Unveiling the Crucial Role of Tacit Knowledge in Shaping Competition Within Mexican Higher Education Institutions

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Abstract

This study relied on a quantitative approach and used a questionnaire to gather data on elements of tacit knowledge in the university environment. The results revealed that promoting values such as peace education and respect are fundamental to the development of tacit knowledge. Additionally, it was observed that the importance of collaboration and organizational wisdom in generating tacit knowledge, as well as the relevance of teachers' technical skills, are significant factors. In conclusion, there is a need to establish channels to adequately identify tacit intangible assets in universities. It has also been suggested that a knowledge management unit can be highly useful for this purpose. It is emphasized that developing capabilities for the externalization of knowledge is essential to fully harness the potential of tacit knowledge in the university environment.

Keywords:

Tacit Knowledge, Universities, Competitiveness.

Introduction

The value of knowledge is widely accepted by academics who focus on research (Chiu & Chen, 2016). For a long time, the development of epistemological concepts centered on understanding cognitive assets has fostered increased engagement with the environment and, above all, greater awareness of elements of reality. According to many pioneers in cognitive research, the process of knowledge acquisition must leverage its fundamental components to be more functional, utilizing past experiences, values formed within the organization, and individual skills (Moloud, 2024).

In the field of knowledge management, there has been significant focus on how organizations can harness knowledge for their benefits (Rubenstein-Montano et al., 2001). This perspective originates from Michael Polanyi's idea that the use of personal experiences within an organization stimulates the growth of cognitive processes (Greenhalgh & Long, 2008). Polanyi (1966) proposed the notion that "We know more than we can tell," meaning that individual experience enriches organizational knowledge in such a way that empirical processes can be carried out that cannot be described in detail (Davenport & Prusak, 1998).

In this context, based on the development of understanding knowledge within organizations and the importance of what is known as cognitive empiricism, it became possible to conceptualize tacit knowledge, which is fully linked to personal experience and practice within organizations (Pérez-Fuillerat et al., 2019).

It is revolutionary to identify the immateriality of knowledge and establish criteria that break with existing paradigms in longstanding conceptualizations, some of which have persisted for centuries (Pope, 2003). The new distinction of epistemic elements, specifically those that make up tacit knowledge, allows for the translation of theory into new concepts and ideas (Nonaka, 1994), thereby promoting continuous learning and effective implementation of individual experiences to address organizational challenges.

In Mexican universities and higher education institutions worldwide, the main mission is to transmit knowledge (Alves & Pinheiro, 2022). However, the university has ceased to be a place for contemplation about the universe and has become a complex, demanding, and competitive business, which necessitates maximizing the utilization of elements such as tacit knowledge, despite the difficulty of its identification, as its nature is the understanding of the environment from the social to the individual's basic needs (Blackman & Kennedy, 2009). Thus, implicit knowledge becomes an effective and efficient resource when used as part of a management strategy (NooriSepher & Keikavoosi-Arani, 2019).

The purpose of this research is to analyze the elements that constitute tacit knowledge and their influence on the competitive position of Mexican universities based on a section of a knowledge management and competitiveness model.

Through a quantitative approach and the application of change elements, as well as through a theoretical framework that establishes the criteria to be analyzed and identified, a functional research type is established based on a literature review to establish search criteria in the real environment. Thus, the generated document has the potential to establish relationships between the existing variables and determine their level of influence.

Theoretical Framework

Universities are essential institutions for the creation, development, exchange, storage, and dissemination of knowledge through their internal activities such as teaching, research, and social engagement (Pham et al., 2022). Using knowledge management elements, it is possible to enhance organizational performance and yield greater benefits at each stage (Yohanitas et al., 2023).

The objective of employing cognitive elements is to have the capacity to gather information directly from experts, while also maximizing the use of everyday resources that bring about direct changes in the organization's thinking and actions (Bougoulia & Glykas, 2022). According to Nonaka (1994), this utilization can be integrated into organizational dynamics such that the generation of usable elements for daily operations directly benefits every member of the organization. However, in most cases, this process tends to be organic and subtle; therefore, individuals may not necessarily be aware of its generation and use.

