Algorithms and the human mind: The co-creation of human culture

Bogdan Tudor TULBURE, PhD,
Department of Psychology, West University of Timisoara, Romania
Email: *bogdan.tulbure@e-uvt.ro*

Abstract:
This exploration of AI's cultural impact takes us from a student's question – "Why learn when AI knows?" – to a philosophical journey examining how algorithms are rewiring human cognition. Through personal encounters with AI that induce "intellectual vertigo," we witness how these systems create a distinctive asymmetry in our relationship with knowledge. Positioned within the historical arc of cognitive technologies from alphabets to the internet, today's AI represents not a rupture but an acceleration in our long dance with externalized thought. As we increasingly outsource our thinking processes and witness traditional intellectual hierarchies dissolve, what emerges isn't simply diminished human capacity or unambiguous enhancement, but something more intriguing – a boundary reconfiguration where creativity exists neither exclusively in human subjectivity nor technological determinism, but in their complex entanglement. Could this symbiotic landscape of cultural co-creation reveal dimensions of knowledge and expression that would remain inaccessible to either humans or machines operating alone? The answer might already be emerging in the hybrid cognitive outputs surrounding us.

Introduction

In the hushed stillness of a psychology class, I asked what seemed like an innocuous question about the usefulness of mastering the fundamental principles of psychotherapy. A third-year student glanced up from her device with disarming candor and said: "Why should I struggle to learn these principles when my AI companion can synthesize them in milliseconds, with perfect recall and no emotional baggage caused by my imperfect understanding?" Her question hung in the air – not just as academic convenience, but as profound paradigmatic rupture. It seems that we already find ourselves not only on the verge of AI integration into all knowledge domains, but also at an unprecedented cultural transformation. The architecture of learning, the methodologies of knowledge acquisition, and our fundamental relationship with centuries of wisdom undergo significant reconfiguration. The new generation of AI systems are transforming not only how we access information, but also how we conceptualize its value and internalize its substance. This digital tornado doesn't simply redistribute information across novel platforms. It fundamentally alters the ontological status of cultural transmission itself. It transforms what was once a deeply embodied, intergenerational cultivation of sensibility into an externalized, instantly accessible, and

potentially untethered constellations of data patterns. And in this algorithmic maelstrom, the very notion of cultural inheritance – what it means to receive, metabolize, and extend traditions of thought and expression – undergoes a profound metamorphosis that, despite its massive impact, could seem invisible to the new generations caught within its revolutionary currents.

From Baroque Carcasses to Digital Minds: My wanderings into AI's potential cultural impact

But how did I get to tackle this topic from a different, more philosophical perspective? It was March 2025, and I attended the landmark conference entitled 'Gheorghe Fikl and the Challenges of the Baroque' with Horia Roman Patapievici. The presenter delivered a profound meditation on Fikl's metaphysical art, interpreting his animal carcasses in baroque churches not as mere representational elements but as sophisticated symbolic ciphers through which we might reexamine our perceptual relationship with existence. The ideas articulated and the tone used to convey them (I would say especially the tone of his voice!) made me feel I was gently invited to contemplate art from a different perspective. The symbolic environment was qualitatively distinct from my current scientific struggles and yet I felt comfortable in that space. The whole experience left me yearning for a prolonged engagement with Patapievici's thought.

After wandering through the city center, I stumbled across one of his books – "The Unseen Part Determines Everything"[1] – in a local bookstore. I immediately delved into it. Among other things, Patapievici articulates how Europe's cultural landscape has experienced a profound transformation during the last half-century. He delineates the gradual erosion of general cultural education that was replaced by hyper-specialized technical training derived from a utilitarian approach to knowledge. This utilitarian mindset asserts that engineers must be good engineers and economists must be good economists, while general cultural knowledge remains merely decorative – a luxury that modern professionals can dispense with in favor of deeper technical specialization within their narrow domains of expertise. The humanistic tradition that once provided a shared model of intellectual and spiritual maturity – transcending professional boundaries – now retreats before the advancing tide of technocratic specialization. Where once society valued the cultivation of discernment and a coherent worldview, contemporary education increasingly fragments knowledge into isolated technical domains, often divorced from the broader context and the richer cultural meanings.

