



ACADEMIC FREEDOM
9 OTTOBRE 2026

From book to screen: rethinking
knowledge and constitutional
education in the digital era

by Augusto Aguilar Calahorro
Associate Professor of Constitutional Law
University of Granada

From book to screen: rethinking knowledge and constitutional education in the digital era *

by **Augusto Aguilar Calahorro**

Associate Professor of Constitutional Law
University of Granada

Abstract [En]: This article examines the transformation of the right to teach and learn in the digital age, drawing on the reflections of several major theorists of media, knowledge and postmodernity, among them Marshall McLuhan, Jean-François Lyotard and Jacques Derrida. The shift from book to screen has profoundly altered the modern concept of knowledge, undermining its claims to universality, linearity and codification. Hypertext and the data economy have monetised the transmission of knowledge, affecting the subjective dimension of freedom. Artificial intelligence represents the latest stage of this transformation and calls for a constitutional reassessment of the socialisation of knowledge. The article offers a critical rethinking of the relationship between technological media and fundamental freedoms.

Titolo: Dal libro allo schermo: ripensare la conoscenza e l'educazione costituzionale nell'era digitale

Abstract [It]: Il contributo analizza la trasformazione del diritto di insegnare e apprendere nell'era digitale alla luce delle teorie di Marshall McLuhan, Jean-François Lyotard e Jacques Derrida. Il passaggio dal libro allo schermo ha modificato radicalmente il concetto moderno di conoscenza, dissolvendone la pretesa di universalità, linearità e codificazione. L'ipertesto e l'economia dei dati hanno prodotto una monetizzazione della trasmissione del sapere, incidendo sulla dimensione soggettiva della libertà. L'intelligenza artificiale rappresenta l'ultima fase di questa evoluzione, imponendo una riflessione costituzionale sulla socializzazione della conoscenza. Il saggio propone una rilettura critica del rapporto tra mezzo tecnico e libertà fondamentale.

Keywords: Freedom of teaching, Hypertext, Digital knowledge, Knowledge monetization, Artificial intelligence

Parole chiave: Libertà di insegnamento, Ipertesto, Conoscenza digitale, Monetizzazione del sapere, Intelligenza artificiale

Table of contents: 1. Introduction: from modern “Encyclopedism” to postmodern digital fragmentation. 2. The freedom to teach and to learn is no longer a civil liberty. 3. Knowledge has disappeared! 3.1. On human knowledge. 3.2. The Modern idea of knowledge. 4. Code and human interaction. 5. Neoliberalism and new forms of knowledge exploitation. 6. Books and knowledge support. 6.1. Education before the book: dictation and copying. Grammar and rhetoric. 6.2. Education after the book: screen and hypertext. 7. Conclusions: AI at the End.

1. Introduction: from modern “Encyclopedism” to postmodern digital fragmentation

This contribution stems from my participation in the study days held at Villa Vigoni – the Italian-German Centre for Cooperation in the Humanities and Social Sciences. The seminar, entitled *Academic Freedom in Europe: New Challenges and Threats to the Freedom of Research and Teaching*, took place from 10 to 12 th of December 2024. The present text develops the reflections presented during the second panel and the subsequent scientific debate. The issues that emerged from the collective discussion made it possible to critically reassess the theoretical premises of the presentation and to situate them within a broader

* Articolo sottoposto a referaggio.

perspective, attentive to the constitutional implications of the technological transformations currently underway. In particular, the article expands upon the presentation delivered in the second panel, *Freedom to Teach, Freedom to Learn and New Technologies*, devoted to the relationship between academic freedom and technological change.

The presentation started from an updated reinterpretation of Marshall McLuhan's insights ("The medium is the message") to analyse how the transition from books to screens has changed not only the forms of communication but also the very structure of knowledge and, with it, the constitutional configuration of the freedom to teach and learn¹.

The basic hypothesis is that digital technologies are not merely a neutral tool for the transmission of knowledge but have a profound impact on the objective and subjective dimensions of academic freedoms. Modernity knowledge was based on a linear, codified paradigm, because of the Enlightenment encyclopaedic model. In the Internet era, the architecture of hypertext, the logic of data and the development of artificial intelligence (AI) seem to dissolve this model, replacing it with a plural, reticular and potentially infinite configuration of knowledge.

This also highlights the structural influence that this new architecture of knowledge exerts on contemporary constitutionalism. European constitutional history has been profoundly marked by the encyclopaedic horizon of modernity: by the belief in the universal capacity of human beings to know, order and systematise reality. An optimism so robust that it once presumed the world itself could be indexed, alphabetised and safely stored between the covers of a "World Book". Constitutionalism arose from the same conviction that the total order of social coexistence could be concentrated in a single normative text write by people: the Constitution. The constitutional paradigm arose, in fact, in a cultural context that presumed the possibility of codifying, stabilising and making accessible the entirety of legal and political knowledge within a coherent and complete normative structure: the Civil Code².

Wikipedia, by contrast, operates according to an entirely different logic: its reticular expansion through hyperlinks that connect pages to one another indefinitely. This new paradigm comes into tension with constitutional epistemological basis. Knowledge can no longer be concentrated or fully codified; it takes

¹ M. McLUHAN, *Understanding Media: The Extensions of Man*, (first published 1964), Critical Edition by W. Terrence Gordon, Gingko Press, Corte Madera (California), 2003, p. 17 ff.

² Denis Diderot defined the purpose of the *Encyclopédie* in the entry "Encyclopédie" itself as follows: "Indeed, the purpose of an encyclopedia is to collect knowledge disseminated around the globe; to set forth its general system to the men with whom we live, and to transmit it to those who will come after us, so that the work of preceding centuries will not become useless to the centuries to come; that our descendants, becoming better educated, may at the same time become more virtuous and happy, and that we may not die without having deserved well of the human race." D. DIDEROT, "Encyclopedia," trans. Philip Stewart, *The Encyclopedia of Diderot & d'Alembert Collaborative Translation Project* (Edited by Ann Arbor), University of Michigan, Michigan Publishing,, 2002: <http://hdl.handle.net/2027/spo.did2222.0000.004> (accessed February 18, 2026). Originally published as "Encyclopédie," in *Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers*, vol. 5 (Paris, 1755), 635–648A.

the form of an infinite network in continuous expansion. The encyclopaedic model is thus confronted with a digital cognitive universe model that is completely opposite.

For this reason, numerous scholars have begun to analyse legal systems from reticular perspectives, such as multilevel constitutionalism or network constitutionalism, emphasising interaction, overlap and structural interdependence rather than hierarchical closure³.

This transformation poses structural problems for constitutionalism itself, affecting not only its theory but also the ways in which it is transmitted, taught and learned. In this perspective, the medium is not only a vehicle for the message: it also becomes a determining factor in redefining constitution and academic freedoms.

2. The freedom to teach and to learn is no longer a civil liberty

In short, it could be said that the freedom to teach and learn is no longer an individual freedom. The global computer network, together with the evolution of data science and digital hardware, has transformed the concept of universal knowledge in modernity, making it infinite and unprocessable by human beings.

