02

THE UNIVERSITY PROFESSOR

AS A MEDIATOR OF KNOWLEDGE IN DIGITAL ENVIRONMENTS

ISSN: 2631-2662

THE UNIVERSITY PROFESSOR

AS A MEDIATOR OF KNOWLEDGE IN DIGITAL ENVIRONMENTS

EL DOCENTE UNIVERSITARIO COMO MEDIADOR DEL CONOCIMIENTO EN ENTORNOS DIGITALES

Esmaeil Sadri Damirchi[1]
E-mail: e.sadri@uma.ac.ir
ORCID: https://orcid.org/0000-0003-0568-052X
[1] University of Mohaghegh Ardabili. Iran.

Suggested citation (APA, Seventh Edition)

Sadri Damirchi, E. (2026). The university professor as a mediator of knowledge in digital environments. *Revista Metropolitana de Ciencias Aplicadas*, 9(1), 20-26.

Fecha de presentación: 09/21/2025 **Fecha de aceptación:** 12/04/2025 **Fecha de publicación:** 01/01/26

ABSTRACT

This article addresses the importance of the role of university professors as mediators of knowledge in digital environments, highlighting that technological transformation and digitalization have profoundly changed higher education, requiring professors to transcend the role of information transmitters to guide, contextualize, and facilitate meaningful, critical, and autonomous learning. The central objective of the study is to analyze the competencies, functions, and challenges of professors in the mediation of digital knowledge, identifying the pedagogical and technological strategies necessary for effective and inclusive learning. To this end, a qualitative and descriptive methodology is employed based on a systematic review of academic literature updated between 2020 and 2025, integrating research findings, teacher competency frameworks, and international studies on higher education, hybrid learning, and digital mediation. Among the findings and conclusions, it is emphasized that effective teacher mediation requires digital competencies, the ability to design interactive experiences, critical use of tools such as artificial intelligence and learning analytics, as well as the promotion of student autonomy, collaboration, and critical literacy. Mediation also involves an ethical and global dimension, ensuring equity, inclusion, and relevance of learning in diverse contexts. Consequently, university professors establish themselves as learning facilitators, curators of information, and designers of transformative educational experiences. Their ongoing training and ability to adapt pedagogical strategies to a digital, globalized, and ever-changing world are essential.

Keywords:

Teacher mediation, artificial intelligence, digital environments, digital skills, autonomous learning.

RESUMEN

El artículo aborda la importancia del rol del docente universitario como mediador del conocimiento en entornos digitales, destacando que la transformación tecnológica y la digitalización han cambiado profundamente la educación superior, requiriendo que los profesores trasciendan la función de transmisores de información para guiar, contextualizar y facilitar aprendizajes significativos, críticos y autónomos. El objetivo central del estudio es analizar las competencias, funciones y desafíos del docente en la mediación del conocimiento digital, identificando las estrategias pedagógicas y tecnológicas necesarias para un aprendizaje efectivo e inclusivo. Para ello, se emplea una metodología cualitativa y descriptiva basada en la revisión sistemática de literatura académica actualizada entre 2020 y 2025, integrando hallazgos de investigaciones, marcos de competencias docentes y estudios internacionales sobre educación superior, aprendizaje híbrido y mediación digital. Entre los hallazgos y conclusiones, se subraya que la mediación docente efectiva requiere competencias digitales, capacidad de diseñar experiencias interactivas, uso crítico de herramientas como inteligencia artificial y analítica del aprendizaje, así como la promoción de autonomía, colaboración y alfabetización crítica de los estudiantes. La mediación también implica una dimensión ética y global, asegurando la equidad, inclusión y relevancia del aprendizaje en contextos diversos. En consecuencia, el docente universitario se consolida como facilitador del aprendizaje, curador de información y diseñador de experiencias educativas transformadoras, siendo indispensable su formación continua y su capacidad de adaptar estrategias pedagógicas a un mundo digital, globalizado y en constante cambio.

Palabras clave:

Mediación docente, inteligencia artificial, entornos digitales, competencias digitales, aprendizaje autónomo.

INTRODUCTION

In the 21st century, higher education is facing a profound transformation driven by digitalization, the expansion of emerging technologies, and changing knowledge dynamics. In this new educational ecosystem, university professors are no longer mere transmitters of information, but rather active mediators between students, knowledge, and technology.