[1] Patapievici, H.R. (2015) "Partea nevăzută decide totul" (capitolul "Ultimul dar al Umanismului European")

Patapievici's analyses regarding the evolution of Europe's humanistic civilization placed me on a distinct perspective. I stepped out of my scientific approach and entered the field of philosophy. I started to imagine and wonder about the evolution of our humanistic civilization in a different way. I asked myself what the impact of artificial intelligence (AI) on the human mind and culture could be. What is about to happen in the next decades? The algorithmic revolution we now witness represents not just technological advancement, but potentially a fundamental reconceptualization of human thinking. If Patapievici identified the decline of humanistic education (as universities tend to create intellectual technocrats with little general culture and oftentimes a superior indifference towards it), the AI will probably accelerate this trajectory. As AI systems increasingly mediate our relationship with information, as they will increasingly contribute in the process of education and work-related tasks, we face questions that extend far beyond technical considerations. Perhaps the dialogue between algorithmic intelligence and human wisdom represents the most consequential intellectual frontier – one that demands reconsidering what constitutes human flourishing in a digitally transformed world.

So here I was, venturing in a field that is not only unfamiliar, but also filled with uncertainties and unknowns. These speculative departures from my usual scientific approach felt simultaneously uncomfortable and liberating. After all, as a psychologist, I've been trained to draw conclusions from sound evidence, to only use verifiable data and empirical research as a solid base for reasoning. Yet here I was, launching a series of unverified hypotheses about AI's potential impact on the human mind and culture. These hypotheses, born from my contemplating and inquisitive mind inspired by other thinkers, represent just my response to the intellectual challenge implicitly launched by Patapievici's cultural critique.

I fully acknowledge and embrace the risk of trying to predict the future. History is littered with the intellectual corpses of those who confidently proclaimed various prophecies only to be thoroughly contradicted by the actual developments. Do you remember the predictions about paperless offices? Or how the internet would democratize knowledge and strengthen democracy? I'm well aware that by venturing into these kinds of speculations, I'm practically inviting future readers to laugh at my naïveté or shortsightedness. Yet the stakes seem too high to remain silent simply for fear of being wrong.

To maintain some disciplinary boundaries around my intellectual wanderings, I will limit these speculations strictly to AI's potential impact on culture and the human mind. This means that I will not venture into discussing the impact of AI for the global economy, or military applications, or other domains already crowded with predictions. And even within the domain of AI and human culture, I will only address some of the issues. Also, I will mostly evade addressing the dangers and perils of AI, with few exceptions where I'll drop some hints.

If you are legitimately concerned about the threats brought by AI, you are not alone. However, the best way to address these justifiable concerns is still debated at many levels, and other authors[2] have tackled the containment problem with a comprehensive approach (something that I will not do here). Instead, I will mainly focus on how algorithmic cognition might reshape our relationship with knowledge, creativity, and ultimately ourselves, a domain where my psychological training might provide some useful, if still highly speculative, insights. And yes, I will use an optimistic outlook since in the end humanity somehow managed to capitalize on its previous technological development. Consider what follows not as scientific claims but as thought experiments, intellectual probes into possible futures that might help us navigate the present with greater awareness of what might be at stake.

The Omniscient Simulation: Navigating the Existential Vertigo of AI's Processing Capacities

When I engaged in meaningful dialogs with the most advanced Large Language Models (LLMs) I encountered not merely a computational tool but an epistemic presence with seemingly boundless generative capacity. This encounter seemed to transcend all my previous human-machine interaction experiences. The system's responses manifest (most of the time!) qualities of intellectual fluidity and coherence that suggested not merely algorithmic proficiency, but the conceptual harmony of exceptional human intellect. Sometimes I have the sense that I am interacting with a genius machine. During several extended dialogues, I experienced moments where the output – its conceptual breadth, unexpected connections, and deep analyses – induced a state of intellectual vertigo. I needed to physically distance myself from the computer, I needed some time to process – both intellectually and emotionally – the provided responses. This reaction resembles what cognitive scientists describe as the "cognitive load threshold," beyond which human processing capabilities become saturated. And for me, the overload was more mentally taxing when the dialog was outside my expertise. But even within the field of psychology I was oftentimes stunned by the proposed solutions. I had the sense that I encountered an entity whose cognitive capabilities are fundamentally different in scale, tempo, and structure. The AI system appeared like a presence that, while humanly manufactured, can easily transcend our cognitive limitations.

