THE EVOLVING RIGHT TO EDUCATION IN THE AGE OF GENERATIVE AI[1]

A EVOLUÇÃO DO DIREITO À EDUCAÇÃO NA ERA DA IA GENERATIVA

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Abstract

In this text, I examine how the rapid diffusion of generative artificial intelligence is influencing lifelong learning and why these changes relate to the need to update the right to education. I begin from the observation that language models have quickly become integrated into the design and delivery of educational processes, supporting content creation, curricula, multimodal materials, and assessment. I highlight two main developments. The first is the growing role of AI-assisted self-regulated learning, as individuals increasingly consult language models for information, explanations, and continuous feedback within their daily activities. The second is the convergence between artificial intelligence platforms and educational services, as technology companies develop solutions aimed at teaching and learning. I also present three technologies transforming learning environments: intelligent virtual assistants, AI-integrated learning management systems, and AI-generated immersive content. I relate these developments to UNESCO's initiative to evolve the right to education to fit twenty-first century realities, including connectivity, digital literacy, and the recognition of formal, non-formal, and informal learning.

Keywords: Generative Artificial Intelligence; Right to Education; Lifelong Learning; Educational Technologies; UNESCO; Digital Education.

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Resumo

Neste texto, examino como a rápida difusão da inteligência artificial generativa está influenciando a aprendizagem ao longo da vida e por que essas mudanças se relacionam com a necessidade de atualizar o direito à educação. Parto da constatação de que, em pouco tempo, modelos de linguagem passaram a integrar o desenho e a oferta de processos educativos, sendo utilizados para produzir conteúdo, apoiar currículos, gerar materiais

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A R T I G O

multimodais e contribuir para processos de avaliação. Destaco dois movimentos principais. O primeiro é a crescente presença da aprendizagem auto-regulada assistida por IA, na qual indivíduos recorrem diretamente a modelos de linguagem para obter informações, explicações e feedback contínuo em meio às suas atividades cotidianas. O segundo é a convergência entre plataformas de inteligência artificial e serviços educacionais, à medida que empresas tecnológicas passam a oferecer soluções voltadas ao ensino e à aprendizagem. Apresento também três tecnologias que estão transformando os ambientes de aprendizagem: assistentes virtuais inteligentes, sistemas de gestão da aprendizagem com integração de IA e conteúdos imersivos gerados por inteligência artificial. Relaciono essas transformações à iniciativa da UNESCO de evoluir o direito à educação para as realidades do século XXI, incluindo conectividade, alfabetização digital e o reconhecimento da aprendizagem formal, não formal e informal.

Palavras-chave: Inteligência Artificial Generativa; Direito à Educação; Aprendizagem ao Longo da Vida; Tecnologias Educacionais; UNESCO; Educação Digital.

As the role of digital technology, and especially artificial intelligence, becomes increasingly widespread and normalized in education, it is important to reflect on how technology is reshaping learning across the life course. My purpose is to connect concrete practice—the tools and platforms already in classrooms, communities, and workplaces—with a policy agenda grounded in the right to education. The global UNESCO policy goal remains the same: to ensure equitable access to high-quality learning opportunities for all, at all stages of life. To achieve this goal, we must now examine the ongoing technological transformation of education, particularly in relation to the evolving right to education in the age of generative artificial intelligence.

I will proceed in three parts:

1. What has changed;
2. Emerging learning technologies;
3. A right-to-education for the generative AI Age.

I will conclude with a brief reflection.

What has changed?

In just two years, generative AI has moved from the margins to the centre of instructional design and delivery. Now, large language models can draft and curate content, help shape curricula, generate multimodal materials,

and support assessment end to end. In this context, public education systems are carefully and slowly piloting this transformation. Meanwhile, financially well-resourced private sector edtech actors and AI vendors are rapidly iterating, setting expectations for speed, personalization, and scale that many public institutions and education ministries find challenging.

I would like to draw attention to two developments that could significantly affect the future of adult education. First, at the individual level, AI-assisted self-regulated learning is becoming more common as a learning method for a large segment of the population. Learners now consult Large Language Model (LLM) directly, prompt for information, knowledge, explanations or practice, and receive continuous feedback—often embedded within the flow of their work and daily life.