From an analytical perspective, knowledge that possesses these characteristics is referred to as tacit knowledge (Miton & DeDeo, 2022). Its conceptualization, as known today, can be attributed to the work of Polanyi (1958), in which he discusses the challenge of identifying and developing its fundamental components. This serves as the foundation for contemporary authors and their cognitive perspective on the concept, in which the individual becomes the focus for the development of cognitive experiences, through which elements of their experience become tangible, enabling them to adapt to the organization's environment (Gourlay, 2002).

Tacit knowledge can be described as instinctual (Schachtner, 2007) and can become a tool that generates predominantly subtextual language, enhancing an individual's ability to perceive changes in the environment and minimize potential issues. In other words, individuals who produce tacit knowledge tend to be somewhat more analytical and, to some extent, more rational (Schilcher 2009). Furthermore, the dissemination can be maximized through informal meetings among group members, transmitting a wealth of experience and interpersonal skills (Ladinig & Vastag, 2021).

Thus, innovative processes, sources of creativity, and an understanding of the organization's daily life are the outcomes of the distinctive qualities of tacit knowledge (Von Krogh et al., 2000). These elements contribute to change and continuous improvement, and have a high capacity for knowledge-producing institutions, such as universities.

Tacit Knowledge in Higher Education Institutions.

Tacit knowledge within organizations offers an opportunity to enhance administrative processes by maximizing human elements (Sun & Scott, 2005). This is evident in universities and educational institutions in general, where the role of tacit knowledge is clearly identified and in the consolidation process (Alves & Pinheiro, 2022). This facilitates much more efficient observation of continuously generated knowledge, thereby promoting changes that improve organizational autonomy and thought connectivity (Suwanda et al., 2023).

Although, in essence, cognitive development in universities should primarily focus on explicit, in reality, there are elements produced that remain anonymous, and in some cases, those that manage to come to light are fundamentally in the early stages of development, so formality is not necessarily evident in their dissemination.

Efficient articulation of specialized knowledge is a highly challenging task. For university professors and students, realities can be objectively different; therefore, a minimally processed, highly tacit cognitive element presents an interpretation that is not obvious to an inexperienced individual. Consequently, professors may arrive at conclusions that are significantly different from those made by learners (Perkins, 2006).

This perspective is not surprising; it is simply a necessary part of the reality inherent in human knowledge, where knowledge transmission should align more with a recorded fact than with mere empirical statements.

Regardless of whether the identification of knowledge itself is a complex challenge, the university, as a producer of tacit knowledge, must focus on working as an essential scaffold to make it usable as effectively as possible. The relationship between knowledge and organizational culture itself will always be present within highly knowledge-producing institutions (Moghdam 2021). To enable this cognitive support, it is necessary to understand where the organization is heading. Therefore, leaders will have a specific role in developing appropriate policies for its management as well as those who provide knowledge to the university.

It starts with an understanding of culture and its organizational richness. Within this context, values, beliefs, symbols, and behavioral norms shape valuable cognitive patterns, making it an excellent way to establish elements born from the tacit and put them to work for the benefit of all in the institution (Hofstede, 1991). Consequently, universities will develop elements that will ultimately serve key functions in university life, both in classrooms and in administration.

Based on the above, the process strengthens each department and division of the universities in which it is implemented. In addition, it promotes the development of organizational maturity elements, which will have a positive impact on the internal system of the institution (Kavalic et al., 2021). Through this, the environment and events that produce tacit knowledge begin to lay the groundwork for its proper transmission and codification, marking the precursor to explicit knowledge and the ability to generate highly valuable factors capable of creating components of unified recognition (Venkatraman & Venkatraman, 2018).

This serves as a starting point for the development of internal competencies, as well as favoring the modeling of specific skills, which, when directly related to professional activity, can shape first-rate cognitive elements that are necessary for the creation of a sustainable and developable competitive advantage (Li et al., 2021).

