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Digital Aegis: A critical literature review on the role of ICT as an educational paradigm in higher education

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Abstract
Introduction. This article presents a critical bibliographic review of the role of Information and Communication Technologies in higher education, examining whether their integration represents a paradigm shift or a methodological transformation. **Methodology.** The study is grounded in Kuhn's theory of paradigms and digital divide theory. A structured literature review was conducted using peer-reviewed sources from the last two decades, with a focus on the integration of Information and Communication Technologies, methodological innovation, and digital inequalities. **Results.** The analysis demonstrates that approaches such as competency-based learning, problem-based learning, and flipped classroom reflect methodological pluralism, and not a unified paradigm based on Information and Communication Technologies. The concept of Digital Aegis is proposed as a motivational digital divide that limits the effective use of technology. **Discussion.** Information and Communication Technologies must be understood as pedagogical instruments embedded within broader educational transformations. Further empirical research is required to validate the Digital Aegis construct.

Keywords
digital divide; ICT; educational paradigm; higher education.

Égide Digital: uma revisão crítica da literatura sobre o papel das TIC como paradigma educacional no ensino superior

Resumo
Introdução. Este artigo apresenta uma revisão bibliográfica crítica sobre o papel das Tecnologias da Informação e Comunicação no ensino superior, examinando se sua integração representa uma mudança de paradigma ou uma transformação metodológica. **Metodologia.** O estudo fundamenta-se na teoria dos paradigmas de Kuhn e na teoria da divisão digital. Foi realizada uma revisão estruturada da literatura com fontes revisadas por pares das últimas duas décadas, com foco na integração das Tecnologias da Informação e Comunicação, inovação metodológica e desigualdades digitais. **Resultados.** A análise demonstra que abordagens como aprendizagem baseada em competências, aprendizagem baseada em problemas e sala de aula invertida refletem pluralismo metodológico, e não um paradigma unificado baseado em

Tecnologias da Informação e Comunicação. Propõe-se o conceito de égide digital como uma divisão digital motivacional que limita o uso efetivo da tecnologia. **Discussão.** As Tecnologias da Informação e Comunicação devem ser compreendidas como instrumentos pedagógicos inseridos em transformações educacionais mais amplas. São necessárias pesquisas empíricas futuras para validar o construto Égide Digital.

Palavras-chave
exclusão digital; TIC; Paradigma educacional; Ensino superior.

Égida Digital: revisión crítica del papel de las TIC como paradigma educativo en la educación superior

Resumen
Introducción. Este artículo presenta una revisión crítica de la literatura sobre el papel de las Tecnologías de la Información y la Comunicación en la educación superior, examinando si su integración representa un cambio de paradigma o una transformación metodológica. **Metodología.** El estudio se basa en la teoría del paradigma de Kuhn y la teoría de la brecha digital. Se realizó una revisión estructurada de la literatura utilizando fuentes revisadas por pares de las últimas dos décadas, centrándose en la integración de las Tecnologías de la Información y la Comunicación, la innovación metodológica y las desigualdades digitales. **Resultados.** El análisis demuestra que enfoques como el aprendizaje basado en competencias, el aprendizaje basado en problemas y el aula invertida reflejan pluralismo metodológico, no un paradigma unificado basado en las Tecnologías de la Información y la Comunicación. Se propone el concepto de Égida Digital como una brecha digital motivacional que limita el uso efectivo de la tecnología. **Discusión.** Las Tecnologías de la Información y la Comunicación deben entenderse como herramientas pedagógicas integradas en transformaciones educativas más amplias. Se necesita investigación empírica futura para validar el constructo de Égida Digital.

Palabras clave
brecha digital; TIC; paradigma educativo; educación superior.

1 Introduction

This article presents a literature review on the impact of Information and Communication Technologies (ICT) in higher education, addressing the educational paradigm debate, recent methodological developments in the education sector, and their influence in contexts such as the COVID-19 pandemic. Its main objective is to critically examine whether ICT integration represents an educational paradigm shift or primarily a methodological transformation, while also exploring the concept of a new type of digital divide associated with their adoption in higher education. The specific objectives set to validate the existence of this type of digital divide are: 1) To analyse the evolution of the

educational paradigm concept in relation to the incorporation of ICT in higher education from a theoretical and bibliographic perspective; 2) To review the main pedagogical and methodological approaches associated with ICT integration and evaluate their implications for educational change in higher education contexts; 3) To examine existing conceptualisations of the digital divide in contemporary educational literature and their relevance for understanding current inequalities in technology use; 4) To propose the Digital Aegis as a conceptual framework describing a motivational digital divide characterised by limited exploitation of available technological resources, and to discuss its scope, limitations and potential implications for future research.

