhibit internal consistency. Furthermore, all off-diagonal inter-construct correlations that intersect with these rows and columns were surpassed, including the notable highest cross-loadings of KM-OCB (0.441), KM-IC (0.763), OCB-IC (0.441). These findings confirm that each construct measures more variance with its indicators than with other constructs, thus supporting distinctiveness of the measures and confirming adequate discriminant validity against the measurement model.

#### 4.3 Structural Model and Hypotheses Testing:

To evaluate the relationships assumed in the structural model and test hypotheses for the extent to which the independent variable is able to predict the dependent variable and the extent of the influence of the intermediate variable on various relationships, the criterion ( $f^2$ ,  $R^2$ ) is relied upon, as well as the statistical significance of the direct and indirect path coefficient.

**Table 5: The Result Of  $R^2$  and  $F^2$** 

| Latent Constructs                   | $R^2$ | R Square Adjusted | $F^2$ | Effect Size   |
|-------------------------------------|-------|-------------------|-------|---------------|
| Knowledge Management                |       |                   | -     | -             |
| Organizational Citizenship Behavior | 0.194 | 0.189             | 0.241 | <b>Medium</b> |
| Innovative Culture                  | 0.596 | 0.591             | 0.993 | <b>Large</b>  |

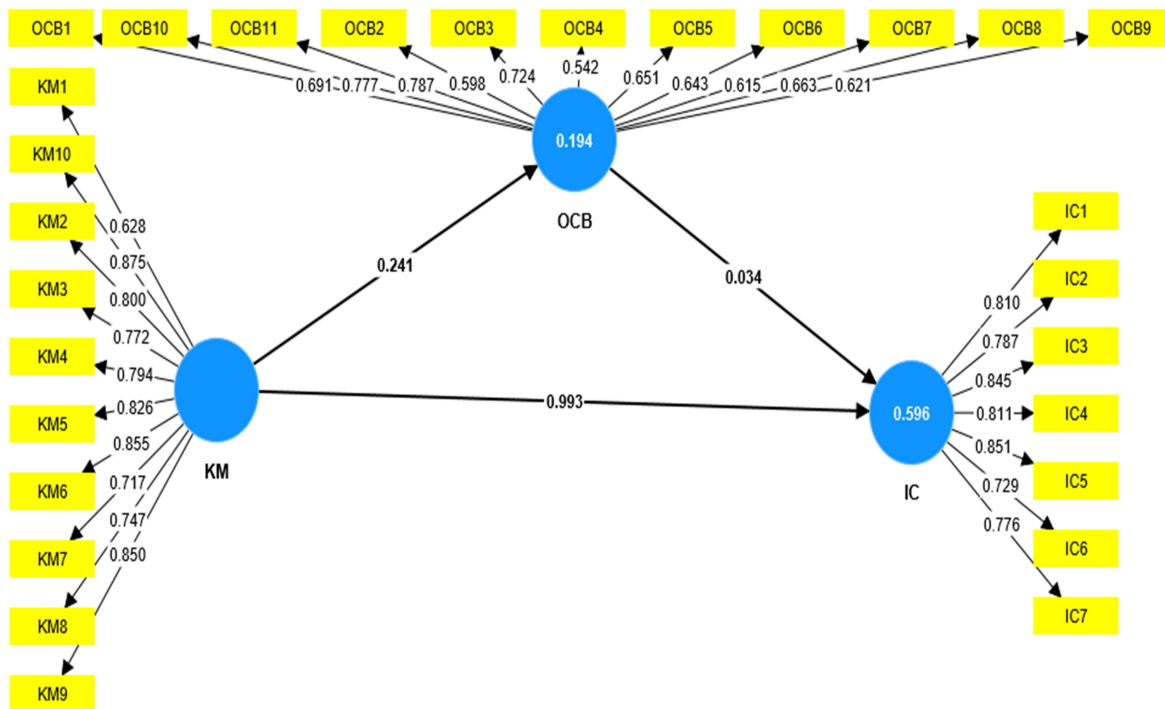
**Note:** Knowledge Management= independent variable, Organizational Citizenship Behavior= mediator, Innovative Culture= dependent variable.

Table 5 reports the coefficient of determination ( $R^2$ ) and Cohen's  $f^2$  effect size metrics for the latent constructs within the structural equation model. For the mediating endogenous construct, Organizational Citizenship Behavior (OCB), the  $R^2$  value is 0.194 (Adjusted  $R^2$  = 0.189). This indicates that the antecedent variable(s) in the model – specifically, Knowledge Management (KM) as the exogenous variable – collectively account for approximately 19.4% of the variance in OCB. The remaining variance (80.6%) is attributable to factors not specified within the current model. The corresponding  $f^2$  effect size of 0.241 signifies a moderate local effect, consistent with Cohen's conventions, suggesting KM exerts a substantively meaningful, though not dominant, influence on OCB.