Methodology

The methodological process used in the development of the present research focuses on the perspective of theoretical-documentary analysis. This method was chosen because of the phenomenology of the study and harmonious approach of the available theories in relation to secondary data. After analyzing various authors, the collection and identification of the variables and factors that compose it were carried out, and it was valuable to be able to clearly review publications that are at the forefront of knowledge (Jary & Jary, 1991; Reyes & Carmona, 2021).

In addition, the research requires analyzing elements in the reality of universities, so the acquisition of primary data has been carried out with the application of a measurement instrument created from the cognitive elements gathered in the various analyzed theories. The results were analyzed using quantitative methods. This type of analysis will confirm whether the collected data align with the proposed model using a deductive approach and establishing methodological criteria of high scientific rigor (Burns & Grove, 2005; Rahman, 2017).

According to Watkins's vision (2018), the construction of hypotheses arises from the proposed model and the possibility of analyzing it through an exploratory factor analysis. Thus, each of the factors that constitute the proposed dimensions were analyzed under this analytical principle, establishing a multivariate analysis to determine outliers, whose behavior is interesting because they have broad explanatory value for Mexican universities and their approach to tacit knowledge. Therefore, the variables that received a positive evaluation were noteworthy for the appropriate development of the proposed theoretical application (Yong & Pearce, 2013).

To complement the specific description of the instrument, each of the developed items used a Likert scale. This scale was chosen because of its ease of response by the study participants and the level of processing it can achieve through multivariate analysis, favoring the establishment of reliable ordinal patterns. Simultaneously, the scale can provide a clear and concise approach based on the instrument's own responses.

The field study collected 210 surveys administered to active teachers, both part-time and full-time, who are currently working at the University of Guadalajara. This institution was selected because its university model is departmental, unlike the rest of Mexican universities, which allows for diverse responses in the questionnaire.

Similarly, the selection was based on convenience sampling.

To approach a clear measurement of organizational tacit knowledge, the items from the functional sections focusing on Organizational Values and Beliefs (OVB), derived from the theoretical framework, were taken into account. Second, Collaboration and Organizational Wisdom (COW), and finally, Technical Skills (TS). The goal is to obtain real insights into each of these elements and facilitate their identification.

Analysis of Results

To determine the feasibility of conducting a multivariate analysis of the various items of the questionnaire, we focused on items that constitute tacit knowledge. To assess the robustness of these elements, reliability analysis was performed using Cronbach's alpha as the chosen metric.

Cronbach's alpha has the distinct advantage of encompassing all possible mathematical combinations as a measure of internal consistency. This comprehensive approach allows for a clear evaluation of the coherence exhibited by each individual item, facilitating the identification of items that are most pertinent (Barbera et al., 2021).

In the analysis, a Cronbach's alpha value of 0.955 was obtained for the 18 elements of tacit knowledge. Based on this result, it can be confidently asserted that the theoretical elements effectively served their purpose in primary data collection, rendering the outcome highly satisfactory.

There are two implications of this result. First, it suggests that subsequent analyses will be of significance, and second, it anticipates a high level of precision. Consequently, the proposed model for tacit knowledge is expected to maintain appropriate relevance, extending beyond the confirmatory analyses of the exploratory phase. For the forthcoming values, tables displaying the output of various factorial analyses are presented, utilizing the three dimensions outlined in the methodology.

Table 1: Pure Values of the Factorial Model - Organizational Values and Beliefs Variable. Collaboration and Organizational Wisdom

Peace Education (OVB4)	**0.812**		
Respect (OVB5)		0.792	
Responsability (OVB6)		0.770	
Solidarity (OVB3)		0.728	
Equality (OVB2)			0.667
Justice (OVB1)			0.631

Source: Self elaboration with data from recollection instrument.

The data presented in Table 1 reveal that the values obtained in the exploratory factorial model establish the primary criterion for organizational values as the need to promote peace education among university members. This is primarily because of the current necessity for universities to establish criteria regarding inclusion and respect for human rights. Additionally, it can be observed that the factors of Respect, Responsibility, and Solidarity are considered intermediate, indicating that these values are already being practiced by members of the organization. In this regard, many specific actions may contribute to tacit knowledge in a purely empirical manner.Furthermore, the issue of equality and justice, in which virtually all practices are identified as tacit, raises concerns.