The purpose of this research is to analyze the consequences of many educators perceiving the introduction of ICT in education as a paradigm shift in itself, rather than as the incorporation of new tools, as discussed in Benito (2018). This literature review is expected to be useful for educators, researchers, and policymakers interested in improving the quality of education and reducing the digital divide.

This theoretical framework will explore the relationship between ICT in higher education, the educational paradigm, educational methodologies, and the digital divide. It will analyze the various ways in which ICT can contribute to fostering the digital divide in the educational realm and how the educational paradigm has evolved to adapt to the changes brought by ICT. Additionally, it will examine the different educational methodologies that have emerged as a result of this new approach and how they can help improve learning and teaching.

2 Methodology

This study adopts a qualitative bibliographic review to critically examine the role of ICT in higher education and their relationship with educational paradigms and digital divide issues. The literature search was conducted using Dialnet, Google Scholar, Consensus, and Semantic Scholar to ensure broad coverage of academic publications, institutional reports, and relevant theoretical contributions. The review mainly focused on studies from the last two decades addressing ICT integration, methodological innovation,

educational paradigm debates, and digital inequalities, particularly in the context of the COVID-19 pandemic.

Table 1 – Literature selection criteria

Inclusion criteria	Exclusion criteria
- Addressed ICT integration, educational paradigms, methodological innovation, or digital divide issues in educational contexts; - Contributed theoretical, empirical, or contextual insights relevant to the Digital Aegis framework; - Included peer-reviewed publications, academic books, institutional reports, or relevant professional sources with identifiable authorship.	- Lacked identifiable authorship or minimum academic or institutional credibility; - Were unrelated to ICT or educational contexts; - Consisted purely of promotional or non-informative content.

Source: Prepared by the authors (2025).

The analysis followed an interpretative conceptual synthesis rather than a systematic meta-analytic approach. The literature was examined to identify key debates, theoretical frameworks, and gaps related to ICT integration and digital inequality. This process supported the formulation of the Digital Aegis as a proposed motivational digital divide, referring to situations in which access to technology does not necessarily translate into effective use. Given the conceptual nature of the study, the findings are intended as a critical synthesis to inform academic debate and future empirical research.

Generative AI tools (ChatGPT 5.2, OpenAI) were used exclusively as editorial and methodological support during manuscript preparation. Their use was limited to reviewing internal coherence, checking citation consistency, assisting with translation tasks, resolving methodological clarification questions, and improving academic style, clarity, and linguistic consistency of the text. No generative AI system was used to generate data, conduct analyses, interpret results, or produce original scientific content. All conceptual decisions, theoretical development, methodological choices, interpretations, and conclusions were carried out entirely by the authors.

3 Definition of the educational paradigm concept

In education, a paradigm can be understood as the set of theories, assumptions, and practices that guide knowledge development within a specific historical and cultural context. Following Kuhn (1970), it refers to shared scientific practices that shape a

discipline over time, implying that a paradigm shift involves structural transformations in educational objectives, methodologies, and conceptions of learning.

Educational paradigms define how teaching and learning are conceived, including objectives, methods, content, and assessment approaches. Historically, they have evolved in response to social, cultural, and technological contexts. The traditional paradigm emphasised vertical knowledge transmission, positioning the teacher as authority and the student as a passive recipient, a model criticised for limiting participation and individualisation (Pérez Guerrero; Ahedo Ruiz, 2020). In contrast, active pedagogy promoted student protagonism and collaborative learning (Triana Cárdenas, 2017), while personalised education highlighted adaptation to individual needs and learner autonomy (Guerrero, 2018).

More recently, the integration of ICT has introduced new methodological possibilities and challenges. Rather than assuming a consolidated paradigm, this development can be interpreted as an evolving set of practices incorporating digital tools into teaching and learning (TECH Universidad Tecnológica España, s.d.). Clarifying the scope of this transformation is therefore essential for assessing whether ICT represent a genuine paradigm shift or primarily a methodological evolution within existing educational frameworks.