Information and communication technologies have transformed the fundamental right to teach and learn enshrined in Article 5 of the Bonn Basic Law, Article 33 of the Italian Constitution and Articles 20 and 27 of the Spanish Constitution.

These rights have been transformed in their objective dimension, of course. Social media platforms, digital applications and the power of technological oligarchies that shape public debate through networked infrastructures constitute a serious risk: they act as a destabilising factor for the public sphere in which the objective dimension of freedom of expression unfolds, thereby undermining a key structural condition for democratic pluralism⁴. But, above all, their subjective dimension has been dissolved.

This is because the concept of individual freedom is increasingly distant from the concept of freedom of information and communication. This is because information and knowledge have moved away from the modern concept of individual freedom. I believe that we have returned to an approach to the right to transmit and receive knowledge and information that is typical of the most primitive natural law.

Knowledge is acquired by human beings who find themselves in the immensity of the natural world (of virgin forests) and begin their work of civilisation from scratch. Human beings who feel free and, at the same time, defenceless in the face of the immensity of a hostile and unfathomable world. As Jellinek imagined the origins of the work of civilisation in the colonies of the United States:

³ M.J. ARJONA SÁNCHEZ, *El Derecho en bits*, Aranzadi, Pamplona, 2025.

⁴ F. BALAGUER CALLEJÓN, *Redes sociales, compañías tecnológicas y democracia*, in *Revista de Derecho Constitucional Europeo (ReDCE)*, n. 32, 2019: https://www.ugr.es/~redce/redce32/articulos/04_f_balaguer.htm (accessed February 18, 2026).

«The idea that state and government rested upon a compact —so significant for the development of the American conceptions of individual Liberty—was strengthened by the force of historical circumstances. A handful of men went forth to found new communities. They began their work of civilization scattered over wide stretches in the loneliness of the primeval forest. And so they believed that it was possible to live outside of the state, in a condition of nature, and that when they stepped out of that condition of nature they did it of their own free will and were not constrained by any earthly power. With their small numbers, representation was at first unnecessary, and the decisions were reached in the town meetings of all belonging to the community, the form of a direct democracy grew naturally out of the given conditions and strengthened the conviction, which does not correspond to the old English conception, that the sovereignty of the people is the basis of legislation and of government. To a generation that could point to such beginnings for their state, the political ideas which later animated the men of 1776 seemed to bear their surety in themselves: they were “self-evident”, as it reads in the Declaration of Independence⁵».

Jellinek spoke of rights arising “over wide stretches in the loneliness of the primeval forest”. Our forests are now digital. The sense of immensity and natural freedom persists, but it is projected onto the endless landscape of data and hyperlinks. Individuals are at once exposed and liberated, free to immerse themselves in an apparently unlimited universe of knowledge — a universe so expansive that it resists systematisation, control and constitutional enclosure.

In the context of digital networks, the individual entitlement to impart information and to access information no longer operates under the same structural conditions. The subjective dimension of informational freedoms in teaching and learning has been radically reconfigured. The subjective freedom of teaching and learning seems to drift away from its classical constitutional form: no longer as civil liberties, defined and socially embedded, shaped and limited by the normative parameters of an organised political community. Rather, it escapes toward something closer to a “primeval natural right” — vast, immediate, and not just domesticated by legal order.

This uncertainty, bewilderment and powerlessness in the face of information that is unattainable for the individual is what new technologies provoke in the freedom to learn and teach. Breaking the link between the will of the individual and information⁶.

⁵ G. JELLINEK, *Die Erklärung der Menschen- und Bürgerrechte. Ein Beitrag zur modernen Verfassungsgeschichte*, Duncker & Humblot, Leipzig, 1895. English version: *The Declaration of the Rights of Man and of Citizens: A Contribution to Modern Constitutional History* (Trans. Max Farrand), New York, Henry Holt and Company, 1901, p. 69: <https://www.gutenberg.org/ebooks/29815> (acces. 18 February, 2026).

⁶ A precursor of this approach was the theory of will (Willentheorie), most prominently associated with Bernhard Windscheid (1817-1892), according to this view, a subjective right is a power or dominion of the will (Herrschaft des Willens) recognised and protected by the legal order. See B. WINDSCHEID, *Lehrbuch des Pandektenrechts*. Vol. I, § 46. Düsseldorf: Druck und Verlag von E. Buddeus, 1862 (o edición consultada, ej. 9. Aufl. 1906). As Alf Ross, said: «According to Windscheid, the subjective right is a power of the will (Willensmacht) which is recognized and guaranteed by the legal order. [...] This conception is metaphysical fiction. [...] The subjective right is not a power, but an interest protected by the law». A. ROSS, *Towards a Realistic Jurisprudence: The Basis of Legal Criticism*, E. Munksgaard, Copenhagen, 1946, p. 152.

The cause, in McLuhan's sense, is since today more than ever, the medium determines both the message and human attitude towards knowledge: the screen, the hardware connected to the global computer network (the medium) conditions the concept of freedom of teaching and learning.

3. Knowledge has disappeared!

Knowledge has disappeared? Well, not knowledge as such, but the modern idea of human knowledge. Two questions therefore arise: In what sense was knowledge conceived as inherently human? And what did modernity understand by knowledge?

3.1. On human knowledge

Every day, we are told with increasing urgency that 'technological singularity' is approaching. This is the hypothetical moment when a technological civilisation will undergo an acceleration of technical progress, with the consequent impossibility of predicting the consequences. The moment when AI will surpass biological AI⁷. Whether true or not, this statement indicates that more is being invested in artificial, digital knowledge... in artificial intelligence, than in biological or traditional knowledge. In how to store and manage data digitally rather than how to transmit knowledge through analogue formats in which humans make the final decision.

Knowledge application and transfer techniques have long surpassed theoretical sciences and humanities in material value. The application of knowledge to mechanics, or mechanism (as Mumford would say), constitutes the socially and economically profitable process of teaching and learning⁸.

In other words, it is mechanical knowledge that matters. Knowledge as technical application or as hardware that hosts data and knowledge. Knowledge of how to manage the machines and devices that themselves manage knowledge.

All this to such an extent that it transforms the human being itself — its mentality and even its biology. As Fernando Broncano argues in *The Melancholy of the Cyborg*⁹, human beings ultimately become mere cyborgs, to the point that technique, technology and devices come to replace or integrate into human

⁷ M BOSTROM, *In defense of Posthuman dignity*, in *Bioethics*, n.3, 2005, p. 203. A. CORTINA *Distopía posthumanista*, in *Frontiere. Rivista di Geocultura* (acces 8 March, 2020) en <https://www.frontiere.info/> M. ALBERT MÁRQUEZ, *Posthumanismo, inteligencia artificial y Derecho*, in *Persona y Derecho*, n. 1, 2021, Vol 84, p. 207 ff.