This situation may have consequences if actions are not taken to harness and maximize the knowledge generated outside the established elements.

Table 2: Pure Values of the Factorial Model – Collaboration and Organizational Wisdom.

Collaboration and Organizational Wisdom		
Academic Suggestions (COW1)	**0.701**	
Collective Necesitties (COW2)	**0.777**	
Collective Knowledge Facilitations (COW3)	**0.731**	
Forums (COW4)		0.669

Source: Self elaboration with data from recollection instrument.

Regarding the information presented in Table number 2, the elements of collaboration and organizational wisdom are divided into two distinct groups. The first group includes academic suggestions, collective needs, and the facilitation of collective knowledge. These three aspects promote the development of tacit knowledge through personal experience.

On the other hand, forums, even though their results may not be satisfactory in terms of analysis, can still provide a certain level of tacit knowledge. The issue lies in the improper retention of this knowledge, which hinders its genuine growth.

Lastly, a table is created for the factorial model of technical skills, in which elements related to professors are assessed based on two criteria: their own personal experience in the professional field and the training offered by the university, and its impact on their role as educators.

Table 3: Pure Values of the Factorial Model – Technical Skills.

Technical Skills			
Professional Experience (TS1)	0.917		
Teach Experience (TS2)	0.906		
Academic Capabilities (TS3)		0.884	
Professional Capabilities (TS4)		0.801	
Freedom of Teaching (TS5)			0.595

Source: Source: Self elaboration with data from recollection instrument.

Table 3 illustrates that the specific values of professional and teaching experience–in other words, pedagogy itself–constitute the most relevant elements of technical skills for the formation of tacit knowledge. Through these elements, it becomes possible to convey to students the knowledge acquired from both realms and to refine it over time.

In terms of academic and professional abilities, which comprise group two, the reality is that they are in an intermediate position, and it is necessary to provide essential training to promote cognitive facilitation.

in addition, it is evident that academic freedom is not a determining factor, as expected, since the item refers to the university's capacity to allow thematic content to be taught from a comfortable perspective for the teacher. However, this is not necessarily an activity that promotes the development of tacit knowledge.

Conclusions

The analysis carried out and presented based on the tables obtained from the statistical software was used to examine the factors that comprise the dimension known as Tacit Knowledge. First, it has led to the conclusion that knowledge produced through experience and everyday life indeed plays a crucial and essential role as a precursor to the competitive development of Mexican universities. Second, it is understood from the analyzed dimensions that there is a clear and significant challenge that requires key attention to further its development. Thus, if an approach is generated with a focal point that demonstrates that there are aspects that can be harnessed to develop a pattern of tangibility, in addition to being very specific in their function, it becomes possible to maximize the capabilities of individuals, particularly those within the exchange environment, and thus achieve externalization of knowledge. Based on the contextualization of the environment in which the results were obtained, it is evident that there is an imperative need to establish channels for the proper identification of tacit intangible assets. For universities, as thinking organizations, it is highly relevant to establish administrative criteria for managing existing knowledge, and even more so to harness the knowledge that everyday experiences provide to individuals.

In practice, a knowledge management unit can be of great use for this purpose. The department in question should take a leading role in the development of formal knowledge within the university and its stakeholders, primarily assisting in the identification and preservation of tacit knowledge. A specialized unit will provide specific tools for the precise use and transmission of knowledge.

Therefore, competitive precursors do not arise from visible knowledge but from the knowledge hidden in the depths of the mind of each individual who grows within the country's universities. The main challenge lies in developing capabilities for the externalization of knowledge and the diligent pursuit of direct promotion for the growth of tacit knowledge.