For the ultimate endogenous construct, Innovative Culture (IC), the  $R^2$  value is 0.596 (Adjusted  $R^2$  = 0.591). This demonstrates that the specified antecedent variables – KM (acting both directly and indirectly) and OCB (as the mediator) – collectively explain approximately 59.6% of the variance in IC. The residual variance (40.4%) stems from unmodeled exogenous factors. The  $f^2$  effect size of 0.993 indicates a large local effect, substantially exceeding Cohen's benchmark for large effects ( $f^2 \geq 0.35$ ). This confirms that the combined influence of KM and OCB, as modeled within this nomological network, exerts a substantial and practically significant impact on fostering Innovative Culture.

**Figure 2: Outer Model**

***The Impact Of Knowledge Management On Enhancing The Innovative Culture Of University Professors, The Mediating Role Of Organizational Citizenship Behavior, A Field Study At The University Of Algiers 3***



Source: based on the outputs of Smart PLS

**Table 6: Hypotheses Testing Results**

| Hypotheses | Path                                  | $\beta$ | T Statistics | P-value | CI    |       | Results       |
|------------|---------------------------------------|---------|--------------|---------|-------|-------|---------------|
|            |                                       |         |              |         | LL    | UL    |               |
| H1         | KM $\rightarrow$ IC                   | 0.706   | 13.870       | 0.000** | 0.599 | 0.801 | Supported     |
| H2         | KM $\rightarrow$ OCB                  | 0.441   | 7.559        | 0.000** | 0.344 | 0.573 | Supported     |
| H3         | OCB $\rightarrow$ IC                  | 0.130   | 2.072        | 0.038*  | 0.013 | 0.262 | Supported     |
| H4         | KM $\rightarrow$ OCB $\rightarrow$ IC | 0.057   | 1.848        | 0.065   | 0.005 | 0.128 | Not Supported |

Note: KM=Knowledge Management, IC= Innovative Culture, OCB=Organizational Citizenship Behavior, CI=Confidence Interval, \*\*  $p < 0.01$ , \*  $p < 0.05$

The above table summarizes the results of the hypothesis tests with the following criteria for significance: absolute t-value  $> 1.96$ , p-value  $< 0.05$ , and a 95% confidence interval (CI) excluding zero. The results are as follows:

**Direct Effects:**

- Hypothesis 1 (H1) postulated that Knowledge Management (KM) influences an Innovative Culture (IC). The path coefficient ( $\beta$ ) is 0.706, with T-statistics (13.870) supporting strong significance at the .01 level (p-value  $< 0.01$ ). The confidence interval (CI) is 0.599 to 0.801. Thus, **H1 is confirmed**.
- Hypothesis 2 (H2) postulated that Knowledge Management (KM) affects Organizational Citizenship Behavior (OCB). The path coefficient ( $\beta$ ) is 0.441 and is significant at the .01 level

(p-value < 0.01) as shown by T-statistics of 7.559. CI of 0.344 to 0.573 supports this. Thus, **H2 is confirmed.**

- Hypothesis 3 (H3) postulated that Organizational Citizenship Behavior (OCB) impacts Innovative Culture (IC). The path coefficient ( $\beta$ ) is 0.130 which has significance at .05 level (p-value < 0.05) with T-statistics of 2.072. CI of 0.013 to 0.262 confirms this. Thus, **H3 is confirmed.**

#### ✚ Indirect Effect (Mediation):

Hypothesis 4 (H4) evaluates the relationship between Knowledge Management (KM), Organizational Citizenship Behavior (OCB), and Innovative Culture (IC). The path coefficient ( $\beta$ ) of 0.057 along with T-statistics of 1.848 indicates a non-significant result (p-value > 0.05). The confidence interval (CI) spans from 0.005 to 0.128. Since the CI contains zero, this suggests **H4 is not supported.**