⁸ L. MUMFORD, *Technics and Civilization*, Harcourt, Brace and Company, 1934, pp. 29–30. : "If mechanical thinking and ingenious experiment produced the machine, strict control gave it a firm footing. The social process worked hand in hand with the new ideology and the new technique. [...] Long before the peoples of the Western world turned to the machine, the mechanism as an element in social life had appeared".

⁹ F. BRONCANO, *La melancolía del ciborg*, Barcelona, Herder, 2009. Adopting Donna Haraway's metaphor: D. J. HARAWAY, *A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century*, Simians, Cyborgs and Women, Routledge, 1991, p. 150 and ff.

nature itself, creating hybrid beings constituted by techniques, artefacts and symbolic prostheses without which they are no longer able to recognise the natural space that surrounds them. Human identity has always been technologically mediated; as Broncano maintains, our capacities depend on artefacts. There is no clear boundary between the human and the technical. And human knowledge itself is no longer something confined to the biological mind or to individual persons, but something external, liquid, fluid — something that does not properly belong to the human subject but possesses its own substantiality and is capable of generating forms of intelligence that exceed biological cognition.

Pierre Lèvy described a particular declension of this process of delocalisation: knowledge gradually shifts away from the individual human subject and becomes situated elsewhere — externalised into networks, distributed infrastructures and collective cognitive environments that exist beyond any single mind. In his seminal work *Collective Intelligence: Towards an Anthropology of Cyberspace* argues that the most precious resource is wasted because it is spread everywhere', that collective intelligence which consists of a intelligence spread everywhere, in which 'no one knows everything, everyone knows something, all knowledge is in humanity. There is no reservoir of transcendent knowledge, and knowledge is nothing more than what people know¹⁰.

The concept of collective intelligence does not reject digital information technologies, the digital devices that allow real-time coordination, above a certain qualitative threshold of people, of community members in the «same virtual universe». But it draws attention to the fact that the raw material is human knowledge, not the knowledge of the machines that manage knowledge.

On the contrary, human knowledge has become the exploitation of highly specialised skills in how to repair or use the machines and devices that possess knowledge: teaching skills for the pursuit of knowledge in that “sea of Sargassum” that is the World Wide Web is limited to the exploitation and alienation of human skills.

This transforms education and teaching in a material sense, but above all, it transforms, as Jean-Francois Lyotard would say, the «meta-narrative» of knowledge: the self-awareness of human beings in the face of education.

3.2. The Modern idea of knowledge

The speed of response of artificial intelligence. The immensity of data and content on the computer network. The “absolutism” of the screen leads to a new epistemic subject of knowledge. To a new

¹⁰ Quoted from the Spanish translation: P. LÉVY, *Inteligencia colectiva: por una antropología del ciberespacio*, (trans. F. Martínez Álvarez) Organización Panamericana de la Salud, Washington DC, 2004, p. 13. Originally published in French as *L'intelligence collective. Pour une anthropologie du cyberspace* (Paris: La Découverte, 1994). English version: *Collective Intelligence: Mankind's Emerging World in Cyberspace* (trans. Robert Bononno, Plenum Trade, New York, 1997), Introduction, p. 13.

attitude: being nothing in the face of the immensity of knowledge in the hyperspace. Just like the experience of “being nothing” before the immensity of the oceans that fifteenth- and sixteenth-century explorers must have felt, or before the infinite cosmos revealed by the Copernican revolution, when humanity first confronted its own decentring within the universe.

Jacques Derrida explained this in his lecture *Le livre à venir*¹¹: the awareness of the book that cannot be enclosed, that neither begins nor ends, due to its immensity, due to the volume of knowledge and narratives. This idea contains two contradictions:

a) The idea that all knowledge can no longer be codified in the Universal Encyclopaedia (of universal history, universal nature, universal sciences...) dismantles in the human mind the reasoning of the encyclopaedists of the modern age, and even more so the reasoning behind the social codification of constitutionalism.

b) The idea that knowledge, the book, no longer has a beginning and an end. That the search for information and concrete answers is eternal. The language of “hypertext” in which content is linked to other content and other content and other content and other content without end?

Both perspectives on teaching and learning, through the new format of knowledge transmission, the screen, dismantle rationalism and positivism.

Thus, the learner has detached himself from the modern idea of knowledge and immersed himself in this postmodern idea in which there is no absolute truth, but plural, equally valid and infinite points of view. A world of volatile, liquid, relative subjects, of new subjectivities and few certainties or truths¹².

As Jean-Francois Lyotard pointed out, postmodern science is characterised by the search for instability and incommensurability. This science, which has lost sight of the legitimacy of the great meta-narratives of modernity, returns to a medieval, pre-modern, even pre-Renaissance approach to knowledge¹³.

Lyotard argues that science no longer seeks legitimation through “grand narratives” of progress or unity but instead shifts toward a pragmatics of linguistic particles. The legitimation of knowledge no longer seeks universal consensus but shifts toward performativity — the optimisation of input/output relations — and “paralogy”, the invention of new rules and new moves within language. The social bond in postmodernity is understood through “language games,” in which individuals are situated at the “nodal points” of communication circuits, making “moves” prompted by the system to enhance its efficiency.

¹¹ Cf. J. DERRIDA, *El libro por venir*, Madrid, Editorial Trotta, 2003. The translation is mine. This text corresponds to the Spanish version of the lecture delivered by Derrida at the Bibliothèque nationale de France on March 20, 1997, later published in French in *Papier machine* (Paris, Galilée, 2001) and in English as *The Book to Come*, in *Paper Machine* (Stanford, Stanford University Press, 2005).

¹² Z. BAUMAN, *Liquid Modernity*, Polity Press, 2000, p. 82.

¹³ J. F. LYOTARD, *La condición postmoderna: Informe sobre el saber*, (trans into spanish M. Antolín Rato.) Madrid, Ediciones Cátedra, 1987, p. 46. English versión: *The Postmodern Condition: A Report on Knowledge*, (trans. Geoff Bennington and Brian Massumi), Minneapolis, University of Minnesota Press, 1984, p. 53.

In this new epoch, knowledge becomes the principal force of production, transforming itself into an informational commodity — produced in order to be sold and consumed in order to be valorised within further production. This transformation is linked to the computerisation of society, where knowledge must be translatable into machine languages and bits in order to be operational and to circulate within data banks. Postmodern science, finally, is characterised by ... our capacity to endure the incommensurable.

Students do not strive to identify “what” they need to learn, but “where”. Because they are aware that the content is infinite. Students understand that there is no definitive answer awaiting discovery, but a multiplicity of playing fields, linguistic frameworks and discursive arenas. The task is no longer to find the single correct answer, but to enter the game: to situate themselves within a communicative framework governed by specific rules and a determinate language, while remaining aware that other frameworks, with different rules and vocabularies, coexist alongside it.

4. Code and human interaction

Returning to Lyotard, «scientific knowledge» once again appears to be overtaken by «narrative knowledge». Whereas «scientific» knowledge has traditionally sought to ground its validity and legitimacy in argumentation, empirical evidence, and claims to universal and objective truth; «narrative» knowledge refers to the traditional transmission of culture (oral or pedagogical one) and It would be legitimised by its capacity to transmit useful forms of knowledge, that is, by its utilitarian function: to *know-how*, eloquence, *savoir-vivre*, and the art of listening. Custom, repetition, and social recognition provide its validation

In this sense, one might think of *YouTubers*, *influencers*, or online tutorials as contemporary figures of authority — new “masters” (?) of narrative and practical communication.

