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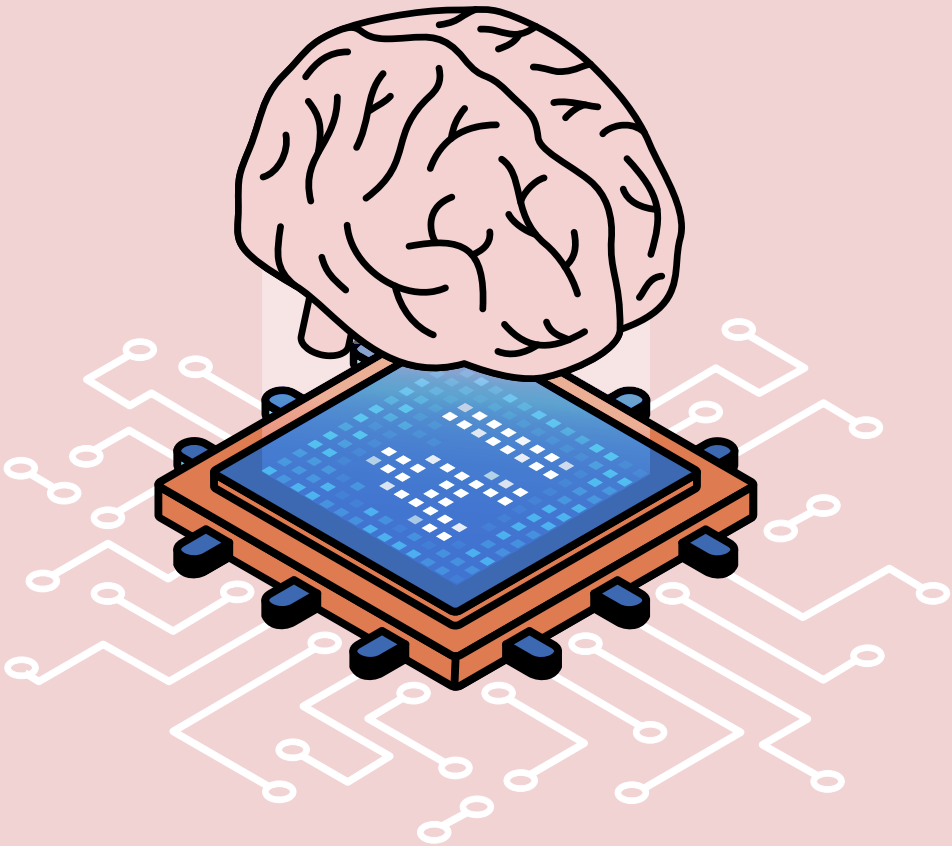

AI Literacy: The New Frontier of Inclusion.

AI literacy

AI Literacy: The New Frontier of Inclusion.

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Artificial intelligence is developing rapidly and is increasingly shaping how we learn, work and participate in society. At the same time, access to AI tools and the competence to use them effectively are unequally distributed. This raises urgent questions about equity and inclusion in education.

In this white paper, the authors of the AI-GO research community examine AI literacy as a potential new dividing line in society. Drawing on parallels with the early development of the internet, they argue that access to AI, and the ability to use it critically and responsibly, may become a determining factor for future educational and professional opportunities.

This white paper is authored by the team behind *AI-GO! A Framework for AI Literacy in Education (AI-GO Framework)*. Informed by this framework (Renkema et al., 2025), the authors reflect on the importance of positioning AI literacy as a core component of education.

1. AI as the new frontier of access and inequality

Imagine it is the early 1990s. The internet is still a novelty, and only a small group of people, mostly in privileged regions and institutions, have access to it. Back then, information was found in libraries, books, encyclopaedias, and classrooms. The internet changed everything: it made information easier to find, access, share, and create. But in those early days, access was not equal (Chen & Wellman, 2005).

To get online, you needed hardware (a computer), software (an operating system like Windows), and a stable internet connection. These were luxuries, not universal tools. The result? A digital divide, due to which those with access surged ahead, and those without it were left behind. It took years of public investment, education, and global policy to make internet access more widespread and inclusive, as well as investments in how to use the internet effectively (i.e., digital literacy). Today, it is nearly unthinkable to live without it. And yet, even in this era, not everyone has reliable access to the internet, especially in underserved or economically disadvantaged communities. The digital divide never fully closed.

Now, we stand at a similar turning point. Artificial intelligence is quickly becoming the next disruptive technology (Păvăloaia & Necula, 2023). But once again, access is uneven. Using AI effectively requires access to powerful tools, familiarity with how they work, and the digital fluency to use them critically (i.e., AI literacy). Just like in the 1990s, we see a new divide emerging: some students, professionals, and citizens are already harnessing AI to enhance learning, creativity, and productivity, while others are left behind, without the tools, the training, or the confidence to engage. If access to AI becomes a new gateway to opportunity, will those without it be at a permanent disadvantage? What if access to AI (literacy) was a human right?