References

Alves, R. B. C., & Pinheiro, P. (2022). Factors Influencing Tacit Knowledge Sharing in Research Groups in Higher Education Institutions. *Administrative Science*, 12, 89-102. https://doi.org/10.3390/admsci12030089

Barbera, J., Naibert, N., Kompereda, R., & Pentecost, T. C. (2021). Clarity on Cronbach's Alpha Use. *Journal of Chemical Education,* 98(2), 257-258. https://doi.org/10.1021/acs.jchemed.0c00183

Blackman, D., & Kennedy, M. (2009). Knowledge management and effective university governance. Journal of Knowledge Management, 13(6), 547-563. https://doi.org/10.1108/13673270910997187

Bougoulia, E., & Glykas, M. (2022). Knowledge management maturity assessment frameworks: A proposed holistic approach. Knowledge and process management, 1, 1-32. https://doi.org/10.1002/kpm.1731

Burns, N., & Grove, S. K. (2004). *Investigación en enfermería* [Understanding Nursing Research] (S. L. EDIDE Trans.). (Versión en español de la 3ª edición de la obra original en inglés ed.). Madrid: Elsevier.

Chiu, C. N., & Chen, H. H. (2016). The study of knowledge management capability and organizational effectiveness in Taiwanese public utility: the mediator role of organizational *commitment. Springer Plus*, 5(1), 1-34. https://doi.org/10.1186/s40064-016-3173-6

Davenport, T. H., & Prusak, L. (1998). Working knowledge: *How organizations manage what they know*. Boston, MA: Harvard Business School Press.

Gourlay, S. (2002) Tacit knowledge, tacit knowing, or behaving? In: 3rd *European Organizational Knowledge, Learning and Capabilities Conference*, Athens, Greece, 5–6 April 2002, pp. 1–24.

Greenhalgh, F., & Long, T. (2008). Tacit and encoded knowledge in the use of standardized outcome measures in multidisciplinary team decision making: a case study of in-patient neurorehabilitation. *Social Science and Medicine,* 67, 183-194. https://doi.org/10.1016/j.socscimed.2008.03.006

Hofstede, G. (1991). Cultures and organizations: software of the mind. London: McGraw Hill. Jary, D., & Jary, J. (1991). *Collins Dictionary of Sociology*. HarperCollins, Glasgow, UK.

Kavalic, M., Stanisavljev, S., Mirkov, S., Rajkovic, J., Stojanovic, E. T., Milosavljev, D., & Nikolic, M. (2021). Modeling knowledge management for job satisfaction improvement. *Knowledge and Process Management: The Journal of Corporate Transformation*, 30(2), 176-190. https://doi.org/10.1002/kpm.1721

Ladinig, T. B., & Vastag, G. (2021). Mapping quality linkages based on tacit knowledge. *International Journal of Production Economics, 233,* 1-14. https://doi.org/10.1016/j.ijpe.2020.108006

Li, G., Yuan, C., Kamarthi, S., Moghaddam, M., & Jin, X. (2021). Data science skills and domain knowledge requirements in the manufacturing industry: A gap analysis. *Journal of Manufacturing Systems,* 60, 692–706. https://doi.org/10.1016/j.jmsy.2021.07.007

Miton, H., & DeDeo, S. (2022). The cultural transmission of tacit knowledge. *Journal of the Royal Society Interface,* 19(195), 3-17. https://doi.org/10.1098/rsif.2022.0238

Moghdam, R. K., Tavakoli, A. M., Salajagheh, S., & Kamali, M. (2021). Comparative cultural factors and knowledge management and desirable proposal (Applied study: public and private banks of Khorasan Razavi province). *Educational Practices and Teacher Training*, 9(1), 876-882. http://dx.doi.org/10.20511/pyr2021.v9nSPE1.876

Moloud, M. (2024). Digital information literacy, self-directed learning, and personal knowledge management in critical readers: Application of IDC Theory. *Research and Practice in Technology Enhanced Learning*, 19(4), 1-26. https://doi.org/10.1186/s40064-016-3173-6

Nonaka, I. (1994). A Dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), 14–37. https://doi.org/10.1287/orsc.5.1.14

NooriSepehr, M., & Keikavoosi-Arani, L. (2019). The relationship between effective factors on knowledge sharing among faculty members of Alborz University of Medical Sciences. *Entomology and Applied Science Letters*, 6(2), 24-32.

