The Myth of Sisyphus in the Age of AI
The Light and Dark Sides of the Pursuit of Efficiency in Contemporary Educational Processes

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Abstract
This article addresses the impact of artificial intelligence on contemporary educational processes, analysing this issue from the perspective of the existentialist anthropology of Fyodor Dostoevsky and Albert Camus, as well as from a contemporary neuropsychological perspective, which provides new insights into human beings and their cognitive, emotional, and volitional processes. Drawing on the philosophical and literary metaphor of Sisyphus, which serves a heuristic function, the authors propose that human effort including that in the sphere of education has an autotelic value, and its technological reduction leads to "alienation of agency" and "atrophy of subjectivity," as it eliminates the cognitive resistance necessary for the brain's functioning. The argument draws on the concept of "desirable difficulties" (Bjork and Bjork) as well as findings from empirical research on the digital determinants of cognitive processes, as identified by Nicholas Carr and Nicholas Kardaras, and above all, findings in the field of *cognitive load theory.* Reference is even made to data from the latest OECD and UNESCO reports on the impact of AI on education. In conclusion, the authors propose despite recognizing certain positive aspects of AI's role in digital learning a *creative* return to education based on cognitive effort as the foundation of authentic human development.
Key words: artificial intelligence, education in the digital world, neuropsychology, motivational psychology, learning psychology

Introduction

Contemporary educational culture, increasingly saturated with artificial intelligence (AI) technologies, seems to be obsessively pursuing the ideal of so-called "frictionless learning." It promises a radical optimization of the educational process by shortening the path to the goal and eliminating all cognitive effort. In such an educational paradigm, the learner ceases to be a subject laboriously grappling with the subject matter and becomes an impatient customer to whom an algorithm is supposed to deliver a finished product in a way that burdens their psyche as little as possible. This, however, raises a fundamental question: does the learning process classically understood as the acquisition of new information through overcoming cognitive resistance, resulting from the necessity of confronting what is new, complex, and demanding of active mental effort remain a process of human cognitive formation?

This article represents an attempt at an interdisciplinary analysis of this phenomenon based on the research of other scholars and their responses to the question posed. The authors propose the thesis that the pursuit of full efficiency in AI-assisted education undermines the very foundations of existing "deep learning" that is, a process requiring conscious effort, slowness, independent problem-solving, and the creation of lasting representations of knowledge as a result of confronting cognitive difficulty. Undermining these foundations leads to a state that can be described in anthropological terms as "atrophy of subjectivity." Here, it is understood as the gradual disappearance of the human capacity for independent thought, decision-making, interpreting the world, and giving meaning to one's own actions as a result of ceding these functions to external, algorithmic optimization mechanisms.

These reflections were inspired by Albert Camus's thought, expressed in *The Myth of Sisyphus*, according to which "the struggle itself toward the heights is enough to fill a man's heart" (Camus, 2004). For centuries, we lived with the conviction that the journey toward the goal is what matters most even if it does not end in spectacular success. Today, however, we function within a *Big Data* civilization and its accompanying culture of efficiency, where the result is what counts above all else, and the path leading to it is forgotten. We underestimate human toil and effort, so evocatively depicted by Sisyphus. For today, it is not man who rolls the boulder, but an anonymous algorithm does it for him, and man gladly endorses the final result offered to him by artificial intelligence. A world constructed in this way, however, becomes ontologically empty, because in a reality devoid of difficulty, man loses himself, his hidden potentials and abilities; he loses the right to learn from his mistakes and to act slowly, becoming merely an impersonal link in the chain of algorithmic optimization.
This issue will be *analysed* from two complementary perspectives: a) a neuropsychological perspective, drawing on the findings of neuropsychologists Nicholas Carr and Nicholas Kardaras regarding the impact of digital technologies on brain architecture, cognitive and motivational processes, and the development of a passive observer mindset; / a psychological perspective, based on the theory of "desirable difficulties" by Robert A. Bjork and Elizabeth L. Bjork, cognitive and educational psychologists. In their highly influential article *"Making things hard on yourself, but in a good way: Creating desirable difficulties to enhance learning*" (2011), they demonstrated that moderate cognitive difficulty is not a flaw in the educational process, but a necessary condition for deep and lasting learning. They demonstrated that certain types of difficulties such as delayed review, task interleaving, active recall, or contextual variation while slowing down immediate learning, significantly strengthen the formation of lasting memory traces in the learner's mind and the ability to transfer this knowledge to new situations. It also relates to the seemingly contradictory findings of *Cognitive Load Theory* (CLT), developed in the 1980s by educational psychologist John Sweller. According to this theory, cognitive learning is most effective when instructional material is presented in a way that minimizes extraneous cognitive load on short-term memory and supports the construction and automation of knowledge structures in long-term memory (Sweller, Ayres, & Kalyuga, 2011).
To resolve the dilemma that arises here whether to warn against cognitive load in the learning process that overloads working memory, or rather to promote it if it strengthens long-term memory one must consider the distinction between types of cognitive load. In other words, should we primarily limit extraneous load and focus the learner's cognitive resources on elements crucial for understanding the material (intrinsic load), or in accordance with the Bjork theory introduce difficulties that eliminate unproductive load (Bjork & Bjork, 2011), and increase the productive load (germane load), thereby promoting deep processing and lasting learning. This question takes on particular importance today in the context of applying artificial intelligence technologies in the educational process. Many AI tools remove difficulties that as research shows are often necessary for the formation of lasting knowledge. To avoid a one-sided perspective and to also recognize the positive aspects of AI's impact on education, the authors also refer to data from the latest reports prepared by the international think tanks OECD and UNESCO.