4 Current paradigms

The traditional educational paradigm has been increasingly questioned in light of emerging methodological proposals and the integration of ICT. However, the incorporation of new perspectives in higher education does not necessarily entail a structural transformation, as many current initiatives remain reformist rather than paradigm-shifting (TECH Universidad Tecnológica España, s.d.).

Establishing a clearly defined contemporary educational paradigm remains challenging due to the coexistence of traditional and innovative approaches. The evolution of the traditional paradigm and the expansion of student-centred methodologies illustrate a process of adaptation rather than a consolidated rupture. In this context, the proliferation of methodological models, often oriented toward learner-centred practices,

reflects ongoing transformation within existing frameworks (TECH Universidad Tecnológica España, s.d.). As noted by Severin (2017), responses to the perceived absence of a unified paradigm frequently rely on methodological innovation rather than on the emergence of a fully articulated new paradigm.

5 From paradigm to methodological proposals

After defining the concept of an educational paradigm and acknowledging the lack of consensus regarding a current paradigm, it becomes necessary to distinguish between paradigm shifts and methodological innovation. A methodological proposal can be understood as a pedagogical strategy designed to respond to specific educational needs and to enhance students' skills and competencies. These proposals, developed through academic practice and adaptation to contextual realities, serve as flexible reference models rather than rigid frameworks (Aguilar-Gordón, 2019).

The construction of such methodologies requires consideration of the educational environment in which they operate. As outlined by Aguilar-Gordón (2019), they are typically characterised by integrative, interdisciplinary, contextual, and formative principles. However, the proliferation of methodological approaches does not necessarily imply the consolidation of a new educational paradigm; rather, it may reflect adaptive transformations within existing pedagogical frameworks.

6 Current methodological proposals

Today, as mentioned earlier, the innovation and dissemination of methodologies to transform teaching and learning processes are highly accessible. It is significant that the current academic trend of addressing global problems and personalizing education is reaching many educational spheres that previously seemed inaccessible. It is crucial to disseminate methodological proposals worldwide to achieve this goal. Situations like the COVID-19 pandemic have shown that, thanks to globalization, immediate responses can be provided to specific and urgent educational needs, as noted by Moreno-Correa (2020).

Therefore, it is necessary to highlight the most relevant methodological proposals of recent years.

Table 2 – Most used methodologies in education

(to be continued)

Methodology	Definition
Competency-Based Learning	Competency-based learning is a teaching methodology adopted in the 21st century that represents a transformation of approaches focused on the acquisition of academic content. The concept of competency refers to a set of knowledge, skills, abilities, and capacities that enable effective performance in a particular area, according to the definition provided by the Pedagogical Framework of the University of Deusto (2021). In this approach, the focus of learning is on the student, rather than the teacher. However, the teaching staff also requires a set of teaching competencies to ensure the success of the teaching-learning process, as explained in the work of Villa Sánchez (2020).
Thinking-Based Learning	Thinking-Based Learning (TBL) is one of the current methodological proposals that places the student at the center of the teaching process, with the teacher acting as a mediator whose functions are related to guiding the discovery and analysis of the student's own knowledge and the application of their skills, seeking to enhance them based on the capacities they already possess. According to Gutiérrez Villena *et al.* (2020), this methodology aims to develop students' critical thinking and stimulate their autonomy by immersing them in a process of independence from the teacher.
Problem-Based Learning	When discussing active methodologies, another learning technique worth mentioning is Problem-Based Learning (PBL). This approach focuses on the individual and collective participation of the student, making them the protagonist of their own learning through discovery, combined with the guidance and support of teachers, as explained by Mendieta (2021).
Project-Based Learning	Regarding the promotion of student motivation, project-based learning is one of the most empowering methodologies. In this model, the student aims to address various questions posed through the construction and structuring of a project, thereby developing various research and intervention strategies. The critical and active role of both teachers and students is key during the process, as the evaluation of their own participation and the final product is essential for carrying out this dynamic, as noted by Botella Nicolás and Ramos Ramos (2019).
Cooperative Learning	Cooperative Learning is a methodology that involves the use of small, often heterogeneous groups where students work together to achieve a common goal, as mentioned by Johnson, D., Johnson, R., and Holubec (1999). The primary objective of Cooperative Learning is to develop course learning skills through group work dynamics and social interaction, with well-defined roles. This methodology fosters values such as empathy, mutual help, participation, responsibility, error recognition, and self-regulation of learning. Additionally, it helps develop social skills, inclusion, and understanding of student diversity, as highlighted in Cooperative Learning (2022).
Service-Learning	Service-Learning (SL) is an innovative methodology that seeks to promote learning and improve the reality in which we live. According to theorist Daniel Schugurensky in his lecture “Education for Citizenship in Times of Democratic Backsliding” (2020), this methodology is a valuable tool for fostering student participation. This methodology focuses on developing projects and solutions that contribute to improving the social environment and promoting active student participation. In this way, SL not only benefits the community but also enhances student learning through practice and critical reflection, as indicated by Folgueiras Bertomeu, Luna González, and Puig Latorre (2013).