2. Unequal access among students = Unequal futures

Despite internet access being widely recognised as a human right, not everyone has equal access to it, even today (Grey, 2020). Access to AI tools is even more limited. While some students benefit from premium resources such as the latest GPTs, AI-agents, plugins, and personalised AI tutors, others are restricted to outdated tools or have no access at all. Many AI tools were initially available for free as companies tried to grow market share. This equitable availability, however, is changing, as more and more AI services are becoming paid-only, which means the gap in access is widening once again, creating structural disadvantages that are deeply concerning from an equity perspective.

AI has the potential to significantly influence how people work, how students learn, and how well-prepared they are for a job market where AI literacy is rapidly becoming a requirement. It also shapes digital participation and inclusion in society. Unlike the internet, which gave users access to knowledge but required them to apply it themselves, generative AI goes a step further: not only can it help with knowledge acquisition, but also with processing, and creating. This gives students and knowledge workers a massive edge when producing work or study-related output, both in terms of productivity as well as in quality (e.g., Dell'Acqua et al., 2023). Ultimately, AI has the power to amplify both opportunity and inequality, depending entirely on who has access and on who possesses the necessary AI literacy to use it effectively.

3. Access ≠ Advantage: Why AI literacy matters

Having access to AI is not the same as being able to use it meaningfully. Millions of people now interact with tools like ChatGPT, yet many lack the critical skills to engage with them responsibly and effectively. Without proper AI literacy, access alone can lead to overreliance, the spread of misinformation, passivity in learning, or a lack of awareness about issues such as environmental impact and algorithmic bias. For example, studies into the use of AI in education show mixed results. Some studies found positive effects on student achievement (e.g., Deng et al., 2025). However, some studies also point to negative effects on learning processes and achievement, when students put too much trust in AI and do not know how to use it effectively (Bastani et al., 2024), also leading to "metacognitive laziness"(Fan et al., 2024). The effective use of AI does not only require access to AI, it also requires AI literacy.

AI literacy is essential for fostering digital autonomy and active, informed participation in democratic societies. It empowers individuals not just to use AI, but to question it, challenge it, and shape how it is applied in their lives and communities. True AI literacy goes beyond technical know-how; it includes a combination of attitude (e.g., AI confidence; motivation), knowledge (e.g., knowledge about the application of AI), and skills (e.g., practical use of AI), with ethics as its foundation (e.g., being aware of privacy, data protection and regulations governing the use of AI systems).

4. Education as the gateway to inclusive AI

Schools and universities are among the most powerful levers for ensuring equitable access to AI. To achieve this, AI literacy must be treated as a fundamental skill, just like reading and writing. However, a strong foundation in AI literacy for all students cannot be achieved without well-prepared teachers. Teachers must be supported not only to use AI responsibly themselves, but also to model and teach AI literacy to their students.

This requires more than just technical training. Teachers need AI competence that spans multiple domains. First, this includes knowledge across three key areas: (1) factual knowledge about what AI is and how it functions; (2) applied knowledge on how AI can be meaningfully integrated into teaching and learning; and (3) societal knowledge of AI's ethical, cultural, and political implications. Second, teachers' attitudes play a critical role. They need to be open to using or not using AI when appropriate, feel confident in their ability to work with it, and be motivated to actively engage with its possibilities and challenges. Finally, teachers must develop specific pedagogical skills to adapt to AI's evolving role in education. This includes the ability to assess and leverage the pedagogical potential of AI tools, to tailor AI-related content to their specific educational context, and to manage students' AI-assisted learning process by structuring content in ways that prevent information overload.

AI literacy must be supported at every level of the education system: from individual teachers to school teams, to institutions, and up to national and international policy. To prepare for this shift, AI pedagogy should be embedded structurally in teacher training programmes, ensuring that all teachers are equipped to guide the next generation in an AI-driven world.

5. Policy proposal: AI as a public good

Given the risk of unequal opportunities among students, both in terms of personal resources and access disparities between individuals and institutions, such as elite schools versus under-resourced ones, it is essential for governments to recognise AI literacy as a basic competence that must be fostered by education.

Moreover, if we are to consider access to AI as a human right, then we must begin treating it as part of our public infrastructure. This means investing in publicly funded, ethically compliant, open-source AI tools that are freely accessible to all, regardless of background or geographic location. It also involves ensuring that AI technologies are available in public spaces such as schools, libraries, and community centres, so that no learner is excluded due to a lack of personal resources. Furthermore, it calls for the development of global frameworks and policies that promote fair, transparent, and accountable AI use across borders. Crucially, it is governments, not just private tech companies, that must take the lead in shaping the AI landscape, prioritising public interest, equity, and long-term societal well-being over short-term commercial gains.