### 5. Analysis of Results:

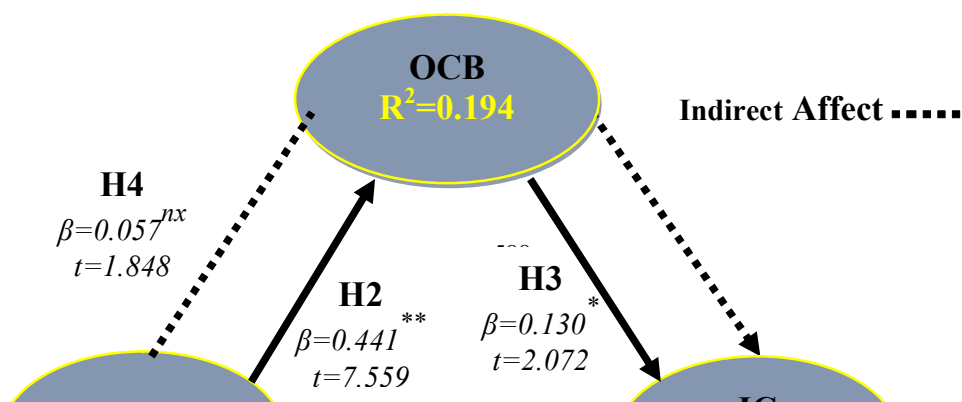
The results showed that there is an impact of knowledge management on enhancing innovative culture. This means that interest in knowledge management allows the exchange of information and experiences through its processes, whether explicit or implicit, which results in a kind of cooperation between professors to learn from each other, as well as creating an innovative environment in which professors apply their new ideas. Through experience and fearlessness.

The results also showed that there is an impact of knowledge management on organizational citizenship behavior, and this can be explained by the fact that organizational citizenship behavior is based on voluntary behaviors that emanate from the person himself to carry out the correct actions, and therefore the knowledge with which this work is managed and accomplished must be available. On the other hand, when there is effective knowledge management that allows professors to access information quickly, professors develop a kind of enthusiasm that makes them adopt positive behaviors that go beyond their official duties.

#### 5.1 Analysis of the Mediating Role of OCB:

To analyze the mediating role of organizational citizenship behavior between Knowledge Management (KM) and Innovation Culture, the procedure proposed by (Hair Jr, Matthews, Matthews, & Sarstedt, 2017) was used. Bootstrapping was performed with 5,000 resamples to test the significance of the indirect effect. The method of Preacher and Hayes (2008) was used to draw relationships between the study variables. The indirect effect results shown in Table 6 showed that organizational citizenship behavior does not mediate the relationship between knowledge management (KM) and Innovation Culture.

Figure 3 :Structural Model



Note: ns, non-significant, \*\*  $p < 0.01$ , \*  $p < 0.05$

## 6. Conclusion:

In conclusion, it can be said that Organizational Citizenship Behavior (OCB) contributes to establishing the principles of innovation culture by promoting open communication and cooperation between professors to transfer and exchange knowledge and increase trust and a sense of collective responsibility among them. Therefore, it is essential that universities and every higher education institution recognize and encourage the importance of (OCB) as a way to cultivate a culture of innovation that is based on Knowledge Management (KM), moving the university towards continuous improvement and adaptation to changing educational needs. From the above we can make the following recommendations:

- It is essential to pay attention to knowledge management without neglecting any of its processes, from knowledge generation to sharing and storing it by: creating digital platforms to generate ideas collaboratively, using artificial intelligence to generate knowledge proactively. Because failure to implement these processes makes knowledge management lose its purpose.
- Providing an environment that encourages innovation by establishing policies and incentive systems that promote knowledge exchange, such as: awards for every creator, intellectual property protection, and tax exemptions for research centers and laboratories, all of which would enhance positive organizational behavior among professors.
- Linking the university to the economic environment so that there is support for innovative ideas within the university by companies and institutions to transform them into actual products and services, such as: establishing an idea incubator to support the transformation of research into emerging projects and working to accompany them during the implementation period.
- Providing the necessary infrastructure to facilitate knowledge exchange and cooperation between universities, at the local and international levels, within the framework of partnership agreements, by: employing experts to transfer expertise, and establishing international digital platforms as spaces for knowledge cooperation.

## 7. Study Limitations and Future Research Directions:

This study aimed to develop a theoretical model consisting of three variables that aims to highlight the role of Knowledge Management (KM) in promoting Innovative Culture through the mediating role of Organizational Citizenship Behavior (OCB). This relationship was tested in a field study and supported by the theoretical aspect through the literature that dealt with this topic. However, the current model did not reach clear results highlighting how organizational citizenship behavior contributes to enhancing the culture of innovation through knowledge management. However, it was able to prove the contribution of KM in enhancing both innovative culture and OCB, but future research can test the assumed model in other environments. Other intermediate variables can be added, such as: proactive behavior, leadership, Organizational agility and other variables that have a significant impact in an unstable environment.

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