Table 2 – Most used methodologies in education

(conclusion)

Methodology	Definition
Design Thinking	Design Thinking is a methodology based on the ability to generate ideas to solve problems within the educational world. Although its origin lies in design, it was first developed at Stanford University in California, as explained by Panke (2019). This methodology seeks to respond to problems posed by teachers and is based on identifying needs, finding the most suitable strategies to solve them, and using tools that allow the development of a solution to those problems.
Flipped Classroom	The pedagogical model Flipped Classroom was created by Jonathan Bergmann and Aaron Sams, chemistry teachers at a high school in Woodland Park, Colorado (USA). With the aim of ensuring that their students did not miss classes, these educators recorded and distributed the lessons as videos, allowing them to focus more on addressing each student's individual learning needs during class time, Aidoo *et al.* (2022). It involves reversing the traditional teaching model: the student listens to the lesson at home and does homework in the classroom, as explained in "What is The Flipped Classroom?" (2022).
Gamification	Gamification is a learning technique based on the idea that the learning process can be more effective and enjoyable if elements of games and video games are incorporated. According to Ortiz-Colón, Jordán, and Agredal (2018), this technique uses the precepts and rules of games to teach specific competencies and skills and to develop a learning process adapted to the needs of the target group.

Source: Prepared by the authors (2025).

6.1 Is a methodology a paradigm shift in itself?

The motivation for this study arises from questioning whether ICT integration in higher education represents a true educational paradigm shift. Analysing current methodological proposals and the complexity of defining educational paradigms suggests that identifying a consolidated paradigm shift in such a diverse and evolving context remains difficult, as noted by Benito (2018).

The coexistence of multiple methodologies, the lack of global academic consensus, and the continuous transformation of educational contexts point rather to methodological pluralism than to a unified paradigm. The adoption of specific approaches often reflects contextual adaptation rather than structural transformation of educational principles.

From this perspective, ICT may be better understood as pedagogical tools that support methodological innovation rather than as a paradigm in themselves. Higher education therefore appears to be experiencing methodological transformation within existing educational frameworks rather than a fully established educational paradigm shift.

6.2 Functionality of ICT in the classroom

The use of ICT in the classroom serves various objectives and depends on the subject, students' age, and available resources (Graells, 2013). In many contexts, parents help provide devices, yet unequal access persists, creating educational disparities. Common ICT tools include online learning platforms, multimedia resources, social networks, and educational simulations.

The 2020 health crisis appeared to mark a lasting transformation in education but ultimately produced only temporary changes. The sudden confinement and suspension of classes forced a rapid shift to virtual teaching for the rest of the academic year (Dúo-Terrón; Moreno-Guerrero; Marín-Marín, 2022). This transition relied on existing distance education models, where teachers conducted sessions via streaming and virtual campuses (Gomez; Coca; Mesquita, 2022). Although it allowed flexible access to content, many Spanish students lacked sufficient resources to participate (Bonal; González, 2020), and the institutional push for automatic promotion led to disengagement among part of the students.

7 The role of teachers in the ICT classroom

The coexistence of multiple methodologies, the lack of global academic consensus, and the continuous transformation of educational contexts point rather to methodological pluralism than to a unified paradigm. The adoption of specific approaches often reflects contextual adaptation rather than structural transformation of educational principles.

From this perspective, ICT may be better understood as pedagogical tools that support methodological innovation rather than as a paradigm in themselves. Higher education therefore appears to be experiencing methodological transformation within existing educational frameworks rather than a fully established educational paradigm shift.

8 Problems arising from ICT learning

After analyzing the use of ICT in the classroom and the responsibility of each participant in the learning process, it is important to highlight some problems that have arisen from the massive introduction of ICT in primary and secondary education and this has consequences in higher education. These problems include: 1) Concentration difficulties (Albéniz; Sevilla; Ortega, 2012); 2) Loss of handwriting skills (Villar, 2015); 3) Decline in reading ability (Montoya Álvarez; Gómez Zermeño; García Vázquez, 2016); 4) Digital divide; 5) Digital Divide and Its Types.