1. The Phenomenology of Human Effort

Human effort before it becomes an important psychological or pedagogical category here is first and foremost a bodily-conscious experience, a structure of experience that reveals the relationship between the human being and the world. In its most primal sense, it is "ex-effort" = ex- a prefix denoting *the completion of something to the end, completely, outwardly*; effort- the root of "effort," -ek – a noun-forming suffix. Effort or exertion = "drawing out (to the outside) the strength lying dormant within us,"

"intensifying one's strength," "transcending ordinary power, 'straining one's physical or mental strength to achieve or do something'" (PWN Polish Language Dictionary, n.d.). In phenomenological terms, effort does not merely signify a state of increased muscular tension or heightened attention and thought but is also the moment in which the subject encounters the resistance of reality and, in this collision, recognizes their own limits, and subsequently the possibilities of transcending them. Effort thus reveals what the philosopher a phenomenologist of perception Maurice Merleau-Ponty aptly called the 'interweaving of body and world': a human being is always *an embodied subject*, a psychophysical being who not only thinks but also acts, and through this action affirms oneself (Merleau-Ponty, 2001: 175). The phenomenon of effort is also deeply intentional directed toward something that demands overcoming. Taking into account the emotional component in the experience of effort, it must be stated that it is not merely the pure suffering of a person intensifying their strength. It is a fact that it appeared to be so for a very long time, because it was equated with hardship, toil, and hard labour performed under compulsion, burdened by the necessity of biological survival. It was not until the modern era of European culture that a richer understanding of human labour emerged, including as a source of freedom and dignity contrary to the contempt shown by the people of Antiquity recognizing in it the foundation of the individual's autonomy and self-reliance, and, on the other hand, an opportunity for their social integration. Thanks to this shift in meaning, effort/labour/work became a form of activity in which "I can" encounters the assertion "the world resists me." Only such an experienced tension allows for the emergence of subjective agency. If resistance is completely removed, the experience of effort is impoverished, and with it disappears the " " presence of the human being in the world as an acting subject harbouring dormant power/strength within. The irony, however, as Nicholas H. Smith writes in *Philosophy of Work,* is that:

> "Those whose work consists of studying philosophy that is, professional philosophers have, for the most part, little to offer on this subject today. The problem of identity is one of the central concerns of contemporary philosophy, yet philosophers have paid scant attention to the self-formative role of work, even though work (and its presence) is a part of adult life, shaping one's values according to both conscious and unconscious principles. While the problem of human development is fundamental to contemporary moral philosophy, and philosophers have extensively described the principles of becoming good people and the principles of good societies that enable the enjoyment of a "good life," work has virtually no influence on these changes, even though its absence can have a devastating impact on our lives (...). In philosophical and political discourse, the assumption has taken root that work is nothing special, even though it is work that, first and perhaps more profoundly than any other sphere, tests the human sense of justice." (Smith, 2016: 429–433)