Teacher mediation, understood as the ability to guide, contextualize, and make sense of information in digital environments, has become an essential competency for ensuring quality, inclusive, and critical-thinking education. As Cabero-Almenara et al. (2021) point out, the contemporary teacher acts as a facilitator of learning, a designer of meaningful experiences, and a manager of knowledge in complex and changing contexts.

Digital environments have reconfigured the ways we teach and learn, expanding the possibilities for accessing knowledge beyond physical classrooms. The widespread use of online courses, the use of virtual platforms such as Moodle, Canvas, or Blackboard, and the integration of artificial intelligence and learning analytics tools have opened up new pedagogical avenues. However, this scenario requires teachers capable of guiding, selecting, and mediating between the abundance of information and the critical construction of knowledge. According to Área-Moreira et al. (2022), the mediating role of university professors lies in their ability to integrate technology with pedagogy, promoting interactive learning environments where students assume an active and reflective role in their education.

The COVID-19 pandemic clearly highlighted the irreplaceable role of teachers in digital learning. While technological platforms enabled educational continuity, the quality of learning depended largely on teachers' ability to transform their teaching strategies and provide effective mediation.

Díaz-García et al. (2022) highlight that digitization and digital transformation in higher education have generated profound changes in teaching models, learning processes, and institutional management. Their bibliometric analysis shows that the integration of digital technologies not only implies the adoption of tools but also the transformation of pedagogical practices and the restructuring of teaching roles, positioning the professor as an active mediator of knowledge. The authors emphasize that the success of this transformation depends on the professor's ability to combine digital skills, innovative pedagogical strategies, and academic leadership in a way that fosters meaningful, collaborative learning that adapts to the global demands of higher education.

The European DigCompEdu framework (Redecker, 2020) constitutes a global reference for understanding this new paradigm. This model identifies six essential areas of competence for teaching performance in digital environments: professional commitment, creation and management of digital resources, digital pedagogy, learning assessment, student empowerment, and development of students' digital competence. From this perspective, knowledge mediation does not simply consist of incorporating technology into classrooms, but rather of building a learning environment where digital media enhance students' creativity, collaboration, and intellectual autonomy. Along these lines, Olszewski & Crompton (2020) state that the main challenge of current university education is teaching how to learn in digital scenarios that are simultaneously uncertain, changing, and global.

The role of the mediating teacher also implies an ethical and critical function in the use of technologies. In a world dominated by algorithms, big data, and content generated by artificial intelligence, the teacher assumes an essential role as a curator of knowledge. Bitar & Davidovich (2024) point out that the digital revolution in higher education has transformed traditional pedagogy, demanding that teachers develop new digital competencies and student-centered pedagogical approaches. The authors highlight that knowledge mediation in digital environments requires teachers to integrate emerging technologies, design interactive and personalized learning experiences, and promote autonomy and collaboration among students. Furthermore, they emphasize that pedagogical transformation depends not only on access to digital tools, but also on the teacher's ability to adapt their educational strategies to learning needs, optimizing the effectiveness and relevance of the training process in global and highly digitalized contexts.

Pedagogical mediation in digital environments also requires strengthening interaction and the socio-emotional dimension of learning. In a global context characterized by virtuality, education must maintain its human component. Cabero-Almenara et al. (2023) consider that the digital competence of higher education students acts as a significant predictor of academic success, underscoring the importance of teachers developing mediation strategies that strengthen these skills.

In the field of global higher education, there has been a movement toward educational hybridization, where in-person and virtual models are integrated to create flexible and personalized experiences. This shift requires the instructor to be an adaptable mediator, capable of designing pedagogical strategies that combine enriched in-person learning with online learning. Recent research (Paños et al., 2024) shows that hybrid models improve student engagement and foster autonomy, provided the instructor takes an active role in managing the digital environment. In this sense, mediation is not limited to the technical management of the virtual classroom but extends to the creation of coherent pedagogical narratives, where technology is aligned with the educational objectives.

On the other hand, artificial intelligence and learning analytics are transforming the way educational mediation is conceived. AI-based tools allow for personalized teaching and immediate feedback, but their effectiveness depends on the teacher's critical interpretation of the data. Holmes et al. (2019) caution that, although automation can support formative assessment, human pedagogical judgment remains indispensable to ensuring equitable and ethical education. Consequently, the teacher mediator must assume the role of a ***reflective interface*** between technology and learning, ensuring that digital innovation serves human development.