Despite the numerous opportunities that ICT offers in higher education, a persistent digital divide limits equitable access and use of these tools across different social, economic, and geographic groups. This divide restricts participation and learning by reducing access to information and educational resources. As Lloyd (2020) notes, the COVID-19 pandemic widened these inequalities, creating strong contrasts between students with quality online access and those lacking technological resources.

According to Martínez López (2020), territorial factors also deepen the divide, particularly in rural and marginalized areas with limited connectivity. Vulnerable groups - such as people with disabilities, rural students, and low-income families - were the most affected. As Mamaqi (2020) highlights, strengthening digital competencies is essential to improve their educational and professional inclusion. The workplace likewise reflects this inequality, where older workers face challenges in adapting to new technologies (Martín Romero, 2020).

Reducing the digital divide therefore requires concrete measures to guarantee universal access to technological infrastructure and digital training. As Peña-Ochoa, P. and Peña-Ochoa, M. (2007) emphasize, the problem extends beyond access to the capacity to use technology effectively. Bridging both material and generational divides is essential to ensure digital inclusion and foster a fairer and more equitable society.

In this sense, promoting digital literacy for all is essential. The pandemic has also affected people with disabilities, as discussed by Peña-Estrada *et al.* (2020), who face additional challenges in virtual learning. The digital divide also extends to Spanish students, as reported in Rodicio-García *et al.* (2020), who have experienced difficulties

accessing online education during the pandemic. To reduce the digital divide in education, it is necessary to implement policies and programs that ensure equitable access to ICT and digital competence for all students and teachers, such as: 1) Programs providing access to devices and internet connection; 2) Training and capacity building in digital competence; 3) Adapting educational resources to different contexts; 4) Policies and strategies to reduce the economic divide.

The digital divide is a phenomenon that affects people's lives transversally. Currently, access to and use of technology is a determining factor in social inclusion or exclusion, making it an indicator that allows for the collection of data on new forms of social exclusion risk. There are different types of digital divide:

- Generational digital divide explained by Prensky (2001). However, White and Lecomu (2011, 2017) reviewed this distinction and changed the terminology from natives and immigrants to “visitors and residents,” as Prensky's terms were somewhat exclusionary;
- Gender Digital Divide in Gil-Juarez *et al.* (2011);
- Labor Digital Divide in Acosta and Amador (2020);
- Institutional Divide in Peña-Ochoa, P. and Peña-Ochoa, M. (2007);
- Cognitive Digital Divide in Tello (2007);
- Social Digital Divide in Martín Romero (2020);
- Digital Divide Due to Digital Poverty in Andrés, Collado, and García-Lomas (2020);
- Digital Divide Due to Lack of Infrastructure (Velásquez-Mora, 2022);
- International Digital Divide in Alva (2015);
- Digital Divide Due to Obsolescence.

During the early months of 2020, the need to research the digital divide intensified due to the confinement of the vast majority of the global population. During this period, it became evident that although available technological resources were sufficient, many people were not prepared for their effective and global use due to a lack of knowledge on how to use the devices they owned (Faura-Martínez; Lafuente-Lechuga; Cifuentes-Faura, 2022). This and other factors have led to the understanding that the current problem of the digital divide is not mainly due to lack of access caused by

economic, age, social, or infrastructural factors, but rather due to the unawareness of the potential of the technological tools already possessed, such as mobile devices, tablets, or computers.

This reality raises the question of whether humans are being overwhelmed by technology, as most of the population is unable to keep pace with the rapid creation and application of new technologies (Talaee; Noroozi, 2019). This issue invites us to question the reality of technological society: is it necessary to advance so rapidly? Should educational patterns be changed? Should the focus solely be on technological access in formal education?

9 The definition of a new type of Digital Divide

The new type of digital divide refers to the situation in which individuals believe they have mastered certain technological tools and, feeling secure in that perception, avoid exploring their full potential. This phenomenon arises when new areas of digital knowledge must be incorporated into daily life but are resisted due to comfort and routine, limiting the use of ICT to basic and standardized functions (Turel; Dokumaci, 2022).