A recent study on the usage of ChatGPT has revealed a significant trend. According to this research, around 10% of adults globally use ChatGPT. The study, which analyzed a random selection of messages exchanged between May 2024 and June 2025, found that the primary uses are for seeking practical advice (29%) and conducting information searches (24%). Additionally, a remarkable 49% of interactions are focused on learning, with tutoring, creative ideas, health, and cooking being the most popular categories. These uses highlight that generative AI is becoming an increasingly popular resource for individuals to learn. Consequently, self-directed learning assisted by generative AI is becoming a practice to consider in the development of adult education.

Second phenomenon, at the ecosystemic level, we see the emergence of a "subsumption window" in which general-purpose AI platforms absorb functions once performed by edtech platforms. Since generative AI became widespread, edtech companies have accelerated its use in creating educational services and tailoring instruction.

Simultaneously, companies specializing in artificial intelligence are increasingly entering the education sector. Anthropic (Claude for Education, April 2024), OpenAI (ChatGPT Edu, May 2024) and Google (LearnLM, May 2024) are all turning LLMs into educational services, blurring the line between generative AI

platforms and edtech.

The convergence of generative AI and educational services opens up a potential replacement phase in which AI platforms could absorb services currently offered by edtech companies. Even as private edtech disrupts public education institutions and face-to-face models, AI now poses a threat to the edtech private sector. This transformation alters market dynamics and governance, ultimately shaping the learning landscape for the foreseeable future.

In summary, we are moving from an episodic, provider-led instruction model to blended and conversational interactive multimodal learning environments that learners can access anywhere, anytime. More than ever, we have tools to concretise the lifelong learning ideal.

Emerging learning technologies

The advent of digital technologies has revolutionized the way knowledge is created, accessed, and authenticated. This section will explore three technologies that are transforming learning at all levels: intelligent virtual assistants, AI-first learning platforms, and immersive generative content. These innovations expand access, tailor learning paths, and make possible new educational methods for the age of generative AI.

AI-driven intelligent virtual assistants (IVAs) as always-on tutors and coaches

Since late 2022, large language models have matured into educational copilots that give learners immediate access to vast, up-to-date knowledge and scaffolded help. Deployed as campus or enterprise assistants, these intelligent virtual assistants answer questions, generate explanations, create quizzes and simulations, and adapt to a learner's level and goals. Institutions are piloting tools like classroom copilots and subject-specific tutors, while platforms integrate avatars and multimodal interactions. The net effect is a step-change

in equitable access to high-quality guidance—any time, any topic, any language—supporting self-regulated learning and educator's workload relief.

Interactive, AI-infused Learning Management Systems (LMS) that orchestrate learning journeys in real time

Modern LMS already centralize courses, assessments, analytics, and credentialing; the next wave layers AI to automate content curation, infer skills, adapt pathways, and deliver granular feedback. Experiments point to live-speech practice, dynamic taxonomies, micro-/nano-learning, and agentic workflows that personalize at scale. As LMS converge with learner experience platform (LXP) and immersive interfaces, they become the operational "brain" of learning—continuously diagnosing needs, recommending next steps, and coordinating supports across formal, non-formal, and on-the-job contexts.

AI-generated immersive content as an engine for limitless multimodal learning

Instructional design is being transformed by generative AI that produces lessons, assessments, and rich media on demand—and now extends into augmented and virtual reality (AR/VR) simulations. Emerging platforms convert plain-language prompts into animated demonstrations, interactive 3D environments, and performance dashboards. This lowers production barriers, expands practice-based learning, and enables safe, repeatable, feedback-rich experiences—previously costly or impossible to stage.

Why this matters?

Together, Intelligent virtual assistants, AI-first LMS, and generative immersive content enrich and expand the infrastructure for lifelong learning with ubiquitous access, real-time personalization, and authentic practice at scale. However, the policy challenge is to convert these "digital dividends" into rights-

based gains—ensuring connectivity, privacy, accessibility, and quality—so that all learners can benefit from them across the lifespan.