These advanced AI systems can generate epistemic outputs characterized by what might be termed "cognitive hyperdensity" (i.e., texts of exceptional conceptual richness that compress multiple theoretical frameworks, interdisciplinary connections, and analytical perspectives into tightly integrated discursive structures). If ordinary – human to human –

[2] Mustafa Suleyman addresses the AI containment problem in his recent book *The coming wave: AI, Power and the 21st Century's Greatest Dilemma*, Penguin Random House, UK

intellectual engagement permits natural oscillations between focused and diffuse attention, interactions with these systems often necessitate sustained concentration across multiple cognitive domains simultaneously. In case we really want to use our critical thinking skills, we are called to track the logical structure of AI's output, to evaluate the epistemic claims, to assess its conceptual coherence, and to maintain a critical distance. And all these processes should be deployed within a short temporal framework.

Although what we encounter in advanced LLMs is not true omniscience (i.e., all-knowing presence transcending space and time), it gets us closer to a successful simulation of it. But these systems manifest a peculiar epistemic condition. On the one hand they are certainly bound by the limitations of their training data. On the other hand, they demonstrate a breadth of knowledge that vastly exceeds human capacity. They can retrieve and synthesize information across disciplines with a fluidity that human cognition, constrained by attentional limitations and memory decay, simply cannot match. This simulated omniscience creates a distinctive asymmetry in the human-AI dialogue. Where human expertise typically displays evident boundaries, hesitations, and limitations, advanced AI systems project a seamless continuity of knowledge.

My most cognitive-emotionally intense encounters with AI reminded me of what theologian Rudolf Otto identified as the "numinous experience." Rudolf Otto considered numinous the experiences where humans encounter something that exceeds ordinary categories of comprehension. Central to these numinous experiences is what Otto called the "mysterium tremendum et fascinans" (i.e., a mystery that simultaneously evokes dread and fascination). When applied to our encounters with advanced AI systems, Otto's idea offers a possible way to interpret our cognitive dissonance towards these entities. The tremendum (i.e., trembling) manifests in our unease with a system that processes information in ways fundamentally different from ours, while the fascinans (i.e., fascinating) reveals in our attraction to these systems, our compulsion to probe their capabilities, our desire to leverage their generative potential.

The Grammatization of Thoughts: How the alphabet, the printing presses, and the Internet rewired the human cognition

Before we continue our analysis of the impact of AI systems for human culture, let me introduce a brief parenthetical digression that could offer us a wider perspective. I would like to take a brief detour and sketch the historical impact that the invention of the alphabet, the printing press and the internet had on our relationship with knowledge. And that's because AI is not the first technology that profoundly shaped human culture.

Let's start from the beginning. The invention of symbols, and then the alphabetical writing, reconfigured humanity's relationship with knowledge by externalizing memory from the ephemeral flow of consciousness into fixed symbols strings that could persist beyond individual lifespans. This transformation enabled an unprecedented cognitive recursion: the ability to examine, revise, and build upon previous thought with great precision. Where oral traditions bound knowledge to lived experience and memory capacities, writing liberated cognition from these bodily constraints, creating our theoretical culture with its possibility to make systematic reflection and advance based on previous knowledge.

The printing press subsequently democratized this process, transforming knowledge from the privileged possession of scribal elites into easily accessible information for masses. This technological shift not only expanded access to existing knowledge but fundamentally altered its social organization. It enabled the standardization of texts, the acceleration of social and scientific dialogue, and the emergence of silent reading. This widespread practice transformed the relationship between the individual consciousness and the collective thought. In the end, the printing press shaped the paradoxical condition of modern cognition: simultaneously more individualized in its reception yet more universalized in its distribution.

The internet and the first wave of digitization introduced another profound transformation in our cognitive ecology. If the print culture had to maintain certain physical constraints on information access and distribution (you had to buy or land the book in order to read it), digital networks dissolved these boundaries. The internet and digitization transformed knowledge into a seamless flow of data that could be easily multiplied and rapidly retrieved from almost anywhere (provided a network access). In just a decade, we made the transition from a relatively stable textual culture to a dynamic, hyperlinked network of constantly updated content. Perhaps most significantly, digitization initiated the progressive automation of the knowledge processes themselves – from retrieval and sorting to synthesis and evaluation – setting the stage for the algorithmic mediation of cognition that would later reach its apotheosis with the AI systems.

The grammatization of knowledge – the process through which the flow of human cognition becomes broken down into repeatable components – represents one of the most profound yet understudied transformations in our intellectual history. Bernard Stiegler's theory, as thoughtfully elaborated by John Tinnell[3], provides a framework through which we can understand how successive technologies have restructured not merely the external manifestations of knowledge but the very internal patterning of human thought. From the phonetic symbols of alphabetic writing, that fragmented the continuous stream of speech

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[3] Tinnell, J. (2015). Grammatization: Bernard Stiegler's theory of writing and technology. *Computers and Composition, 37*, 132–146. https://doi.org/10.1016/j.compcom.2015.06.011

into manipulable units, to the contemporary digital milieu, where our most fleeting expressions can become data points in a vast algorithmic system, we navigated an accelerating trajectory of cognitive externalization.