An exception here is the work of the representatives of personalism, as well as the philosophers Simone Weil and Maurice Merleau-Ponty, and the existentialists Gabriel Marcel, Jean-Paul Sartre, and Albert Camus. In Camus's classic essay, *The Myth of Sisyphus* (1974), the protagonist is not merely a figure tragically trapped in a repetitive cycle of futile labour. He is, above all, "the master of his own fate" at the moment he gains full awareness of his own situation. For Camus, the key moment is not reaching the summit itself, but the moment when Sisyphus descends toward the plain to take up his labour once more (Camus, 2004). It is precisely in this return, in the acceptance of the never-ending struggle, that his freedom and sense of agency are born. Applying this metaphor to the realm of contemporary education, we can regard the cognitive effort as the equivalent of Sisyphus's boulder. The toil of learning the laborious grasping of concepts, the wandering through an excess of information, the gradual synthesis and

organization of knowledge is not a "cost" that must be borne to obtain this or that certificate or diploma. It is an indispensable process that genuinely shapes and strengthens the learner, both mentally and intellectually. Artificial intelligence in education appears here as a radically anti-Sisyphus proposition: it offers an "elevator to the top", and its creators seem to regard the climb itself as an inefficient waste of the learner's time. If, however, we remove the struggle, Sisyphus loses his boulder, and with it, what defined his existence and agency. Criticism of "effortless efficiency" also finds its deep justification in the reflections of the writer and thinker Fyodor Dostoevsky, which predate Camus's by a significant margin. His protagonist in Notes from the Underground vehemently opposes a vision of the world in which everything is calculated, optimized, and presented to man as a mathematical certainty (Dostoevsky, 1992). Dostoevsky warns that man is not a purely rational being, striving solely for comfort and benefit. On the contrary he needs struggle, the right to make mistakes, and the experience of suffering, for these confirm his free will, unpredictability, and the dignity of the human being.

Modern educational systems, which utilize AI-based learning as well as various forms of automation of student activities, create a kind of technological and comfortable "crystal palace" the kind found in people's dreams, which Dostoevsky also wrote about. They promise a learning process that is perfectly tailored to the user's aptitudes and eliminates all cognitive discomfort. However, in this "conflict-free paradise of education," the space for the authentic development of a young or mature person disappears. As has already been said in phenomenological terms, a person can be strong and fully themselves only in a world abounding in difficulties. AI developers, pragmatically striving to eliminate human error and the toil involved in acquiring and creating information, unwittingly deprive people of the opportunity to become anything more than passive consumers of information carefully curated by the system. When technological tools relieve the learner of the burden of analysis, problem-solving, or independent synthesis, a phenomenon occurs that can be described as "alienation of effort**."** The learner is then separated from their own cognitive process. They are no longer the author of their understanding of the world, but merely someone who validates results generated by an intellect foreign to them an algorithm that has done the actual work for them (Carr, 2013: 265).

Meanwhile, cognitive effort is an autotelic value: it constitutes the boundary between the "self" and the external world (Merleau-Ponty, 2001: 234–236). Overcoming the resistance of intellectual matter allows one to experience one's own cognitive agency. The removal of this resistance by AI technology leads to a blurring of the subject's boundaries, as it deprives humans of situations in which they must engage their own intentionality, perseverance, and responsibility for the course of the thought process. If everything in learning comes too easily, without the investment of one's own energy and time, the acquired knowledge becomes "shallow" not only in the sense of cognitive brevity, but also in an existential sense for it does not take root in the structure of the mind and our personal identity. It remains, as Carr emphasizes, merely a temporary resource in the brain's working memory, failing to transform into a lasting understanding of the content or an internal point of reference (Carr, 2013: 165–167).

2. The Neuropsychology of Cognitive Resistance

The shift from a philosophical analysis of effort to a neuropsychological perspective reveals that grappling with cognitive difficulties is not merely an existential choice, but a biological necessity. If, as Camus claimed, the struggle to reach the summit fills the human heart, then modern neuroscience adds: that same struggle shapes the architecture of our brain. In his concept of "intellectual technologies," Nicholas Carr demonstrates that the tools we use from maps to AI algorithms are not neutral (Carr, 2013: 63–65). For they reorganize our neural maps, imposing a new way of perceiving reality. Carr warns against a phenomenon he calls "mental Taylorism," (Carr, 2013: 129–133) for

