

Higher Education in the Age of Artificial Intelligence: Governance, Educational Values, and Visions of Future Learning

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Abstract

Artificial intelligence (AI) is redefining the boundaries of knowledge and reshaping how we teach and learn. This paper examines how governance shapes the way higher education institutions implement AI, leading to different visions of teaching and learning. Three governance models are identified (state-led, rights-based, and market-driven), each with advantages and disadvantages for higher education. These models affect how educational values are interpreted and pose challenges to those values. The paper then explores how different visions of future learning emerge under each governance model, focusing on three human-centric educational values (access, autonomy, and innovation) that provide a common framework for comparing governance models. Finally, it maps how each governance model prioritizes and compromises these values, yielding distinct and non-converging trajectories for teaching and learning globally.

Keywords: *Artificial Intelligence; Governance; Higher Education; Teaching and Learning.*

1. Introduction

Artificial intelligence (AI) has advanced rapidly, reshaping how knowledge is produced, accessed, and applied within academia. The “network society” (Castells, 1996) has evolved into an “AI-mediated society.” In the context of higher education, AI introduces the presence of non-human agents into the learning process. The evolution from chatbots to agents, as described by Korinek (2025), helps us understand how AI is reshaping higher education. This author documents progression across three types of AI systems (i.e., traditional large language models, reasoning models, and agentic chatbots), showing how these systems have evolved from reactive tools into semi-autonomous research assistants. Because AI tools may reshape how we

teach and learn, the autonomy assumed by AI systems to make decisions in place of humans introduces ethical concerns (Taeihagh, 2021). Consequently, the incorporation of AI in higher education challenges traditional assumptions about, e.g., learning environments, assessment, authorship, and academic integrity.

In an AI-mediated society, earlier concerns such as the digital divide or the structural resistance to change in higher education institutions (HEIs) remain important (see, e.g., Márquez-Ramos & Mourelle, 2018). In fact, Korinek (2025) highlights a new form of digital divide: access to the most capable AI systems may depend on users' ability to pay. In this vein, if frontier intelligence becomes a premium good, HEIs with fewer resources will be disadvantaged. Concerning resistance to change, Boixader (2025) argues that, despite the fast pace of societal change, education continues to resist structural change and lags behind. He compared key societal trends (such as accelerated change, emphasis on soft skills, and real-world problem-solving) with persistent educational practices (such as traditional assessments and discipline-based instruction). Therefore, the misalignment between higher education and society, already evident in the network society, may be further amplified in the age of AI. According to George (2025), higher education should redefine itself as an epicenter of ethical AI innovation and human-centered learning, rather than risk becoming further disconnected from social realities.

Answering questions about the future of higher education in the age of AI is challenging, see, e.g., Pablo-Martí et al. (2024). Vartiainen et al. (2025) explore visions of future learning with generative AI, identifying key opportunities, challenges, and ethical issues from Finnish educators' perspectives. However, these visions are likely to vary across cultural and educational contexts, as governance structures shape the conditions under which AI is adopted in higher education. According to Eubanks (2018), digital tools reflect the histories, assumptions, and institutional purposes for which they were built. As Crawford (2021) affirms, "there are many possible futures for how AI will be used in the world [...] The underlying visions of the AI field do not come into being autonomously but instead have been constructed from a particular set of beliefs and perspectives" (page 13).

In the present paper, governance refers to priorities, norms, regulations, and institutions that shape how AI is implemented, whereas visions of future learning refer to pedagogical approaches and strategies that educators and learners develop in response to AI, potentially involving changes in, e.g., learning environments, assessment practices, or teacher roles.

The future of higher education is understood as part of a broader process in which AI-driven transformation operates through creative destruction,¹ reshaping teaching and learning. Three governance approaches to AI are considered, reflecting distinct priorities regarding data

¹ Creative destruction is the process by which innovation advances by dismantling existing practices and replacing them with more effective ones.

protection, regulation, and institutional control. The analysis then focuses on three educational values, access, autonomy, and innovation, as a human-centered framework for understanding how AI transforms higher education under each governance model.

2. Conceptual framework

The theory of “creative destruction” (Aghion & Howitt, 1992) helps to conceptualize how AI is disrupting higher education, e.g., reshaping academic practices or teacher roles. Additionally, Mokyr’s contributions emphasize the importance of society being open to new ideas and allowing change. In his view, innovation depends not only on invention itself but also on the institutional and cultural frameworks that allow new ideas to diffuse (Royal Swedish Academy of Sciences, 2025a, 2025b). In this vein, HEIs implement AI depending on the governance structures in which they operate, leading to different visions of teaching and learning. Within this process, summarized in Figure 1, AI implementation is a channel of creative destruction, through which established pedagogical approaches and strategies are disrupted and redefined.