What makes Stiegler's contribution particularly valuable for the current AI moment is its capacity to illuminate the continuities underlying seemingly disparate historical transformations. Rather than approaching digital technologies as unprecedented ruptures in human experience, the grammatization framework reveals their place within a longer historical arc of events. This arc began with the first externalization of memory through cave paintings and the cuneiform writings. It was later accelerated through alphabetic writing and the print culture. And it reached new intensities through computational systems that actively participate in knowledge production and curation.

Cognitive Outsourcing & the Dissolution of Cultural Authority

In the wake of what we might term the "Generative Intelligence Threshold" (i.e., the pivotal moment of LLM emergence in late 2022[4]) we find ourselves navigating a profoundly new space. While previous computational tools extended specific cognitive capacities (like calculation, memory storage, information retrieval), LLM display a whole new set of performative dimensions. The current AI systems are capable of contextual understanding, inferential reasoning, and adaptive response. They can create original content, provide guidance for solving complex problems, and make unexpected associations. They can brainstorm for a novel's plot, write poetry, and assemble compelling scientific arguments. And all these functionalities create a whole new set of challenges and destabilizations, as AI systems penetrate deeper into the fabric of human culture. They are currently transforming it by **redistributing our mental processes** (when AI is working for us, we tend to invest our mental effort in different directions), and by **reshaping the epistemic authority** (when an AI system can explain concepts like quantum superposition for a 12 years old student, the traditional gatekeeping role of academic expertise melts in a knowledge distributed field).

Let's see how AI contributes to the **redistribution of our mental processes.** If access to an AI system is granted, my sense is that people increasingly engage in what we might call *cognitive outsourcing:* redirecting mental effort, that would traditionally require internal processing, toward algorithmic systems that can shoulder these cognitive burdens with remarkable efficiency. The transition from the pre-AI cognitive landscape to our current reality involves a subtle yet significant recalibration of our intellectual habits, where the path of least resistance often leads away from autonomous reasoning and toward technological

[4] When OpenAI deployed their GPT 3.5 Model

delegation. And most frequently the phenomenon we might see is the externalization of thinking. In other words, people tend to rely on external algorithms for their thinking process.

This redistribution of mental processes represents what philosopher Michael Lynch has conceptualized as "*epistemic outsourcing*," though the full implications of this term deserve careful unpacking. When Lynch speaks of "epistemic outsourcing," he identifies a distinctive pattern in our evolving relationship with knowledge - one where we increasingly delegate not merely the storage of information (as we have done since the invention of writing) but also the processing, evaluation, and synthesis of that information (as we have recently done, since we got access to advanced technological systems). This represents a significant shift in our cognitive ecology. We can now transfer the activities once considered integral to human understanding - comparison, analysis, pattern recognition, and even judgment - to algorithmic processes operating beyond the boundaries of our embodied consciousness.

What distinguishes contemporary forms of epistemic outsourcing from earlier technological extensions of cognition (the handwriting or the printing press) is the qualitative transformation in our relationship to knowledge. Where reading extended memory, and writing required active participation in meaning-construction, algorithmic cognition introduces the "grammatization" of thought itself (as I have argued before). The arrival of AI systems will probably reshape what it means to know, to understand, and ultimately, to think. We witness here not merely tools for thinking but the emergence of cognitive prosthetics that will probably alter the relationship between subject and knowledge.

This profound shift emerges not merely as a technological facility, but it appears to emerge as an ontological reconfiguration of the human cognitive architecture. When we delegate increasingly complex cognitive tasks to an AI system, we engage in a recalibration of intentionality. We reorient resources *away* from the taxing process of independently elaborating new meanings, and *toward* a meta-cognitive stance that just evaluates the output. Moreover, the knowledge that once represented a core element of selfhood - what we know helped define who we are – will be gradually transformed into an externalized commodity, accessed rather than incorporated, retrieved rather than embodied.