This «narrative knowledge» is being reinforced by screens and digital platforms for videos and podcasts, increasing basic social interaction. In this way, the media become the very structure of the knowledge.

As McLuhan points out, the medium becomes the message. We are witnessing the rebirth of the so called for him, «hot media», especially in the age of digital information¹⁴.

A «hot media», according to McLuhan, is one that provides information in abundance, leaving little room for participation or interpretation by the receiver. Information is presented in a comprehensive and detailed manner, which reduces the need for the receiver to complete or interpret the message (radio, cinema, photography, etc.).

¹⁴ M. McLUHAN, *Understanding Media: The Extensions of Man*, (first published 1964), Critical Edition by W. Terrence Gordon, Gingko Press, Corte Madera (California), 2003, p. 17 ff.

Oral media, for McLuhan, are hot media because their immediacy, high definition and emphasis on emotion contribute to a more intense and less participatory experience for the receiver, who is saturated with information and has less room for interpretation.

«Cold media», on the other hand, are characterised by low information definition, requiring a high level of participation from the receiver to complete the message. Cold media invite active participation, requiring the receiver to decode and interpret information to construct meaning. For McLuhan, cartoons, the telephone and hieroglyphics are cold media. The combination of images and text forces the reader to use different types of knowledge to deduce and understand the narrative, requiring active participation from the reader to construct meaning (the telephone, transmitting only voice, requires greater participation from the receiver to interpret the tone, inflection and context of the conversation, for example¹⁵).

The book, the centre of the *Gutenberg Galaxy*, is a hot medium par excellence¹⁶. It extends a single sense—vision—in high definition, providing precise and abundant information that leaves little for the reader to complete. As a result, it encourages low audience participation and a comparatively passive mode of reception. Print also imposes a linear and sequential structure on thought, fostering abstraction and rational organization.

However, print, by favouring linear vision and the homogenisation of information, has caused a break in the interaction of the senses characteristic of oral cultures (in “hot media”) towards «cold media». Its linearity and sequentiality, due to its very physical structure, presents information sequentially, guiding the reader through sentences, paragraphs and chapters in a predetermined order. These characteristic limits reader participation, as the flow of information is predetermined by the author. By favouring visuality over other senses, it leads to a more fragmented and less holistic, more passive experience, in which the reading public, as “consumers of paragraphs”, show greater passivity than with cold media.

The printed book, presenting a complete and defined message, does not require the active participation of the reader to decode or interpret the information. Readers became mere decoders.

The key to the nature of the book as a hot medium lies in its alphanumeric codification. According to McLuhan, the alphabetic code profoundly transformed the structure of human consciousness by privileging visual linearity and sequential abstraction. On the one hand, it fostered a culture of individualism, encouraging the emergence of a private and fixed point of view. On the other, it marked

¹⁵ Interestingly, for McLuhan, television is also a cold medium: unlike cinema, it does not present a finished product, but an ongoing process that requires constant interaction on the part of the viewer. The low definition of the television image, especially in the analogue era, forces the viewer to complete the visual information. Television requires the viewer's participation to complete the message. Cited through the Spanish edition of Marshall McLuhan, *The Gutenberg Galaxy*, EPUB R1.0, Lestrove15 (May 2014), translated by Juan Novella, p. 86.

¹⁶ M. McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man*, Toronto, University of Toronto Press, 1962.

a decisive break from the “cooler” and more participatory dynamics of oral culture—associated with the medieval tribe and with a form of knowledge embedded in communal life.

The Book foster the cult of individualism. The reader relates to the book individually and in isolation, in contrast to the more collective experience of oral media. Print, by promoting individual and silent reading, has contributed to the decline of oral and collective, tribal culture.

According to McLuhan electronic media transformed this idea, giving shape to the «global village» or globalised tribe. A world in which distances are shortened and information travels at instantaneous speed, creating again a sense of global community, global tribe. It implied (with the electricity invention) a return to more tribal forms of communication and social organisation, in which information is shared immediately and collectively, appealing to primordial and communal instincts (one need only consider radio or cinema and the way they were mobilised during the 1930s, creating a genuinely communal and instinctive “tribal”) shaping the crowd, the *mass media*, the multitude (T. Negri) or, as Ortega y Gasset would put it, the *mass man*.

However, humanity is emerging from the *electronic age*, and entering the *technological age*. This transition implies a change in the way information is produced and consumed, which could be interpreted as a return to a more oral and interactive form of communication (the screen, platforms, YouTube...). Networked communication must promotes deeply the «Global Village» through media that are more interactive than ever, even immersive for the subject. (the return to an almost total sensory experience - visual and auditory, immersive including 3D or fully immersive).

But attention: this experience is more codified than ever. By means of pre-established algorithms, and the subject's sensations are predetermined.

For Marshall McLuhan, and for those who have subsequently analysed his work, the classification of the screen and of the Internet reveals an interesting evolution that combines features traditionally associated with both hot and cool media.

In his original analyses, McLuhan classified television—the screen of his time—as a cool medium. The televised image, composed of a mosaic of low-definition dots, required the viewer to actively “fill in” missing information. This low level of definition generated a high degree of participation and sensory involvement: the spectator was not merely observing but was, in a sense, absorbed into the screen.

By contrast, contemporary digital technologies—particularly the Internet and virtual platforms—appear to mark a return to the logic of hot media. This shift is linked to the simultaneity and density of visual, auditory, and tactile stimuli operating at once. Unlike the linear television of the past, the Internet

saturates the senses with an unprecedented informational intensity, recreating the organic immediacy of the “global village,” where emotional and social reactions become instant, amplified, and collective¹⁷.

Yet a fundamental paradox emerges. While the user’s experience of the Internet, social networks and digital platforms may feel “hot,” immersive, and quasi-tribal, the underlying structure that governs it is cold and numerical. Behind the apparent organicism of digital interaction lies the determinism of code and algorithm.

Thus, although the interface immerses individuals in a heated and participatory environment, the outcomes are regulated by a linear, alphanumeric, and algorithmic logic that shapes social relations in an objectifying and de-subjectivised manner.

Artificial intelligence and Internet-based communication tools have a cold appearance, allowing for almost continuous interaction with the user, but their architecture is that of a hot medium, configured entirely by alphanumeric codes and algorithms.

Increasingly, human interactions are becoming ever more algorithmically codified. At the same time, and paradoxically, individuals perceive themselves as more interactive, more participatory, and more empowered than ever before. They experience a growing sense of agency, believing that they freely choose, act, and determine the forms of their own interaction. Yet this perceived expansion of autonomy unfolds within structures that are increasingly shaped, filtered, and pre-structured by algorithmic systems.

