

## AI, AIED and Human Agency

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Artificial Intelligence (AI) has often been accused of threatening human agency (for example, see the summary of 979 “expert” views reported in *Artificial intelligence and the future of humans*<sup>1</sup>). This is particularly the case for the application of AI in education (AIED), including in my own research. For example, in a report for the Council of Europe, we write that the approach adopted by almost all AIED tools “prioritises remembering over thinking, and knowing facts over critical engagement, thus undermining learner agency and robust learning”<sup>2</sup>. However, while such claims are easy to make, and I stand by this one, rarely are they properly unpacked. Accordingly, that is the intention of this brief exposition: to explore what exactly is meant by ‘human agency’, and to consider the impact of both AI and AIED.

Broadly speaking, human agency is the capacity of individuals to act independently, making choices from among different options based on their own beliefs, values and goals. In other words, it is the ability of humans to make decisions and initiate and carry out actions that influence their lives and the world around them. It can involve multiple dimensions. These include intentionality (acting consciously with a specific aim or goal in mind), autonomy (independence, self-determination and the freedom to make choices and decisions that reflect one’s own preferences, values and goals), adaptability (the capacity to learn, modify one’s behaviour and succeed in response to changing circumstances), and responsibility (the ethical and moral dimension of agency – being accountable for the consequences of one’s decisions and actions).

Human agency is crucial for personal growth and a successful life. It empowers individuals to shape their own lives and influence the world around them. It fosters a sense of control and self-efficacy, and is correlated with higher levels of psychological well-being. When individuals feel that they have control over their lives and can make meaningful choices, in other words when they feel they have genuine agency, they are more likely to experience satisfaction and fulfilment. As one of the leading researchers of human agency explains: “Unless people believe they can produce desired effects by their actions, they have little incentive to act or to persevere in the face of difficulties.”<sup>3</sup>.

In educational contexts, human agency refers to the capacity of students and teachers to

make choices, to act autonomously, and to take control of teaching and learning within classroom settings. The emphasis is on the role of individuals in shaping educational journeys, making decisions about what, how, and why something is learned. Human agency in educational contexts involves multiple considerations. For example, student agency can be enhanced when they are not treated as passive recipients of knowledge but as active participants in the learning process, and have the autonomy to explore topics of interest, ask questions, identify and set their own academic goals, and take ownership of their learning. Enhancing student agency also involves promoting problem-solving and critical-thinking skills (centred on real-world problems) along with self-regulation skills (such as managing time, setting priorities, and self-monitoring progress). All of this is valuable for the development of independent and self-directed individuals and for academic and lifetime success. Finally, while teachers play a central role in supporting and enhancing student agency, human agency in educational contexts also includes the agency of the teachers themselves, acknowledging their subject and pedagogic expertise and professionalism, enabling them to make choices on how best to conduct their teaching and to support their students.

The next question is, what is the impact of AI on human agency? Inevitably, each potential impact has both a positive and a negative spin. For example, some AI-enabled technologies can undertake repetitive tasks, possibly freeing people to focus on the more creative aspects of their work, perhaps allowing them to decide how best to allocate their own time and effort, thus enhancing their agency. On the other hand, using AI-enabled technologies to undertake common tasks may lead to the loss of human skills or expertise. Over time, as they become increasingly reliant on AI, this could instead reduce the choices available to individuals and thus weaken their agency. Similarly, it is often argued that AI-enabled technologies can personalise user interactions with various services (such as online video and shopping platforms), providing suggestions tailored to their preferences, which strengthens their sense of agency. However, looked at with a more critical eye, the personalisation provided by such services is usually tailored more to the needs of the provider and their advertisers than the user. This means that the individual's sense of agency masks the reality – which is a reduction in individual agency, as the user is nudged in particular directions. In addition, AI-enabled data analyses can provide access to valuable insights that might not be readily available otherwise, thus enhancing human decision making and agency. However, it is well known that AI systems inherit and perpetuate biases present in their training data. This can lead to unfair and discriminatory outcomes, which inevitably undermines human agency by limiting opportunities. AI-enabled technologies, or at least the way in which they are employed in practice, can have other negative impacts on human agency. For example, the widespread use of AI for monitoring (or surveillance) and AI-controlled decision-making, raises important privacy concerns, limits choices of action, and can lead to a sense of powerlessness or dependence on technology, all of which can undermine individual agency.

The next question is, what is the impact of AIED on student and teacher agency? The possibilities are many. First, if students engage frequently with AI-enabled technologies, they

might all too easily become over-reliant on the content recommendations, the instant feedback, or the “solutions” that are provided. Accordingly, they might miss out on opportunities to develop critical thinking, independent problem-solving, self-reflection, self-regulation and metacognitive skills, all of which potentially reduces the students’ agency to realise the full benefits of their own learning. Second, most AIED systems provide highly prescriptive learning paths, leaving little room for students to explore their own interests. This can limit students’ agency by dictating what, when and how they learn, and can also reduce their exposure to diverse perspectives and novel areas of inquiry. Third, AIED systems typically track student behaviour, leading to a feeling of surveillance and constrained autonomy, as well as opening the possibility of undermining student privacy, causing students to become cautious about expressing themselves freely. Fourth, AI-driven recommendations may inadvertently narrow students’ aspirations, limiting their agency to achieve self-determined goals. Fifth, AI-enabled technologies used for assessment involve an overemphasis on standardised testing (and thus, inevitably, teaching to the test). In addition, no AI-enabled system is capable of understanding or capturing the nuances in a students’ work, thus reducing the student’s agency in the assessment process and possibly discouraging creative or unconventional thinking.

Finally, with regard to teachers, the use of AI-enabled technologies in classrooms inevitably affects curriculum choices, learning content, and pedagogical approaches. This can diminish the role of teachers and lead them to feel their professional judgement is undervalued or overridden by technology. In any case, AIED tools can potentially de-skill teachers, turning them into technology facilitators and behaviour monitors. This radically misunderstands what good teachers do. It might also undermine teachers’ agency in building meaningful relationships with their students, which are crucial for effective education. Finally, reliance on AI-generated metrics (sometimes because of top-down directives) can create pressure on teachers to conform to data-driven, decision-making processes, which might lead to less emphasis on holistic student development.

The final question here is, what needs to be done to ensure student and teacher agency, as powerful AI-enabled technologies become increasingly available in classrooms. In short, teachers need to be afforded opportunities that respect their agency, allowing them to make decisions that align with their professional expertise and the specific needs of their students. Meanwhile, students need opportunities to develop their critical thinking, self-regulation and metacognitive skills, and to develop their intentionality, their autonomy, their adaptability, and their responsibility – either with or without the use of appropriate, effective and safe AI-enabled technologies.

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<sup>1</sup> Anderson et al., *Artificial intelligence and the future of humans*, Pew Research Center, 2018

<sup>2</sup> Holmes et al., *Artificial intelligence and Education, A critical view through the lens of human rights, democracy and the rule of law*, Council of Europe, p. 34, 2022

<sup>3</sup>Bandura, A., *Toward a Psychology of Human Agency: Pathways and Reflections*, Perspectives on Psychological Science, 13(2), 130-136, 2018