Unlike gender, generational, or cognitive divides, this form affects all users equally, stemming from a lack of motivation to deepen their understanding of ICT. The false sense of mastery generates a socially accepted security zone where superficial use is tolerated as sufficient competence. Language barriers and the late arrival of updated tools reinforce this stagnation, hindering meaningful learning.

Armas-Alba and Alonso-Rodríguez (2022) observe that many technologies reach users already partially obsolete, a condition that sustains inertia and discourages innovation. As a result, individuals often use ICT merely to solve immediate problems, rarely advancing beyond minimal proficiency unless compelled by necessity.

The COVID-19 confinement exposed this limitation (Hoepers; Vanzuita; Martins, 2024). As Rodicio-García *et al.* (2020) note, many believed themselves digitally prepared, yet the pandemic revealed that existing ICT knowledge was insufficient to sustain educational, professional, and social continuity. The crisis forced users to acquire in real time the digital skills they had assumed to possess, thus evidencing this new divide.

The motivation to learn, develop, and understand the possibilities offered by ICT must come from the individual and be accompanied throughout the process of socialization and education. Perhaps the inclusion of ICT elements in education should be restructured so that basic use is not only learned to achieve academic objectives, but ICT development occurs naturally, not merely as a necessary tool for following the teacher. To exemplify this new form of digital divide, one might ask: how many people who acquire an Apple phone do so for its capabilities, and how many do so simply for the status it offers?

In reality, ICT devices have almost unlimited potential, but if we analyze the usage percentage of the device, it is observed that it is reduced to about 10 applications, many of whose functionalities are not even fully known, as demonstrated by the research results of Andrade *et al.* (2021). This situation results from multiple factors and exposes a scenario where the individual has lost control over their interaction with technology.

This new form of digital divide becomes a shield that protects people in their technological comfort zone, limiting their interaction with essential tools and applications in daily life, and in many cases, failing to utilize their full potential. This shield, based on basic knowledge for survival in the digital age, has proven ineffective in extreme situations like those experienced in 2020, as noted by Prieto-Ballester, Revuelta-Domínguez, and Pedrera-Rodríguez (2021). It is important to note that incorrect introduction can have negative consequences for individuals' psychology, emotionality, and well-being, and poses a risk for those not accompanied in their learning process. Often, people choose tools that are accessible or used by their reference group or environment instead of those that could maximize their experience, improve their skills, and even protect their privacy.

To name this new format of digital divide, we have chosen one of the most interesting symbols from Greek mythology, the Aegis, an element that was part of the protection of Athena, the Greek goddess of knowledge, a deity with great significance in the construction of most current sciences. Therefore, this new type of digital divide has been poetically named the Digital Aegis, as it is used as a shield against the constant digital evolution; however, for academic functionality, it will be referred to as the Motivational Digital Divide.

The Digital Aegis represents a situation where individuals are trapped in a space where digital apathy and survival coexist, leading to environmental consequences from the massive consumption of tools, spaces, and digital resources. Many of these tools are used out of fear of social ostracism that arises from not using certain channels of information, contact, or exposure. The functions of ICT in the classroom are closely tied to the characteristics of the Digital Aegis, as the use within the classroom tends to be inefficient, and often the teacher limits themselves to teaching tools they are familiar with, representing a limitation for both students and themselves. It is thus a key element of socialization while also perpetuating certain aspects that already exist at home. The Digital Aegis explains how teachers may struggle to adapt to changes, yet it warns of the consequences of becoming entrenched in certain positions. ICT cannot constitute a paradigm shift, as many theorists had hoped, but rather a reconversion of existing processes. The Aegis should be a reflection of the avoidable, but also an element of caution.

The Digital Aegis is a complex concept that requires a deep understanding of the environment in which the individual operates and the reality of a constantly changing society. In this sense, it is important to recognize that the focus has shifted from the human being to a space where ICTs have significant dominance over the reality of individuals. The Digital Aegis is the consequence of what White and Le Cornu (2011, 2017) describe, the reality experienced by digital visitors in the form of a growing digital divide, as visits to the digital world become more obligatory, but the development of knowledge hindered by the Digital Aegis increasingly burdens these visitors with their disconnection from the digital world.

In conclusion, the Digital Aegis has a dual perspective: on one hand, it highlights the limitations individuals experience in integrating into the digital world due to personal, social, and imposed barriers they face in their environment. On the other hand, it exposes the existing difficulties in overcoming these limitations and achieving sustainable, healthy, and appropriate integration into the digital world through personal freedom, proper accompaniment, training, creativity development, and promotion of participation. Discussing the composition of the Digital Aegis can help delineate what it means and how

this trend in ICT usage is formed. This discussion may be brief, but its aim is to provide a checkpoint and clarify doubts.