The role of the university professor as a mediator of knowledge in digital environments is essential for building transformative and sustainable education at a global level. Their role is not limited to mastering technological tools, but to articulating knowledge, pedagogy, and technology with a critical, humanistic, and ethical perspective. In an interconnected and information-saturated world, the professor stands as a mediator between the complexity of knowledge and the meaningful experience of learning. Their role, therefore, is that of a guide of thought, a designer of experiences, and a guarantor of educational meaning in the digital age.

The objective of this article is to analyze the role of university professors as mediators of knowledge in contemporary digital environments, identifying the competencies, functions, and challenges that define their practice in a global context characterized by technological transformation and pedagogical innovation.

METHODOLOGY

This study adopts a qualitative and descriptive approach, aimed at analyzing the role of university professors as knowledge mediators in digital environments. The research is based on a systematic review of updated academic literature (2020–2025), including scientific articles, institutional reports, teaching competency frameworks, and international studies on higher education and digital mediation. Sources were selected based on criteria of relevance, timeliness, and applicability, prioritizing research that addresses experiences of pedagogical mediation in virtual and hybrid learning contexts globally. This strategy allows us to understand the most significant teaching challenges, competencies, and strategies in a context of rapid technological and educational transformation.

For data collection and analysis, a qualitative synthesis method was used, which integrates the findings of various research projects and theoretical frameworks to identify patterns, trends, and best practices in digital knowledge mediation. Specific aspects were analyzed, such as teachers' digital competencies, student interaction strategies, learning experience design, use of virtual platforms and emerging technological tools, as well as the ethical and critical dimension of educational mediation. This procedure allowed for the generation of a comprehensive overview of the role of teachers as global mediators, highlighting both the opportunities and challenges in contemporary higher education.

DEVELOPMENT

The systematic review by Platonova et al. (2022) offers a comprehensive overview of how digital environments have transformed knowledge mediation, highlighting that online learning not only requires access to technology but also critical teacher competencies to select, organize, and facilitate information in a meaningful way. The authors emphasize that teachers act as mediators between digital resources and effective learning, being responsible for guiding students in constructing knowledge and developing skills to manage information autonomously and critically. This approach demonstrates that teacher mediation goes beyond traditional instruction, integrating digital literacy and the ability to evaluate the quality of online educational resources.

Pérez-Rivero et al. (2023) point out that the COVID-19 crisis accelerated the need for digital competencies among university professors, revealing significant gaps in technological and pedagogical skills. Their study shows that knowledge mediation directly depends on the professor's level of digital competence, affecting the effectiveness of teaching strategies in virtual and hybrid environments. Furthermore, the results suggest that ongoing training and adaptation to new technologies are crucial for professors to play an active role in facilitating learning and ensuring educational quality in changing global contexts.

Wu et al. (2022) report that the effectiveness of e-learning environments is mediated by instructional design that integrates teachers' technological capabilities and constructivist learning principles. Their research shows that teachers who strategically use digital tools and promote active student participation achieve greater impacts on performance and motivation. This finding reinforces the idea that the teacher's role as a mediator is not limited to operating platforms, but rather to facilitating learning experiences that meaningfully engage students, promoting critical thinking, autonomy, and collaboration.

Dringó-Horváth et al. (2025) extend this perspective by analyzing university professors' digital competence and AI literacy, noting that factors such as gender, age, experience, and discipline modulate how professors integrate emerging technologies into their teaching practice. This study emphasizes the need to consider faculty diversity and the differentiated adaptation of mediation strategies to ensure that digital knowledge mediation is effective and equitable in global educational contexts.

Al- Riyami et al. (2023) examine faculty members' intention to adopt technologies related to the Fourth Industrial Revolution in higher education. The authors show that

faculty members' willingness to integrate new technologies depends on motivational factors, the perception of usefulness, and the availability of institutional support. This research highlights that effective knowledge mediation in digital environments requires not only technical skills but also a willingness to innovate pedagogically and actively participate in the digital transformation of educational institutions.