5. Neoliberalism and new forms of knowledge exploitation

At the beginning of the new millennium (1999–2000), less than 10 years after the widespread diffusion of the Internet and the World Wide Web (Tim Berners-Lee in 1989) the debate between Lawrence Lessig and David Post crystallised one of the foundational controversies of digital constitutionalism.

In *Code and Other Laws of Cyberspace* (1999), Lessig famously argued that “Code is law,” maintaining that the technical architecture of cyberspace (them: code; today: algorithms) functions as a regulatory force equivalent to, and often more effective than, traditional legal norms. Because cyberspace is “built” rather than “found,” its architecture embeds constraints and permissions directly into code, thereby relocating regulatory power from public powers to the invisible design of digital private systems¹⁸.

¹⁷ M. McLuhan and B. R. Powers, *The Global Village: Transformations in World Life and Media in the 21st Century*, New York, Oxford University Press, 1989. Spanish edition: *La aldea global. Transformaciones en la vida y los medios de comunicación mundiales en el siglo XXI*, (trans. Claudia Ferrari), 3rd ed., Barcelona: Gedisa, 1995.

¹⁸ L. LESSIG, *Code and Other Laws of Cyberspace*, New York, Basic Books, 1999: «Code is law. Cyberspace demands a new understanding of how regulation takes place there and how that regulation is implemented [...] we must finally understand how code regulates cyberspace - how tangible and intangible elements can achieve total regulation of what cyberspace is», p. 6. https://cyber.harvard.edu/ilaw/Contract/Post_Full.html Later published in 2nd ed., as L. LESSIG, *Code: Version 2.0*. Basic Books, New York, Basic Books, 2006. Cited by spanish versión: *El código 2.0* (Trans M. Acuyo, F. Cabello, Ed.), Traficantes de Sueños, 2009.

David Post's response, published in May 2000 in the *Virginia Law Review* under the title "*What Larry Doesn't Get: Code, Law, and Liberty in Cyberspace*,"¹⁹ challenged and rejected the inference that such regulation requires collective political control over network architecture. He defended decentralised and market-driven governance as more consistent with liberty positions. For Post, cyberspace resembles language more than legislation: its structure evolves through the aggregation of individual decisions rather than through centralised design.

The debate thus opposed two enduring visions of digital order—Lessig's concern with the constitutional governance of code and Post's libertarian trust in spontaneous, decentralised coordination.

Lessig feared that market forces would ultimately impose a perfect architecture of control. For that reason, he believed it was necessary to intervene in the code that structured the architecture of cyberspace. Post, by contrast, defended a theory of decentralized decision-making in complex systems, arguing that the market itself granted consumers the power to change the code without the need to coerce third parties through law. He also doubted that the market would inevitably push toward a dangerous uniformity of rules, suggesting that diversity and individual intervention were more powerful engines of freedom.

As we have observed a quarter of a century later, Lessig was right and Post was mistaken, as can be seen today in the unprecedented concentration of power in the hands of techno-oligarchs and major Big Tech corporations, the corresponding erosion of users' and consumers' autonomy worldwide, and the broader degradation of freedom and democratic governance.

Although one might defend Post by arguing that he was not, strictly speaking, mistaken: inasmuch as his perspective has in fact become the dominant one in cyberspace. This does not mean that its consequences have been normatively desirable.

From this perspective, Post's defense of spontaneous order, decentralization, and competitive choice closely aligns with what David Harvey defines as the core doctrine of neoliberalism. As Harvey explains: «Neoliberalism is in the first instance a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade»²⁰.

¹⁹ D. G. POST, *What Larry Doesn't Get: Code, Law, and Liberty in Cyberspace*, *Virginia Law Review*, 2000. Available at: https://cyber.harvard.edu/ilaw/Contract/Post_Full.html , <https://law-journals-books.vlex.com/vid/larry-doesn-get-liberty-cyberspace-56161171>: «I have serious doubts about how necessary it is to have a policy that helps develop a plan for coding in cyberspace, just as I would have the same doubts if it were a matter of coding in the English language. [...] We must convince ourselves that the form of the English language will be perfected not through political processes but through the aggregation of individual decisions and interventions."independent"».

²⁰ «... The role of the state is to create and preserve an institutional framework appropriate to such practices. The state has to guarantee, for example, the quality and integrity of money. It must also set up those military, defence, police, and legal structures and functions required to secure private property rights and to guarantee, by force if need be, the proper functioning of markets. Furthermore, if markets do not exist (in areas such as land, water, education, health care, social security, or environmental pollution) then they must be created, by state action if necessary. But beyond these tasks the

The success of Shoshana Zuboff and her magnum opus *The Age of Surveillance Capitalism*²¹ shows that, in the debate over the mechanisms structuring the digital society —between proposals grounded in democratic procedures and those grounded in market freedom— there has been a clear winner. Beyond the apocalyptic statements, we believe that the market is winning the battle for next reasons:

A. The media and the messages have come together to the point of confusion. The message is successful as knowledge if the medium is successful (likes, followers, channel subscribers, etc.). The medium and the message have merged as a means of transmission and a transmitted message. The message becomes an ancillary instrument, subsidiary device, accessory element, in order to ensure the success of the medium. The medium is, in this sense, “more than” the message.

B. This is known in the technological world as monetisation of the medium. The *dot-com crisis* of 2001 was the perfect framework for the development of techs companies. Immature technology companies collapsed due to the absence of structured business models in 90s, despite the accumulation of high levels of systemic risk. As Shoshana Zuboff would later argue, surveillance capitalism began precisely at this first partial crisis, in what she terms the “Carol Brady moment²¹”. Following the dot-com crash, Google was forced to explore new forms of financing, discovering the “source” of all forms of technological monetization: “behavioural surplus” (the set of user data stored through clicks, likes, browsing time, views, etc.) as a mechanism to predict future behaviour and deliver targeted advertising (in the best cases, or psychological profiling in the worst).

But, long before that, the message —the content of knowledge— had already become an economic commodity. In 1962, Fritz Machlup succeeded in quantifying all knowledge in the United States in economic terms.

state should not venture. State interventions in markets (once created) must be kept to a bare minimum because, according to the theory, the state cannot possibly possess enough information to second-guess market signals (prices) and because powerful interest groups will inevitably distort and bias state interventions (particularly in democracies) for their own Benefit». D. HARVEY, *A Brief History of Neoliberalism* Oxford, Oxford University Press, 2005 pp. 2–3. Spanish version: *Breve historia del neoliberalismo*, trans. by Ana Varela Mateos, Madrid: Akal, 2007.