just as Frederick Winslow Taylor's scientific management system streamlined physical labour by reducing it to a sequence of efficient movements, so too do modern algorithms seem to similarly optimize our thought processes. In the AI paradigm, the "inefficient," slow process of deep reflection is replaced by speed and fragmented data processing. Carr uses an apt metaphor here: new technology applied to our cognitive processes transforms learners from "divers" seeking meaning beneath the surface of a text into "surfers" who rapidly skim only fragments of information without fully assimilating any of them (Carr, 2013: 15–18). In an educational context, this means a paralysis of information transfer from working memory to long-term memory the "bottleneck" of working memory becomes clogged with an excess of stimuli, preventing the construction of complex knowledge schemas. While Carr focuses on cognitive processes, Nicholas Kardaras, in his analysis of "digital cocaine," strikes at the motivational and physiological foundations of human beings. Kardaras argues that interactive screens and algorithms stimulate the brain's reward centres in a manner virtually identical to that of psychoactive substances, including cocaine (Kardaras, 2018: 75–78). AI used in education, striving for maximum user engagement through gamification mechanisms (dopaminergic mechanisms that activate the brain's reward centres triggered by rapid stimuli) and instant gratification, induces a state of deep digital absorption in the learner, which Kardaras calls a trance a state of hyperfocus akin to addictive arousal (Kardaras, 2018: 82–85). MRI studies conducted in 2012–2013 by a team of researchers from Wenzhou Medical University led by Chuan-Bo Weng, involving a group of adolescents diagnosed with internet gaming addiction, indicate a moderate correlation between excessive screen exposure and grey matter atrophy in the frontal lobes the area responsible for executive functions: impulse control, empathy, the ability to delay gratification, and sustained goal-directed effort (Weng et al., 2013). These findings correspond with Kardaras's observations regarding the overloading of reward systems and with Carr's concept of reduced deep processing and together they form a coherent neuropsychological diagnosis in which digital stimulation replaces effort, leading to a weakening of executive functions and sustained concentration. Removing effort (resistance) from the learning process means that the prefrontal cortex is not sufficiently stimulated, which reduces its plasticity and ability to sustain effort (Kardaras, 2018: 90–92), and leads to a decline in its performance.

Combining the findings of the aforementioned researchers, we arrive at a paradoxical conclusion: in our efforts to teach machines to think like humans, we ourselves are increasingly processing information in a machine-like manner. This is a distressing process of depersonalization, in which the learner loses the status of an agent (Sisyphus) in favour of the role of a "passive observer" of algorithmic processes.

3. The Impact of AI Technology on the Motivation Crisis

The philosophical diagnosis of the alienation of effort and neuropsychological evidence of the weakening of structures responsible for deep concentration and long-term memory find their complement in the psychology of motivation. If as phenomenological analysis suggests human agency is revealed in effort, then from a psychological perspective, effort serves a meaning-making function, giving meaning to one's own actions. For intrinsic motivation, which is more valuable than extrinsic motivation, arises only when an individual experiences meaning in the effort undertaken and the actual overcoming of difficulties

According to Self-Determination Theory (SDT), as represented by Edward L. Deci and Richard M. Ryan, sustainable learning requires the fulfilment of three needs: autonomy, competence, and relatedness. Autonomy means that the learner experiences themselves as the author of their actions; a sense of competence arises from the actual overcoming of difficulties (Deci & Ryan, 2017: 10–15). In AI-based education, these foundations are at risk. When a learner receives an instant, ready-made answer to their question,

they lose the opportunity to experience a developmental "breakthrough" that required slow reflection and the passage of time (Bjork & Bjork, 2011: 58–60). Mechanisms based on the automation of the thought process and immediate gratification only reinforce external motivation but weaken internal motivation the kind responsible for the most lasting learning outcomes. In this sense, AI technology produces an education devoid of a key educational moment: the struggle and overcoming of resistance, which bring the learner a sense of competence and the joy of independently discovering a solution to a given problem. Education ceases to resemble Sisyphus finding meaning in the process of overcoming the resistance of the boulder and begins to be associated with a process in which a machine-mathematical algorithm removes obstacles from his path, depriving him of the experience of his own effort.