Désiron et al. (2025) address the creation of multimedia materials by teachers and their alignment with multimedia learning principles. Their findings show that, although teachers possess technical skills to create digital resources, they do not always apply pedagogical principles that optimize knowledge comprehension and retention. This demonstrates that knowledge mediation in digital environments requires combining technological skills with solid pedagogical knowledge, ensuring that digital educational materials are effective, engaging, and didactically coherent.

For their part, Acosta-Servín et al. (2025) consider that innovation in teaching practice requires the continuous development of digital competencies, understood not only as technical skills, but also as capacities to strategically integrate technology into teaching-learning processes. The authors emphasize that university professors who strengthen these competencies are able to design more flexible, interactive, and student-centered educational experiences, favoring knowledge mediation and promoting student autonomy and critical thinking. Furthermore, they emphasize that digital teacher training is key to adapting to constantly changing educational environments and to effectively responding to the challenges of global higher education.

For their part, Chávez et al. (2025) point out that the incorporation of artificial intelligence and educational web platforms significantly transforms contemporary learning processes. The authors emphasize that teachers, as mediators of knowledge, must learn to use these tools not only to transmit information, but also to personalize teaching, generate immediate feedback, and encourage active student participation. They also emphasize that digital teaching mediation involves developing critical skills to evaluate the information generated by intelligent systems and ensure that their use contributes to deep, ethical, and transferable learning in real-life contexts.

Based on the analysis of these international precedents, it can be affirmed that, in the current context of higher education, university professors play a role as knowledge mediators that goes far beyond the mere transmission of information. In digital environments, this mediation is reflected in the planning, design, and facilitation of learning experiences that strategically combine technological tools with student-centered pedagogical approaches. Contemporary research highlights that professors must act as content curators, guiding students in the selection, analysis, and synthesis of information from multiple digital sources. This work not only demands technological competencies but also critical and reflective skills that allow professors to discern the quality of knowledge and offer ethical and pedagogical guidance in its use.

Teacher mediation is based on the creation of interactive learning environments where students actively participate in the construction of knowledge. Virtual learning platforms, forums, videoconferences, and collaborative tools foster participation, peer collaboration, and independent learning (Área-Moreira et al., 2022). Constant, personalized feedback geared toward the development of critical and creative skills has become a central element of the digital educational process, ensuring that knowledge is not only received but also understood and applied. Furthermore, instructional design should incorporate strategies that facilitate the integration of multimedia resources, open content, simulations, and case studies, promoting experiential and meaningful learning.

The development of teachers' digital competencies is an essential requirement to play this mediating role effectively. The DigCompEdu framework (Redecker & Punie, 2017) identifies six key areas: professional commitment, creation and management of digital resources, digital pedagogy, assessment, student empowerment, and development of student digital competence. These competencies allow teachers to design flexible learning experiences, adapted to different cultural and technological contexts, and capable of responding to the individual needs of students. Research shows that teachers who integrate these competencies achieve a greater impact on student motivation, participation, and autonomy, promoting lasting learning that is transferable to real-life contexts (Olszewski & Crompton, 2020).

The mediation of digital knowledge also incorporates an ethical and critical component. In a globalized world, saturated with information and content generated by artificial intelligence, university professors have the responsibility to teach students to evaluate the veracity, relevance, and usefulness of knowledge (Holmes et al., 2019). This media and digital literacy not only improves students' analytical skills but also fosters responsible and ethical learning. Professors act as critical guides, facilitating the construction of reliable knowledge and ensuring that technology enhances, rather than replaces, academic reflection and judgment.

Teacher mediation in digital environments is strengthened by the adoption of hybrid and global learning models, which combine enriched face-to-face learning with flexible virtual environments. Paños-Castro et al. (2024) highlight that the digital transformation in higher education drives teaching innovation, promoting more flexible, interactive, and student-centered teaching methods. Their case study shows that teachers who strategically integrate digital technologies not only facilitate access to

information but also encourage active participation, autonomous learning, and collaboration among students. The authors emphasize that knowledge mediation in digital environments requires combining technological competencies with innovative pedagogical skills, ensuring that digitalization enhances educational quality and prepares students to face academic and professional challenges in global contexts.