²¹ S. Zuboff, *The Age of Surveillance Capitalism*, Paidós, 2020, pp. 81 ff: The “Carol Brady moment” occurred in April 2002 and represented a decisive turning point for Google, as it revealed the immense predictive power embedded in its data. The company’s team of analysts noticed that the phrase “Carol Brady’s maiden name” (a character from a 1970s television series) suddenly became the most searched query. Upon investigating the phenomenon, data scientist Amit Patel discovered that the search pattern displayed five distinct spikes, each separated by one hour and forty-five minutes. These spikes corresponded exactly to the broadcast of the television program *Who Wants to Be a Millionaire?* across the different time zones of the United States; each time the host posed the question about the character, a surge of queries flooded Google’s servers. This discovery enabled Google’s founders to understand that their search engine was not merely a tool for retrieving information, but rather functioned as a sensor capable of revealing real-time events and emerging trends before they appeared in traditional media. Shoshana Zuboff records Sergey Brin’s literal reaction to this finding: “*It was like seeing an electron microscope for the first time. It was like being in the presence of a barometer that measured every instant, one by one*”. This moment triggered the mutation toward what Zuboff terms *surveillance capitalism*, as it became clear that the stored data opened up “immense opportunities” to commercialize predictions about human behavior. Only one month later, Google hired Eric Schmidt to pivot the company toward profitability on the basis of this new understanding of the predictive capacity of its vast data repositories.

Fritz Machlup does not separate knowledge from information. Technologically, to inform is to transmit knowledge, and to know is the result of having been informed. In other words, information, as an act of informing, produces a state of knowledge in the mind of the receiver. Therefore, knowledge is the simple act of transmitting information. Transmission is knowledge. Knowledge is the pipe, not the liquid flowing through it. It is the pipe and not the message. That is why the economisation of information technology focuses on the process of knowledge transmission, emphasising the interaction between sender and receiver. In his analysis, the message was just a piece of economised knowledge. What matters is its transmission. That is what produces value²².

As J. F. Lyotard predicted, knowledge is becoming a commodity. In post-industrial society, knowledge is transformed into an information commodity, subject to market laws and the control of businesses and the state.

Critical studies, on the other hand, argue that the contemporary Web 2.0, regulated through the market and private companies, is monopolised by forces seeking control and uniformity. It is characterised by exploitation and private appropriation of surplus value; it reproduces the dynamics of exploitation and alienation of capitalism, concentrating power in the hands of a few companies that appropriate the surplus value generated by users' digital labour. They therefore advocate a transformation towards a Web 3.0 based on alternative media and a democratic public sphere, which implies the need for political control to democratise cyberspace²³.

On the contrary, there are those who criticise the web itself for its opposite. For its capacity for democratic participation in the so call wiki spaces. Andrew Keen and Jaron Lanier argue that the rhetoric of Web 2.0 has a political agenda and shares Marxist political goals that aim to end society as we know it translates into “digital Maoism”, a form of collectivism that is as totalitarian as Maoism and denies individuality²⁴. Web 2.0 and user-generated content are undermining the authority of experts and the reliability of information, creating what Keen describes as a “digital forest of mediocrity”²⁵.

²² F. MACHLUP, *The Production and Distribution of Knowledge in the United States*. Princeton, Princeton University Press, 1962.

²³ C. FUCHS, *Foundations of critical media and information studies*. New York, Routledge, 2011. ID., *Social Media: A Critical Introduction* (3rd edition), London, Sage, 2021. ID., *Los comunes digitales y la esfera pública digital: sobre cómo hacer avanzar la democracia digital en la actualidad*, (Trans. A. Marotias, Guillermo Quiña, E. Cafassi & A. Dolcemáscolo), *Revista Hipertextos*, n. 9(16), 2021, pp. 13-34.

²⁴ A. KEEN, *The Cult of the Amateur: How Today's Internet Is Killing Our Culture*, New York, Doubleday/Currency, 2007.

²⁵ J. LANIER, *Digital Maoism: The Hazards of the New Online Collectivism*, in *Edge-The Third Culture*. 2006 <https://www.edge.org/conversation/jaron-lanier-digital-maoism-the-hazards-of-the-new-online-collectivism>. A critic in M. TUMLIN, S. R. HARRIS, H. BUCHANAN, K. SCHMIDT, K. JOHNSON, *Collectivism vs. Individualism in a Wiki World: Librarians Respond to Jaron Lanier's Essay "Digital Maoism: The Hazards of the New Online Collectivism"*, *Serials Review*, n. 33, 2007, pp. 45-53, <https://www.sciencedirect.com/science/article/pii/S0098791306001377>

Whether cyberspace is criticized for being excessively neoliberal and individualistic or, conversely, for being overly collectivist and participatory, the digital realm ultimately contains the full spectrum of ideological debates characteristic of the economic sphere.

6. Books and knowledge support

Because of its characteristics and its impact on society, Marshall McLuhan considered the book to be the capitalist product par excellence. Thanks to its uniformity and repeatability, it drives modern markets, as an identical product with an identical price. But above all, it drives industrialisation and the relationship between man and machine. For McLuhan, the book, as a means of knowledge, had become, first at all, a commodity, a product subject to the laws of the market.

By facilitating individual reading and the portability of the book, it encourages individualism and isolation. Private property and, in the extreme, the exploitation of human beings: «The press was itself a commodity, a natural resource that showed us how to exploit other resources, including ourselves²⁶». It created centralising forces, reorganising language and giving rise to modern nationalism.

McLuhan sees in the book, a product of the printing press, the embodiment of the fundamental principles of capitalism: uniformity, repeatability, commodification, individualism, exploitation of resources and centralisation.

If this is the case, it is difficult to imagine what the screen, especially the monetised screen, has been able to represent. In our view, the rapid growth of the web and the development of computational and computer sciences have been driven by their monetisation. The economic advantages of these technologies have led to the rapid commodification of information and knowledge in the digital. As a result, their production as such has grown to the point where their management has become unsustainable.

6.1. Education before the book: dictation and copying. Grammar and rhetoric

Medieval culture and scholastic philosophy were structured around the idea of simultaneity. Legal plurality, countless centres without margins, life in groups or communes or guilds or villages would have accentuated group life and community rituals; in short, in McLuhan's terms, medieval culture would have been permeated by orality, a concept of organic, non-functional unity. The author of *The Gutenberg Galaxy* would define this type of cultural organisation as “tribal”.

²⁶ Cite by spanish versión: M. McLuhan, *Comprender los medios de comunicación: las extensiones del ser humano*. Barcelona, Paidós, 1996, p. 181.

As McLuhan also points out, the «scholastic method was a simultaneous mosaic, treating many aspects and levels of meaning in vigorous simultaneity». Legal reflections and achievements, in order to confer unity on the plural network of legal sources, would have identified the place of connection in the single meeting point of universal subjectivism where the various orders would have clashed: nature.

Scholasticism would use the methods of study and teaching of Greek philosophy, based on dialectics, debate, rhetoric, assimilation and integration of points of view: in short, the organic orality of the “tribe”. The direct transmission of centuries of knowledge from disciple to master, and from the latter to the disciples who would follow, conveyed the idea of being an insignificant part of something much greater, but at the same time that each member of this chain constituted a free *potentia* whose sole reason would allow the designs of natural law to be discovered. Hence the idea of decentralisation that would run through the Middle Ages, of plurality²⁷.