6. Conclusion: The future we design

The central question we face is: who gets to participate and thrive in the AI age? In the 1990s, we failed to recognise internet access as a human right, and by the time we acknowledged its importance, the digital divide was already firmly in place. Today, we stand at a similar crossroads with AI. This branch of technology holds the potential to reduce inequality, but just as easily, it can deepen existing divides if access remains uneven or unregulated. To prevent history from repeating itself, we must ensure that access to ethical and effective AI is not limited to a privileged few. Just as importantly, we must ensure that both access to AI and the ability to use it critically, creatively, and responsibly are seen as rights, not privileges. Here, AI literacy becomes essential; not as a luxury skill, but as a foundational competence for full participation in society. This means going beyond technical training: it includes ethical reflection, societal awareness, and the ability to question, co-create, and challenge the systems that shape our lives. Education must take centre stage in this effort. Schools, universities, and lifelong learning systems have a crucial role to play in ensuring that AI literacy is a universal right.

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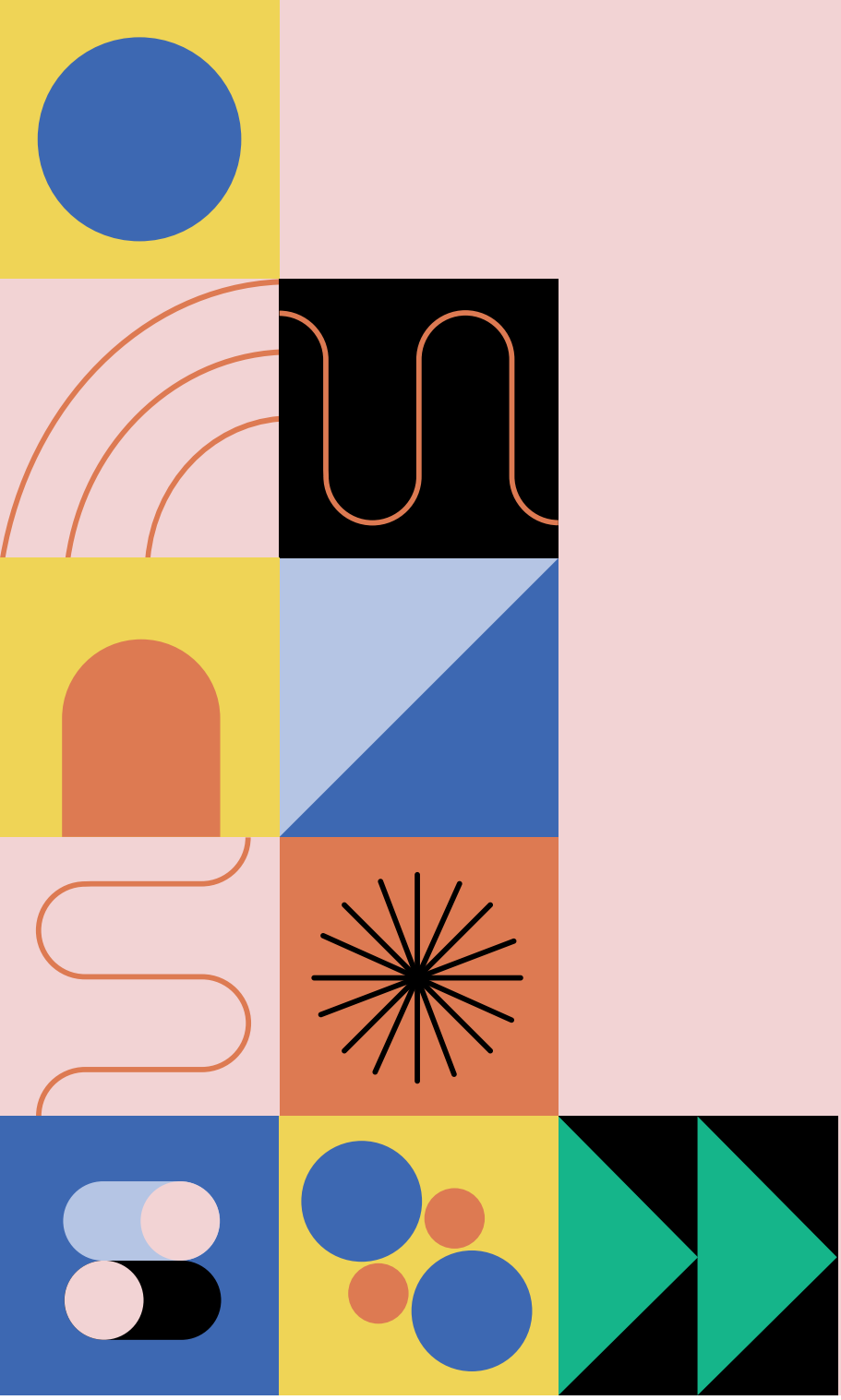

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