4. Education and "digital anthropology": toward the recovery of subjective agency

In light of phenomenological, neuropsychological, and motivational analyses, the central issue in AI-supported education does not concern the technology itself, but rather the changing relationship between humans and their own cognitive processes. Predictive and substitutionary mechanisms of algorithmic learning led to the phenomenon of "digital anthropology of passivity" (Carr, 2013: 268–270): the learner ceases to experience themselves as the source of understanding. The boundary between "I think" and "the algorithm thinks for me" becomes blurred, as the algorithm takes over the functions of interpretation, content selection, and attention steering, leaving humans in the position of recipients of results rather than creators of meaning. From the perspective of cognitive psychology, without active information processing that is, encoding information multiple times in small, repetitive portions into the memory stores within the mind lasting knowledge cannot be formed. The human brain operates pragmatically, according to the principle: what is encoded once is to be used only once (Feldman, 1998: 313–314). From the perspective of existentialist anthropology, without effort, a fully-fledged subject cannot emerge one with a mature personality, learning responsibility through one's own mistakes, and thereby experiencing one's own freedom of action. Therefore, the takeover of cognitive functions by AI technology leads to the atrophy of human subjectivity a phenomenon previously described in Parts 1–2. In response, it becomes necessary to develop a model of "Sisyphean education," in which toil, slowness, error, and resistance are treated not as obstacles but as conditions for development (Bjork & Bjork, 2011: 61–63). The authors of this article will return to the attempt to formulate such a model, but for now they will focus on analysing expert reports produced by the OECD and UNESCO that is, those international organizations that for several decades have been diagnosing and setting global directions for the development of various social fields, including education, and formulating standards regarding the competencies necessary in information societies.

As can be seen from the above discussion, the use of AI technology in education seems to have only downsides. To avoid this one-sided perspective and identify the positive aspects of AI's impact on learning, the authors refer to data from the latest reports by the OECD (2021, 2025) and UNESCO (2025). Upon reviewing the 2021 OECD report titled Trustworthy Artificial Intelligence (AI) in Education, it becomes clear that the outlook on the role of AI technology in education is quite optimistic: it supports adaptive learning pathways, enabling personalized learning through systems that adjust the pace and selection of content to students' individual needs, and enables earlier diagnosis of learning difficulties through the use of learning analytics and predictive models that identify the risk of learning problems (OECD, 2021). A less prominent, darker side of this report is the threat of digital social exclusion due to infrastructure barriers and low digital literacy in certain social groups or countries.

An analysis of the latest OECD report from 2025, *Trends Shaping Education 2025* , particularly the chapter on *Artificial Intelligence in Education*, shows that AI technology is still largely presented in it as a positive driver of social innovation.

Indeed, artificial intelligence and digital technologies are transforming the modern world of science and, consequently, the demands of the labour market; therefore, today's education should prepare students for the new professions of the future. AI can and should support this education by enabling the creation of diagnostic tools, new learning methods, and educational data analysis. By becoming one of the key elements of the accelerated digital transformation of education, AI technology is thereby contributing to the emergence of modern digital ecosystems in schools, such as smart educational platforms that adapt content to the student's level, learning analytics systems that monitor progress in real time, virtual assistants that support teachers in lesson planning, and so on. Artificial intelligence also serves as a catalyst for curriculum reform, leading to a greater emphasis on digital competencies, critical thinking, and data analysis:

> "Artificial intelligence has the potential to revolutionize education itself by providing personalized learning experiences, automating administrative tasks, and supporting teachers in identifying students' needs. Immersive technologies, such as VR, are already widely used to teach technical skills in fields such as medicine, and are also being explored for the development of soft skills, such as empathy. However, the implementation of these technologies in education also raises concerns regarding data privacy, equity, and the potential risk of bias. An important question arises: how can educational systems leverage artificial intelligence and other cutting-edge technologies to enhance the teaching process while addressing these ethical and practical challenges? (...) How can curricula be designed to integrate digital competencies and promote their responsible use?" (OECD, 2025)

These are extremely important questions, especially in light of the report's description of the negative aspects of these phenomena, which shows that the traditional foundation of education namely, basic competencies, which include: a) reading and writing, b) mathematical skills, c) and problem-solving is becoming an area in decline, despite rapid digitization and the growing role of AI in life and education. We are thus faced with a paradoxical situation: on the one hand, there is an erosion of key competencies, particularly in reading and writing, which as the OECD indicates are declining on the current scale in most of the 31 countries surveyed (except Finland) (OECD, 2025), just as mathematical skills, which form the foundation of logical thinking and data analysis, are weakening. On the other hand, there are expectations for success in teaching children and young people logical and critical thinking, which would help them navigate the complexities of the digital world. Problem-solving skills that is, the ability to analyse situations, draw conclusions, and seek solutions are also declining. It is precisely these skills that have made it possible to develop deep critical thinking up to now.