Thus, the method of teaching and transmitting scholastic knowledge really consisted in the “necessity of proportion and interaction between the senses as essential constituent elements of rationality²⁸”. Proportion was found in a collective method of transcription. The free reflections of the scholastics passed from the Roman public forum to the schools (in fact, scholastic means “school discourse”).

The two essential medieval pedagogical tools for the transmission of knowledge were grammar and rhetoric.

In the former, which dominated the early Middle Ages, schoolteachers followed the method of grammatical dictation to transmit classical teachings, the monastic method of transmitting knowledge and copying manuscripts, the *grammaticae*. Their way of teaching consisted of dictation and grammatical copying. Students had to make their own books, and the end of their books meant the end of their studies. The art of writing, McLuhan would say, «was held in high regard because it was seen as proof of solid oratory skills; grammar actually served to ensure oral fidelity». The method of dictation was at the heart of studies, warm orality, transmission from mouth to ear and from ear to pen. Over time, this method evolved into a more discursive methodology²⁹.

²⁷ M. McLuhan, *La Galaxia Gutenberg: génesis del "homo typographicus"*, Trans. J. Novella, Barcelona, Círculo de Lectores, 1998, p. 181.

²⁸ In english versionn: *Ibid. The Gutenberg Galaxy* (1962): «*the need for a ratio and interplay among the senses as the very constitution of rationality*» (p. 26, and 130).

²⁹ As McLuhan points out, through Istvan Hajnal, the medieval form of scholarship consisted essentially of an oral method through the dictation of source texts. *Pronuntiatio* and grammar merged into one. There is no doubt that one of the essential reasons for the habit of dictation can be explained by the fact that, 'before the age of printing, schools and scholars did not have adequate access to texts. A handwritten book was very expensive; the easiest way to obtain one was for the teacher to dictate the texts to the pupils. It is possible that there were students who wrote from dictation for commercial purposes [... to be sold later...]. The textbook became necessary for the student, not only because it was useful for their university courses, but also because it would be useful in their future career'. This method of teaching fell into crisis in the 13th century, giving rise to what medievalists called the 'modern method', rhetoric. In the mid-13th century, 'the Faculty of Arts in Paris was at a crossroads in terms of methods. Presumably, the growing number of books

From the 12th to the 16th century, the rhetorical method, properly called Scholasticism, prevailed. This method, which consisted of purely oral teaching, broke with grammar. The method was essentially based on discussion, in which the teacher explained and the pupils merely took notes, since the important thing in the modern method was the conclusion and simplification of the argument, the dialectic of oratory (scholastic discourse)³⁰.

An example of such statements can be found in one of the most famous jurists of the transition from medieval to modern scholasticism, Francisco Suárez of Granada. In a famous letter sent to the General of the Society of Jesus to explain his methods of study and teaching, he said: «There is a habit of reading by letters, of reading things more by tradition from one to another than by looking at them deeply and drawing them from their sources, which are sacred and human authority and reason, each in its own degree. I have tried to break out of this way and look at things more deeply from their roots, from which it follows that my writings normally seem to contain something new³¹».

We are interested in these forms of teaching as mechanisms for the transmission of knowledge, centred on European universities and schools that proliferated across the continent, in order to contrast them with the major technical disruptions in the field of communication. The advent of movable type printing in Europe marked the end of the Middle Ages and ushered in the modern era. This event would put an end to the plurality of sources and, paradoxically, the centralisation of law and power (sovereign states), as well as ending four centuries of intense dialectic in the field of communication.

6.2. Education after the book: screen and hypertext

The global computer network and the development of software and hardware to manage the immense amount of information on the web have given rise to a new paradigm of writing. A new format: hypertext. As we said at the beginning, hypertext, refers to a system of organising information that allows the user to access different content in a non-linear way through links. This system, exemplified by the Internet,

available had allowed many teachers to abandon the method of dictation and move forward at a faster pace [...] After careful consideration, [the Faculty] decided in favour of [this] method; that the teacher should explain quickly enough to be understood, but not so quickly that the pen could not keep up. The clash was between the old form of dictation and the new form of dialogue or oral discussion. It is a curious fact, but it was precisely thanks to this system that studies were revived and a new literature was born in the heart of those Faculties. Each professor, in fact, strove to give the subject he taught a new form, suited to his own assumptions and his own conceptions; and he mainly dictated to his students the result of his personal insights. Cf. *Ibid*, Spanish version, p. 49-50-

³⁰ As a result of this method, glosses and commentaries on Roman law texts became established in medieval universities, forming the so-called *Jus Comune* (through two different methods of contextualisation, the *mos gallicus* and the *mos italicus*, whose differences were based on the interrelation of Roman texts with other texts and legal systems - in the first case - or on the mere contextualisation of Roman law over time).

³¹ F. SUÁREZ, *letter to Fr. Everardo Mercuriano*, Valladolid, 2 July 1579, cit. in Antonio Garmendia de Otaola, *Francisco Suárez, 'Doctor Eximio', pedagogo y educador*, in *Revista Española de Pedagogía* 15, n.º 59, 1957, p. 315.

breaks with the traditional sequential reading typical of books and offers a multidirectional browsing experience.

Alejandro Piscitelli describes hypertext as “digitised or printed texts that have a non-linear structure... a computerised structure that makes it possible, through links, to electronically connect textual units (within the text or with other documents) and that requires active manipulation by the reader³²”. As Piscitelli points out, it is the format in which information is presented on the Internet. In this sense, the space that reading and writing on screen have gained in recent times reveals the slow rise of hypertext as a new means of knowledge production.

Hipertext is a non-linearity, interconnection, multimedia content. It is not limited to written text, but can incorporate different content formats, such as images, video, audio and animations. Hipertext could be considered as a hot medium: Rich in content, in which all the senses are put into practice. But is the user who decides the direction of the content.

It has brought about profound social change. Hypertext has democratised access to knowledge, allowing anyone with an Internet connection to access a vast amount of information. This accessibility has empowered individuals, allowing them to participate in the construction of knowledge and challenge traditional power structures (the much-maligned wikis of Web 2.0 previously discussed and criticized by Andrew Keen and Harold Lanner).

Above all, it has transformed the way we learn, promoting more active and participatory learning. Instead of being passive recipients of information, students can explore different sources, interact with content and construct their own knowledge.

In the hypertextual era, the abundance of available information requires the further development of critical thinking skills and the capacity to distinguish reliable sources from misinformation. It is precisely in this domain that the primary transformation of educational systems must occur. The key to the teaching-learning process lies in acquiring the skills to distinguish reliable, truthful or useful content at any given moment, rather than knowing the content itself.

This is because hypertext, despite its undeniable benefits, also raises significant challenges: content becomes plural and often contradictory, it tends to delegitimise itself through constant proliferation and contestation, and its potentially infinite expansion clashes with the inherently finite nature of study and teaching time.

Ultimately, the shift in the format and medium of knowledge—from the book to the screen, through hypertext—has entailed a profound transformation in what knowledge now is, in what we aspire to know, and in the very nature of knowledge itself.

³² A. PISCITELLI, *Internet la imprenta del Siglo XXI*, Barcelona, Gedisa editorial cibercultura, 2005.