9.1 What is the Digital Aegis?

The Digital Aegis represents the set of circumstances that define the human relationship with ICT. It describes the inability of digital users to assimilate the constant flow of technological knowledge and their resistance to exploring beyond basic use. It encompasses those who, despite having access, fail to exploit the full potential of their devices, revealing a collective stagnation and social reluctance to engage critically with technology. This phenomenon also reflects how digital habits extend to leisure and education, generating dependency, automatism, and emotional strain. As a result, the Digital Aegis contributes to the dehumanization of technological interaction and highlights the ecological and psychological consequences of excessive digital consumption.

9.2 What is not the Digital Aegis?

The Digital Aegis is not a cognitive or technological divide, nor a new form of social inequality, but it helps explain those arising from the digital divide. It is rooted in the reality revealed after the COVID-19 pandemic and is unrelated to issues of access, digital poverty, or planned obsolescence. Rather than exposing personal limitations, it describes the stagnation that occurs when individuals, though connected, fail to advance in digital competence.

10 Conclusions

This article set out to critically examine the impact of ICT in higher education through a qualitative bibliographic review, with the overarching aim of assessing whether ICT integration constitutes an educational paradigm shift or primarily a methodological transformation, while exploring the concept of a new type of digital divide associated with ICT adoption in higher education. Overall, the literature reviewed supports the

interpretation that ICT have expanded pedagogical possibilities and accelerated methodological innovation - particularly in the context of the COVID-19 pandemic - yet does not provide sufficient grounds to claim a consolidated ICT-based educational paradigm. Instead, the evidence is more consistent with methodological pluralism and adaptive transformation within existing educational frameworks. With respect to the first objective, the analysis of the educational paradigm concept in relation to ICT incorporation suggests that “paradigm” remains a contested category in educational discourse. When approached in Kuhnian terms, a paradigm shift would imply structural transformations in educational assumptions, goals, and institutionalised practices; however, ICT integration is more frequently described in the literature as an enabling condition for changes in teaching strategies rather than as a foundational reconfiguration of educational principles. This reinforces the need to treat paradigm claims with conceptual caution and to distinguish paradigm-level change from methodological change.

Regarding the second objective, the review of major pedagogical and methodological approaches linked to ICT integration indicates that contemporary proposals - such as competency-based learning, problem-based learning, project-based learning, cooperative learning, flipped classroom, design thinking, service-learning, and related models - tend to converge on learner-centred and active-learning logics. ICT often operate as mediating tools that facilitate implementation, scalability, and interaction, but the proliferation of such approaches is better interpreted as diversification and hybridisation of methodologies rather than as evidence of a single dominant paradigm.

Concerning the third objective, the examination of digital divide conceptualisations confirms the evolution of the construct beyond access-based inequalities toward competence, use, and participation gaps. Contemporary literature increasingly emphasises that inequality in digital contexts can persist even under saturated access, particularly when differences in digital competence, critical literacy, and meaningful engagement shape educational opportunities. This supports the relevance of analysing digital inequality in higher education not only in infrastructural terms but also in terms of appropriation and educational use. In relation to the fourth objective, this study proposes the Digital Aegis as a conceptual framework for a motivational digital divide

characterised by limited exploitation of available technological resources despite access. The Digital Aegis is advanced as an interpretative construct to describe situations in which users' engagement with ICT becomes defensive, minimal, or instrumental, shaped by institutional pressures, rapid technological change, and perceived risks of exclusion. In keeping with the conceptual and bibliographic nature of this work, the Digital Aegis is not presented as an empirically validated typology, but as a theoretically grounded proposal with defined scope and limitations, intended to guide future empirical research.

Taken together, the findings fulfil the article's objectives by clarifying the paradigm debate, mapping methodological developments associated with ICT integration, synthesising contemporary digital divide frameworks, and formulating the Digital Aegis as a novel conceptual contribution. Practically, the review reinforces the need for policies and institutional strategies that go beyond access, prioritising digital competence, critical technological literacy, and pedagogically meaningful ICT use among both students and teachers. Future studies - particularly quantitative and mixed-method designs - should test the explanatory power of the Digital Aegis, explore its dimensions and indicators, and examine how it varies across institutions, disciplines, and educational contexts.

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