Student socio-emotional development is another key dimension of digital teaching mediation. Virtual interaction should foster inclusion, motivation, and engagement, as well as the creation of collaborative and sustainable learning communities. Furthermore, Cabero et al. (2023) point out that university professors should not only integrate technologies into their teaching practices but also foster digital literacy, learning autonomy, and students' ability to manage information critically and effectively. This perspective reinforces the idea that knowledge mediation in digital environments requires a holistic approach, in which teacher training and the development of students' digital skills complement each other to ensure positive educational outcomes in global contexts.

Furthermore, teacher mediation becomes a driver of pedagogical innovation. The integration of active methodologies, such as project-based learning, flipped learning, and classroom), gamification, and digital simulation allow learning to be dynamic, interactive, and centered on the student experience. In this sense, university professors not only facilitate access to knowledge but also design experiences that develop complex competencies and transferable skills, preparing them to face the challenges of a globalized and technologically advanced world.

Finally, digital teaching mediation has a global reach, enabling the participation of students and faculty from diverse parts of the world, facilitating the internationalization of higher education. This globalization of teaching requires teachers to have intercultural skills, the ability to communicate in multilingual environments, and an understanding of diverse contexts, ensuring that knowledge mediation is inclusive, equitable, and relevant for all participants (Olszewski & Crompton, 2020). In this way, university teachers act as a bridge between cultural diversity, technology, and academic knowledge, consolidating their role as essential mediators in contemporary higher education.

CONCLUSIONS

The analysis shows that university professors play a central role as knowledge mediators in digital environments, transcending the traditional role of information transmitter. Their intervention involves effectively articulating technology, pedagogy, and human interaction, promoting meaningful, inclusive, and ethically responsible learning experiences. Professor mediation is not limited to the management of virtual platforms but integrates critical, reflective, and socioemotional skills that facilitate students' autonomous and collaborative knowledge construction. In this sense, professors become curators of information, thought leaders, and designers of learning experiences that prepare students to face complex challenges in a globalized context.

A review of literature and international frameworks such as DigCompEdu reveals that teachers' digital competencies are essential to ensuring effective mediation. Among the most relevant are the creation and management of digital resources, the implementation of active methodologies, formative assessment, socio-emotional support for students, and the development of students' digital competence. These competencies allow teachers to personalize teaching, integrate emerging tools such as artificial intelligence and learning analytics, and promote active participation, critical thinking, and international collaboration. The research also underscores that the success of digital mediation depends on teachers' ability to balance technological innovation with pedagogical judgment, ethics, and intercultural sensitivity.

Among the most significant challenges identified are the digital skills gap among teachers, information overload in virtual environments, the need to ensure inclusion and equity, and the management of socio-emotional interaction in digital spaces. Addressing these challenges requires ongoing training, professional development strategies, and institutional policies that support educational innovation, technological training, and the creation of international teaching communities of practice. Teacher mediation must also consider students' critical literacy regarding digital information, promoting ethical responsibility and informed decision-making.

In conclusion, knowledge mediation in digital environments constitutes an essential component of global higher education. University professors establish themselves as learning facilitators, ethical and critical mediators, and designers of experiences that effectively integrate technology and pedagogy. To strengthen this role, it is recommended to promote ongoing training in digital skills, foster applied research on educational mediation, encourage international collaboration, and prioritize strategies that integrate the cognitive, technological, and socioemotional dimensions of learning. In this way, digital teaching mediation not only contributes to educational quality but also prepares students to develop successfully in an increasingly interconnected, complex, and changing world.

REFERENCES

Acosta-Servín, S., Veytia-Bucheli, M. G., & Cáceres-Mesa, M. L. (2025). ***Innovar en la práctica docente. Desarrollo de competencias digitales en la Licenciatura*****.** Sophia Editions.

Al-Riyami, T., Al-Maskari, A., & Al-Ghnimi, S. (2023). Faculties Behavioural Intention Toward the Use of the Fourth Industrial Revolution Related-Technologies in Higher Education Institutions. *International Journal of Emerging Technologies in Learning*, *18*(7), 159-177. https://doi.org/10.3991/ijet.v18i07.37051

Área Moreira, M., Guarro Pallás, A., Marrero Acosta, J., & Sosa Alonso, J. J. (2022). La transformación digital de la docencia universitaria. Profesorado, Revista De Currículum Y Formación Del Profesorado, 26(2), 1–5. https://revistaseug.ugr.es/index.php/profesorado/article/view/25560