The 2025 UNESCO report **AI and the Future of Education: Disruptions, Dilemmas and Directions** directly confirms the thesis of the authors of this article regarding the crucial role of deliberate effort in a learner's development. While the OECD, in its report **Trends Shaping Education 2025**, characterized artificial intelligence as a neutral and civilizational megatrend, which is profoundly transforming the teaching and learning environments of children and youth as well as the professional work of adults, and simultaneously pointed to a growing gap between the pace of technological change and the key competencies of students and adults, it still used indirect language regarding the "decline in motivation." However, it certainly diagnosed functionally similar consequences: a decline in cognitive perseverance and a decreasing share of deep information processing (OECD 2025).

The aforementioned UNESCO report, which includes an anthology of 21 articles written by global experts, calls the problem by its name. The report's authors warn against the phenomenon *of cognitive offloading* that is, shifting cognitive effort onto AI

tools which can lead to a decline in human motivation to learn and, consequently, result in a weakening of cognitive processes (UNESCO, 2025). It is also pointed out here that hyper-personalization so often glorified in technological discourse as a value that enhances the effectiveness of learning and teaching processes can isolate students from the social dimension of education and weaken their intrinsic motivation to take on difficult challenges. The UNESCO report warns against this phenomenon, as overly personalized teaching may reduce the educational process to nothing more than "individualized pathways," depriving it of its essential communal dimension (UNESCO, 2025). UNESCO also emphasizes that AI technology should not replace teachers. Its role should be solely to strengthen relationships, reflection, a sense of agency, and the social nature of learning, rather than limiting cognitive development or even disempowering learners. Teachers are described in this expert anthology as the "backbone of education," and AI technology developers are expected to design it not only *for* teachers but also with teachers (rather than instead of them) (UNESCO, 2025). It is clear that the UNESCO report in question highlights not only the risks but also the benefits of using artificial intelligence in education. It points out that responsibly designed AI solutions can genuinely support teachers' work especially in identifying students' difficulties, adjusting the level of tasks, and expanding access to diverse educational resources. Properly implemented technology can also increase the precision of monitoring learning progress and promote inclusion by compensating for certain barriers resulting from disabilities, cognitive limitations, or language difficulties (UNESCO, 2025). The report's authors note, however, that fully realizing these benefits requires maintaining a balance between automation and learners' active engagement so that AI does not replace cognitive effort but supports the process of purposeful engagement, strengthening autonomy, reflection, and the development of key competencies in a rapidly changing world (UNESCO, 2025). As stated in Chapter VIII of the report, the integration of AI into education cannot be treated as an "inevitable technological fate." It is educational systems and educators who must regain the initiative and set the direction for change. The future of education should be based on a new social contract, drafted with respect for human dignity, in which technology serves student agency rather than the commercial goals of platforms.

Conclusion

This compilation of such diverse research findings and reflections gathered with a commitment to maintaining an objective perspective on the issue reinforces our central hypothesis: the elimination of cognitive resistance through AI technology leads to *the "alienation of effort"* and, consequently, to *the "atrophy of subjectivity*." International institutions such as the OECD and UNESCO, which systematically monitor the effects of digitization and the automation of cognitive processes, confirm the convergence of diagnoses formulated from different research perspectives. The OECD provides irrefutable data on systemic negative effects particularly on declines in key competencies among populations that make intensive use of technology while UNESCO reconstructs the psychological and pedagogical mechanisms underlying these phenomena, such as the decline of critical thinking, the loss of intrinsic motivation, the breakdown of reflective processes, and the growing trend of *cognitive offloading*, which transforms the student's relationship with knowledge into the consumption of ready-made answers rather than their independent reconstruction. This unreflective transfer of thought processes to machines, against which UNESCO warns, constitutes, from a philosophical perspective, a kind of voluntary entry into Dostoevsky's "crystal palace." It is a tempting world without errors or difficulties, which, however, ultimately deprives humans of free will and agency. Therefore, UNESCO's call for the preservation of the social dimension of education and the irreplaceable role of the living teacher appears as the only salvation from the anthropological void and loss of meaning described by Camus. In both cases, the focus

of the diagnosis remains the same: the technologically aided elimination of cognitive effort undermines not only the quality of learning but also the development of autonomy, agency, and lasting intellectual dispositions.