In this sense, Jaques Derrida³³ clarified the idea when he predicted the end of the book. But not the book as a format, rather as a modern idea:

«When I spoke of the “end of the Book” in progress, I was referring to what had already been announced, of course, and what we are talking about this afternoon, but I was referring above all to the ontological-encyclopaedic or neo-Hegelian model of the great total book, the book of absolute knowledge that brought with it, circularly, its own infinite dispersion.

«Now, what is happening today, what is being announced as the very form of the future of the book, still as a book, is, on the one hand, beyond the closure of the book, dissociation, dislocation, disjunction, dissemination without possible reunion, the irreversible dispersion of this total code (not its disappearance, but its marginalisation or secularisation, according to modalities to which we shall return), but at the same time, on the other hand, the constant reinvestigation of the book project, of the book-world or the book- r world, of the absolute book (which is why I have also described the end of the book as infinite, without end), the new space for writing and reading electronic writing that travels at full speed from one point to another in the world and connects, beyond borders and rights, not only the citizens of the world in the universal network of a potential universitas, of a mobile and transparent encyclopaedia, but also every reader as a possible or virtual writer, etc. This rekindles a desire, the same desire. This rekindles the temptation to consider the global fabric of the WWW as the finally reconstituted ubiquitous Book, the book of God, the great book of Nature, or the Book-world in its finally realised onto-theological dream, just as it repeats the end of the previous one as yet to come».

The screen has therefore transformed the concept of knowledge. It is no longer rational, linear, universal, shareable. It is once again plural, contradictory, dialectical, with a strong dose of orality (because it connects the different senses).

The problem is to focus teaching on the management of knowledge in a technical sense. A problem that is exacerbated by AI.

7. Conclusions: AI at the End

The function of hypertext is to create a system that could solve two problems: an automatic system for organising information, on the one hand; and a desire for encyclopaedic coverage and integration of all knowledge networks, on the other.

But this second function has failed and led to the opposite.

Hypertext is the new protagonist of a world in which, until recently, the book format dominated. And this is a very recent revolution. It is therefore particularly interesting to assess whether hypertext fragments or deepens the forms of socialisation of knowledge that we have had so far.

In other words, the question is whether screens, hypertext, scrolling... and the logic of the infinite hyperlink operate as universalizing forces in line with the spirit of modern Enlightenment rationality, or,

³³ J. DERRIDA, cit., note 11. Chapter 2 “The Book to come”.

on the contrary, as fragmenting dynamics that dissolve shared horizons of meaning. Alternatively, might they embody a more promising “third way” — one that respects pluralism and minority identities while still enabling forms of consensus — thus offering an approach more closely aligned with the normative foundations of constitutionalism?

The big problem is that Digital architecture is not organised according to socialisation criteria. As Piscitelli says, it continues to respond to the big problem of knowledge: how to represent thought in a way that is more similar to the way it arises. This is the Artificial Intelligence obsession and, unhappily, the prevailing direction of development in contemporary knowledge technologies.

Addressing this latest paradigm of teaching on screen requires reflection on its marginal contribution to socialisation.

In our view, the central question is: how to represent knowledge in a way that fosters plural coexistence and respect for minorities—namely, the constitutional values of equality, liberty, and fraternity that underpin democratic constitutionalism. That, rather than mere efficiency or monetarisation, should be the true objective of knowledge.

This brings us to an essential problem: what is the ultimate purpose of knowledge, of educational systems, and of the structures through which human knowledge is produced and transmitted?

The answer is already articulated in foundational international instruments. Article 26(2) of the Universal Declaration of Human Rights (1948) states:

“Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups.”

Similarly, the framework of Global Citizenship Education (GCED), reflected in Sustainable Development Goal 4.7, emphasizes the need to help learners become active and responsible global citizens, empowering them to take on active roles and address global challenges. More broadly, SDG 4 calls for inclusive and equitable quality education and promotes lifelong learning opportunities for all, aiming to cultivate citizens committed to sustainability, peace, and democratic coexistence.

From this perspective, the central task of contemporary knowledge systems—digital, hypertextual, or algorithmic—cannot be limited to the optimization of information processing or the mere transfer of data or the accumulation of data as an end in itself. Their legitimacy must be assessed in light of their contribution to pluralism, equality, and peaceful democratic life.

Pasquali was McLuhan's great critic. For Pasquale, McLuhan's work is “deeply ideological and conservative” because it privileges semantic and technological analysis at the expense of ethical, political, and social considerations. He criticises him because he sees technology not as an autonomous force that

shapes society, but as a product of social relations. In this sense, the media do not determine culture, but reflect existing power structures.

In reality, as Christina Fuchs pointed out, capitalism shapes technological development and uses it for its own ends (capital accumulation, social control, etc.), which is why we must advocate an analysis of the media that takes into account the sociological and political dimensions of communication, rather than a *naïve* fascination with technology³⁴.

Returning to Lyotard, (*The Postmodern Condition: A Report on Knowledge*) is committed to a knowledge that has become plural and fluid. For its legitimisation, he relies on what he calls “language games”, because the crisis of grand narratives and the fragmentation of knowledge in contemporary society require a rethinking of the criteria for the validity of knowledge. These criteria will be plural, never universal, respecting identities and minorities: i.e. the rules of the game of argumentation will have to be approved in every “game”, in every place, in every community, without some being extrapolated to others and, above all, they are revocable and modifiable.

Dissent and conflict will play an essential role in the dynamics of knowledge, since invention and progress will be produced through “paralogism”: i.e. the introduction of “moves” that transgress established rules or propose new rules of the game. What matters is not simply the introduction of new “moves,” but the structural allowance within the game itself for risky, courageous, disruptives and audacious interventions over the rules of the game.

In short, the screen will give rise to plural and constantly evolving knowledge. Screen and hypertext should enable greater subject intervention in knowledge, in the media through which it is conveyed, and in its contents. It should foster a measured but genuine subjectivization of educational systems, in which the learner becomes the protagonist in shaping the rules governing the transmission of knowledge. Such a framework would allow for plural rules that respect diversity, plurality, and minority identities — a participatory form of knowledge in constant evolution.

A plural and fluid knowledge... And above all, Oral one!

The complete opposite of the claim of validity, universality and absoluteness proposed by artificial intelligence. Large technology corporations, through the design of their algorithms, appear to be constructing a form of universality grounded not in plural deliberation but in uniformity—often expressed through standardized patterns of consumption.

³⁴ A. PASQUALI, *Comprender la comunicación*, Monte Ávila Editores, Caracas, 1980. For a summary of Pasquali’s main interpretations of the Frankfurt School of communication, see R. E. SÁNCHEZ NARVARTE & S. KOMISSAROV, *Antonio Pasquali y la Escuela de Frankfurt. Lecturas y apropiaciones (1966–1970)*, in *Chasqui. Revista Latinoamericana de Comunicación*, n. 141, 2019, pp. 257–274.



For this reason, returning—at least in part—to the individual, solitary, and personal experience of the book may continue to serve as a refuge.