Pérez-Fuillerat, N., Solano-Ruiz, M. C., & Amezcua, M. (2019). Conocimiento tácito: características en la práctica enfermera. *Gaceta Sanitaria,* 33(2). 1-19. https://dx.doi.org/10.1016/j.gaceta.2017.11.002

Perkins, D. N. (1991). What constructivism demands of the learner. *Educational Technology,* 31(9), 19-21.

Pham, H. H., Nguyen, T. T. H., Nguyen, V. T., Nguyen, V. M., Cong, T. P., Vu, M. C., Do, T. N., Kim, M. W., & Tran, N. (2022). The impacts of knowledge management enablers and knowledge management processes on university performance in Vietnam. *Knowledge Management Research & Practice*, 21(3), 512-524. https://-doi.org/10.1080/14778238.2022.2105758
Polanyi, M. (1958). *Personal knowledge.* London: Routledge and Kegan Paul.

Polanyi, M. (1966). *The tacit dimension.* Chicago: University of Chicago Press.

Pope, C. (2003). Resisting evidence: the study of evidence-based medicine as a contemporary social movement. *Health,* 7(3), 267-282. https://doi.org/10.1177/1363459303007003002

Rahman, M. S. (2017). The Advantages and Disadvantages of Using Qualitative and Quantitative Approaches and Methods in Language "Testing and Assessment" Research: A Literature Review. *Journal of Education and Learning*, 4(1), 102-112. https://doi.org/10.5539/jel.v6n1p102

Reyes, L., & Carmona, F. A. (2020). *La investigación documental para la comprensión ontológica del objeto de studio* (Universidad Simón Bolívar: Barranquilla, Colombia).

Rubenstein-Montano, B., Liebowitz, J., Buchwalter, J., McCaw, D., Newman, B., & Rebeck, K. (2001). A system thinking framework for knowledge management. *Decision Support Systems,* 31(1), 5-16. https://-doi.org/10.1016/S0167-9236(00)00116-0

Schachtner, C. (2007). Knowledge and Experience: Requirements for Computer-Based Learning Taking a Paper Mill as an Example. *International Journal of Technology, Knowledge and Society*, 2(6), 75-82. https://-doi.org/10.18848/1832-3669/CGP/v02i06/55645

Schilcher, C. (2009). Tacit knowledge and storytelling. *In Proceedings of The 13th World Multi- Conference on* Systemics, *Cybernetics and Informatics*, 150-154.

Sun, P., & Scott, J. L. (2005). An Investigation of Barriers to Knowledge Transfer. *Journal of Knowledge Management*, 9(2), 75-90. https://doi.org/10.1108/13673270510590236

Suwanda, D., Suryana, D., Suherman, U., Nadhirah, N. A., Dahlan, T. H., & Ahmad, A. B. (2023). Effect of Tacit Knowledge on Student Self-Determination in Indonesia: A Mixed-Methods Study. *Education Research International,* 1-9. https://doi.org/10.1155/2023/6122547

Venkatraman, S., & Venkatraman, R. (2018). Communities of practice approach for knowledge management systems. *Systems*, 6(4), 1-20. https://doi.org/10.3390/systems6040036.

Von Krogh, G., Ichijo, K., & Nonaka, I. (2000). *Enabling Knowledge Creation: How to Unlock the Mystery of Tacit Knowledge and Release the Power of Innovation.* Oxford University Press.

Watkins, M. W. (2018). Exploratory factor analysis: a guide to best practice. *Journal of Black Psycology, 44*(3), 219-237. https://doi.org/10.1177/0095798418771807

Yohanitas, W. A., Amadhan, A., Pribadi, M. A., Fahrani, N. S., Syah, R. F., Andreani, S., Sudardi, S., Nugroho, A. A., Azmi, I. F., & Nurjannah, A. (2023). The Development of Innovation Knowledge Management System in Tangerang Regency. *Lex Localis - Journal of Self-Government*, 21(3), 637- 664. https://-doi.org/10.4335/21.3.637-664(2023)

Yong, A. G., & Pearce, S. (2013). A beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods for Psychology*, 9(2), 79-94. https://doi.org/10.20982/tqmp.09.2.p079