This ongoing shift in learning models is not only technical; it is also cognitive and social. In the AI-based learning environment, learners converse with knowledge: they specify goals, constraints, and formats; receive feedback; and iterate toward mastery. This emphasizes the significance of metacognition and artificial intelligence literacy. These skills involve framing issues, requesting proof, examining outcomes, and evaluating resources. In this context, adult educators are moving further toward coaching, facilitation, and assessment for learning while safeguarding inclusion, trust, and educational and learning integrity.

Essentially, AI-based technology brings a new kind of learning experience and educational means that potentially enlarge the lever to implement the right to education.

A right to education for the generative AI Age

In 2021, UNESCO launched an initiative to evolve the right to education, so it fits twenty-first-century realities. Digitalization has transformed learning—expanding access anytime, anywhere, accelerating lifelong learning (LLL), and exposing vulnerabilities such as connectivity and device gaps, accessibility barriers, data-protection risks, and linguistic dominance. The UNESCO's Initiative aims to extend the right to education across all ages and settings, operationalize the "4As"—availability, accessibility, acceptability, adaptability—online, and add a fifth "A": accountability.

According to ongoing policy debate, updating the right to education should enshrine continuity of learning and the Recognition, Validation and Accreditation (RVA) of formal, non-formal and informal learning. It should also treat connectivity, devices, and open, multilingual educational resources as guaranteed common goods; embed robust digital safeguards; ensure critical digital literacy for all; clarify adults' rights to reskilling and upskilling; regulate digital learning provision; and protect the most vulnerable.

Three legal avenues are on the table: (1) a new treaty, potentially a convention on the right to lifelong learning; (2) revision or authoritative interpretation of existing instruments (e.g., via General Comments); and (3) non-binding "soft law" measures—policies, guidelines, and recommendations—that may be faster to adopt.

The COVID-19 shock accelerated digital transformation. At the peak, based on UNESCO data, over 1.6 billion learners in 190 countries were out of school; by October 2020, 90% of 135 countries had turned to online instruction. The pivot revealed deep inequalities: many learners lacked home computers and internet access, with especially stark deficits in Sub-Saharan Africa and among rural, poor, displaced, disabled, and many girls. These lessons underscore the need to: recognize distance learning as a legitimate mode; secure legal entitlements to reliable connectivity and accessible digital resources; protect data and regulate private actors; and strengthen initial and ongoing professional development for educators. Literacy itself must broaden to digital fluency, including critical awareness of the technological and economic forces shaping education. Digital educational technology undoubtedly alters the way we can implement the right to education.

Furthermore, generative AI now amplifies the urgency to rethink the right to education. Large language models, virtual assistants, and multimodal, immersive tools are reshaping instruction, assessment, and learner support—fueling AI-enhanced self-directed learning and embedding learning and feedback in the flow of life and work. In that context, AI firms increasingly act as education service providers, raising questions about privatization, standards, accountability, and the public interest. Safeguarding the right to education urgently demands policies that advance equity, quality, protection, and learner autonomy across the lifespan.

From classrooms to chatbots, the AI wave is here. As the digital and AI revolution reshapes how we learn, let us transform its power into a rights revolution—updating the right to education so every learner is connected, protected, and empowered for life. To avoid widening the divide between the

haves and the have-nots, we need an educational right for the Generative AI age.

Closing reflection

Allow me to end where lifelong learning lives: with the learner. Picture a nurse on night shift refreshing a critical protocol; a community educator supporting adults returning to learning; a newly arrived migrant navigating services in a new language. With responsible AI, learning can arrive in seconds—an explanation, a safe simulation, a quick skills check, a translation that unlocks understanding. That is the promise we should deliver: real-time increments of learning that compound into capability and confidence.

But promise is not destiny. Without intentional design and public governance, we risk opacity, exclusion, and privatization by default. Our task—together—is to generate AI for the right to education, and to update that right for a generative AI age. For that, we need a public AI, public algorithms, public training-datasets and public AI-based learning platforms and resources.

If we pair the AI capability with a rights-based public mission, we move closer to what UNESCO has long championed, and reaffirmed with SDG 4: inclusive, equitable, quality learning opportunities for all, throughout life. From a perspective of co-intelligence, let us strive to combine the best of artificial intelligence with the best of human intelligence.