In light of the above set of analyses, it can be concluded that the problem is not simply a matter of "excessive technology," but concerns a deeper anthropological and cultural shift a shift from learning that requires effort, mindfulness, and time, toward a model of accelerated, automated content acquisition that does not engage the structures responsible for understanding, interpretation, and critical evaluation. This is a process that, in the long term, threatens the very foundations of education as a practice of human formation, rather than merely the optimization of information flow. We know full well that there are no simple returns to the past societies can only accept creative and, at the same time, compromise-based solutions, grounded in the principle of the golden mean. In light of the above, some integration of AI technology with education must occur, but on the other hand, it should be responsible and aimed at protecting the cognitive processes that constitute the student's autonomy. This implies the need to design such educational environments in which technology does not replace cognitive effort, but rather models, strengthens, and directs it. In this integration, it is necessary to distinguish between two types of difficulty, corresponding to the theory of "desirable difficulties" (Bjork & Bjork) and Cognitive Load Theory (CLT) discussed in the text. "Unnecessary difficulties" resulting from information overload, poor task design, or an excess of stimuli should be minimized (a tenet of CLT). "Desirable difficulties," i.e., intentionally designed challenges that force active processing, independent knowledge reconstruction, and transfer, must be consciously preserved and woven into AI-supported instruction.

The authors therefore propose for communities using AI technology the concept of "cognitive resistance pedagogy," which integrates earlier philosophical, neuropsychological, and motivational insights with the findings of the OECD and UNESCO. Its aim is to create a framework in which technology will support challenging, reflective, and effort-based learning rather than replace it; in which the development of key competencies, critical thinking, and intrinsic motivation will become the overriding criterion for any integration of AI into education. The following guidelines are outlined here: "resistance calibration" (the deliberate introduction of stages without immediate prompts to initiate the effort necessary for long-term memory consolidation); "delayed assistance" (delayed assistance) (AI should offer support with intentional delays and in increasing increments (scaffolded hints) to keep the learner in the zone of productive cognitive frustration); requirement to produce cognitive artifacts (every use of AI in a task should result in the learner's "own" creation (e.g., creating a concept map, proof, or essay), which will require content reconstruction and metacognitive reflection on the process); "cognitive audit and transparency": the system must reveal 'what the AI did' and 'what the learner did' (learning trail) to prevent complete offloading and reinforce a sense of authorship and competence; "equal access and systemic readiness" (in line with the OECD's diagnosis of social inequalities in access to AI technology and the pressures of megatrends, schools must simultaneously invest in the competencies of teachers and students (AI literacy) and in infrastructure to avoid negative polarization of outcomes); "Formative assessment instead of test automation" (the flight from difficulty begins where teaching is reduced to automatically verifiable answers. Formative assessment based on explanation and argumentation should be developed).

From this perspective, AI technology will not merely be a "shortcut to the top," and the concept of "personalization" so strongly emphasized in OECD reports needs to be reinterpreted. It cannot be treated merely as a convenience that removes obstacles. Instead, adaptive learning paths should serve as an "intelligent safety net." This means that AI algorithms rather than removing the boulder from Sisyphus's path should

dynamically adjust its weight so that the cognitive effort always remains a "desirable challenge." In this way, the technological personalization described in the OECD reports becomes a practical implementation of the principles of "pedagogy of resistance." Technology does not do the work for the student, but ensures that the resistance they experience is optimal for their development it ensures that Sisyphus does not fall, but compels him to keep climbing on his own. This approach maintains the tension between CLT and "desirable difficulties": it minimizes noise and cognitive digressions while preserving the core of the experience of effort, without which as Camus emphasized a person loses meaning, and in Dostoevsky's terms, the dignity of a free agent. In the practice of AI-supported education, exposure to certain natural forms of failure will likely decrease, but its pedagogical value should not be abandoned.

Declaration on AI Use

The authors declare that no artificial intelligence (AI) tools were used during the research, writing, or editing process of this manuscript. The work is entirely the result of the authors' own intellectual effort.

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