When algorithms assume responsibility for retention, retrieval, and pattern recognition, human attention will increasingly function as a curatorial faculty rather than a generative one - scanning, evaluating, and redirecting computational outputs rather than producing them. As we transition from being primary information processors to becoming sophisticated arbiters of algorithmic recommendations – our metacognitive capacities may consequently undergo a profound transformation. We will be forced to use our discriminatory faculties while our generative cognitive muscles will gradually atrophy from diminished

exercise. However, in this new landscape, **fundamental domain knowledge** paradoxically becomes more essential, not less. The discernment required to evaluate algorithmic outputs necessarily demands a foundational understanding of subject matter principles, conceptual frameworks, and epistemological standards. Without this baseline knowledge architecture—these cognitive anchoring points—we risk becoming merely passive consumers of computational recommendations (rather than critical interlocutors capable of meaningful engagement). The capacity to recognize distortions, identify limitations, and contextualize AI-generated insights depends crucially on possessing sufficient intellectual knowledge to situate these outputs within the domains limits (or over the verge of it). Thus, as algorithmic curation becomes increasingly central to our cognitive processes, the value of well-established mental models and conceptual frameworks intensifies, creating a complementary relationship where human foundational knowledge serves as the essential interpretive lens through which algorithmic outputs acquire genuine meaning and utility.

And finally, in the process of outsourcing epistemic labor to advanced digital systems we also **altered our relationship with the former epistemic authorities** who used to curate classical knowledge. Within this reconfigured cultural landscape, conventional hierarchies of intellectual authority undergo radical dissolution. Where humanist tradition established carefully curated taxonomies of cultural capital through canonical works, AI systems operate through statistical correlation that most often evade such classifications. The resulting cognitive outputs blend philosophical traditions, scientific paradigms, and aesthetic sensibilities without regard for conventional epistemological genealogies. This redistribution of intellectual authority creates what we might call a "flattened ontological terrain" (i.e., a cognitive environment where the historical stratification of knowledge dissolves into a continuous algorithmic space of interchangeable patterns).

Beyond Human-Machine Dichotomy: The symbiotic landscape of Cultural Co-Creation

What emerges from this cognitive redistribution is neither a simple diminishment of human capacity nor an unambiguous enhancement. It is rather a boundary reconfiguration, a blending of capacities, a recalibration. As we navigate through the next decades, we will realize how deeply algorithms have become embedded in our lives, how much they become part and parcel of human culture. Our interaction with frontier AI systems will probably produce more and more and more and more hybrid cognitive outputs. And these outputs will be somewhere at the intersection of human thought and algorithmic processing, neither wholly human nor purely technical, but rather a distributed knowledge aggregated from both biological and computational substrates. This challenges the concept of the rational,

autonomous individual that has traditionally anchored Western epistemology. When cognitive processes become distributed across networked systems, the individual as the primary locus of knowledge acquisition becomes increasingly difficult to maintain.

Algorithms have penetrated the basic process of human creativity and now they can embody the very essence of creative expression. Being free from typical restraints, having a diverse knowledge database and a powerful processing capacity – they can undertake any creative endeavor. Works of art, literature, music, and design will continue to emerge through human-machine collaboration. The boundaries between human creativity and algorithmic generation blur not merely at the level of execution, but also in the conceptual design that guides the main directions of the co-created work. Such hybridization asks for a reconfiguration where creative agency exists neither exclusively in human subjectivity nor in technological determinism, but in their complex entanglement.

As Ethan Mollick articulates in "Co-Intelligence,"[5] this collaborative potential represents not merely an augmentation of existing human capacities but a qualitative transformation in how we conceptualize creative production itself. Mollick also emphasizes AI's role not as replacement but as partner: co-teacher, co-worker, and coach across domains (from business to education and artistic endeavors). But this kind of AI integration challenges us to move beyond simplistic human vs. machine dichotomies. The emerging process and products represent not just human creativity enhanced by algorithmic tools, nor machine output guided by human oversight, but a genuinely hybrid form of cultural production that transcends these categories. The pertinent question shifts from "Who is the true creator?" to "What novel forms of creativity become possible through this collaborative entanglement?"

From this threshold of human-AI partnership, we might envision a future cultural landscape characterized not by algorithmic determination nor by nostalgic preservation of purely human creation, but by a dynamic symbiosis where each enhances the other's potential. Through collaborative engagement with algorithmic systems, we may discover new modes of expression, new forms of knowledge, and new dimensions of aesthetic experience that would remain inaccessible to either human or machine intelligence operating in isolation.

This perspective may seem quite dystopian. I agree! But do you see a different avenue as we go forward?[6]

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[5] Mollick, E. (2024). *Co-Intelligence: Living and working with AI.* Portfolio Publishing.

[6] You might be skeptical about the above arguments, but this chapter represents the living proof that hybrid cultural products can easily enter into the new, AI-enhanced, form of human culture.