Bitar, N., & Davidovich, N. (2024). Transforming Pedagogy: The Digital Revolution in Higher Education. *Education Sciences*, *14*(8), 811. https://doi.org/10.3390/educsci14080811

Cabero-Almenara, J., Guillén-Gámez, F. D., Ruiz-Palmero, J., & Palacios-Rodríguez, A. (2021). Digital competence of higher education professors according to DigCompEdu: Statistical research methods with ANOVA between fields of knowledge in different age ranges. *Education and Information Technologies, 26*, 4691–4708. https://doi.org/10.1007/s10639-021-10476-5

Cabero-Almenara, J., Gutiérrez-Castillo, J. J., Guillén-Gámez, F. D., & Gaete-Bravo, A. F. (2023). Digital Competence of Higher Education Students as a Predictor of Academic Success. *Technology, Knowledge and Learning*, *28*(2), 683–702. https://doi.org/10.1007/s10758-022-09624-8

Chávez-Cárdenas, M. d. C., Fernández-Marín, M. Á., & Lamí-Rodríguez del Rey, L. E. (2025). ***Web educativa e inteligencia artificial: Transformando el aprendizaje contemporáneo.*** Sophia Editions.

Désiron, J. C., Schmitz, M. L., & Petko, D. (2025). Teachers as creators of digital multimedia learning materials: Are they aligned with multimedia learning principles? *Technology, Knowledge and Learning, 30*, 637–653. https://doi.org/10.1007/s10758-024-09770-1

Díaz-García, V., Montero-Navarro, A., Rodríguez-Sánchez, J.-L., & Gallego-Losada, R. (2022). Digitalization and digital transformation in higher education: A bibliometric analysis. *Frontiers in Psychology, 13*, 1081595. https://doi.org/10.3389/fpsyg.2022.1081595

Dringó-Horváth, I., Rajki, Z., & T. Nagy, J. (2025). University Teachers' Digital Competence and AI Literacy: Moderating Role of Gender, Age, Experience, and Discipline. *Education Sciences*, *15*(7), 868. https://doi.org/10.3390/educsci15070868

Holmes, W., Bialik, M., & Fadel, C. (2019). ***Artificial intelligence in education: Promises and implications for teaching and learning***. Center for Curriculum Redesign. https://curriculumredesign.org/wp-content/uploads/AIED-Book-Excerpt-CCR.pdf

Olszewski, B., & Crompton, H. (2020). Educational technology conditions to support the development of digital age skills. Computers and Education, 150. https://doi.org/10.1016/j.compedu.2020.103849

Paños-Castro, J., Korres, O., Iriondo, I., & Petchamé, J. (2024). Digital Transformation and Teaching Innovation in Higher Education: A Case Study. *Education Sciences*, *14*(8), 820. https://doi.org/10.3390/educsci14080820

Pérez-Rivero, C. A., de Obesso, M. M. M., & Núñez-Canal, M. (2023). Digital competence among university professors: Analysis of the impact of the COVID crisis. *Economic Research-Ekonomska Istraživanja, 36*(3), 2155859. https://doi.org/10.1080/1331677X.2022.2155859

Platonova, R. I., Khuziakhmetov, A. N., Prokopyev, A. I., Rastorgueva, N. E., Rushina, M. A., & Chistyakov, A. A. (2022). Knowledge in digital environments: A systematic review of literature. *Frontiers in Education, 7*, Article 1060455. https://doi.org/10.3389/feduc.2022.1060455

Redecker, C., & Punie, Y. (2017). ***Digital competence of educators DigCompEdu***. Publications Office of the European Union. https://doi.org/10.2760/159770

Wu, I.-L., Hsieh, P.-J., & Wu, S.-M. (2022). Developing effective e-learning environments through e-learning use: Mediating technology affordance and constructivist learning aspects for performance impacts, moderator of learner involvement. *The Internet and Higher Education, 55*, 100871. https://doi.org/10.1016/j.iheduc.2022.100871

Conflictos de interés:

El autor declara no tener conflictos de interés.

Contribución de los autores:

Esmaeil Sadri Damirchi: Concepción y diseño del estudio, adquisición de datos, análisis e interpretación, redacción del manuscrito, revisión crítica del contenido, análisis estadístico, supervisión general del estudio.