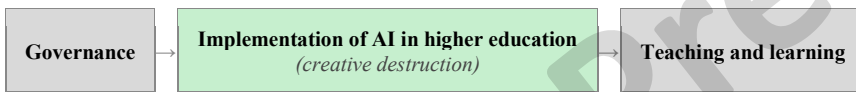


Figure 1. Governance Shapes Implementation of AI in Higher Education Through Creative Destruction, Influencing Teaching and Learning.

3. Three Governance Models

Gao (2022) identifies three governance models. First, an approach that prioritizes state control over data and national security; second, a rights-based approach exemplified by the European Union (EU), based on General Data Protection Regulation (GDPR) (European Parliament & The Council of The European Union, 2016); and third, an approach that emphasizes minimal government intervention and private sector leadership.

These differences are supported by quantitative information from the Global Index on Responsible AI (GIRAI) (Adams et al., 2024). For this comparison, I focus on the GIRAI data for the United States, China, and four EU countries: Germany, the Netherlands, Ireland, and France. The four EU countries considered consistently score above 80 in the areas of Human Oversight and Determination, Proportionality and Do No Harm, Transparency and Explainability, and Data Protection and Privacy; conversely, the United States and China present significantly lower scores in these thematic areas, highlighting strong institutional safeguards that reinforce human autonomy in the EU. The United States scores above 90 in National AI Policy, Safety, Accuracy and Reliability, and Bias and Unfair Discrimination, reflecting an approach that supports private sector initiatives and innovation. Although China scores lower across most categories, the thematic areas where it scores relatively high are

National AI Policy, Impact Assessments, and International Cooperation, in line with a model where access is prioritized through national coordination.

Accordingly, the three distinct governance models considered are: state-led, rights-based, and market-driven. All three present both advantages and disadvantages when implementing AI in educational settings. A market-driven model may prioritize innovation, but raises concerns about ethics (see, e.g., Esposito et al., 2023). In this vein, Whittaker (2025) warns that AI systems rely on access to personal data and emphasizes the importance of privacy and transparency. The rights-based model has been described as overcautious (see, e.g., *The Economist*, 2025); Klein (2025) argues that Europe's focus on regulation risks burdening companies with bureaucracy, potentially slowing innovation. Finally, in the state-led model, government coordination enables broad adoption of AI in education. However, this approach may restrict academic freedom, as decision-making becomes guided by centrally managed digital systems (Yao & Zhou, 2025).

4. Three Educational Values

The three identified governance models challenge higher education in different ways. To analyze the nature and degree of these challenges, the focus is on access, autonomy, and innovation. This provides a common framework to compare how governance models shape visions of future learning.

Higher education is a channel for human capital improvement and for economic growth (Márquez-Ramos & Mourelle, 2019). Ensuring access to education means addressing the digital divide so that AI does not reinforce existing inequalities (see, e.g., UNESCO, 2021). Innovation enables educators to reimagine teaching and learning in ways that are adaptive, creative, and responsive to student needs (see, e.g., Holmes et al., 2019). At the same time, preserving the autonomy of both learners and educators is important. As AI increasingly shapes decisions about, e.g., content, assessment, and feedback, there is a growing need to safeguard human judgment, agency, and ethical oversight in these processes (see, e.g., Williamson & Eynon, 2020). In this vein, Berendt et al. (2020) point out that, even in situations where data gathering could be beneficial for learning, if the choice is not made freely and in an informed way, it may restrict the learner's autonomy.

Concerning the state-led model, while it may facilitate broad and uniform implementation of AI education through centralized planning and infrastructure investment, it may raise concerns about potential constraints on autonomy and innovation. It challenges autonomy because decisions about elements such as curriculum content, pedagogical methods, and acceptable uses of AI tools are made at the national level, and because AI tools in education often support monitoring and evaluation practices that may limit academic freedom. It also represents a challenge to innovation because educational innovation may be discouraged when academic

freedom is limited. That said, access to AI education is less of a challenge in this model due to state support and universal rollout, see, e.g., China's national 2017 New Generation Artificial Intelligence Development Plan (Webster et al., 2017).

The rights-based model emphasizes ethical safeguards and strong personal data protection and privacy. However, compliance with regulations can place a burden on institutions, potentially limiting access and innovation. This model challenges access as some HEIs, especially those with limited capacity or funding, may struggle to meet requirements or implement the ethical oversight needed for AI. Innovation is also challenged due to strict ethical and legal constraints that can slow experimentation and discourage risk-taking. An example is the EU AI Act (European Parliament & The Council of The European Union, 2024), which classifies certain AI applications in education, e.g., systems used for student assessment, as high-risk, imposing requirements that can be burdensome for under-resourced HEIs (see Annex III of the Act). Also, the Italian data protection authority's temporary suspension of ChatGPT in 2023 illustrates how rights-based enforcement can constrain AI experimentation in higher education (Lomas, 2023). Nonetheless, autonomy tends to be better protected under this approach because learners and educators retain more control over how their data is used, and institutions are encouraged to engage in ethically grounded decision-making when adopting AI.

Finally, the market-driven model fosters rapid innovation through private-sector leadership but limited national regulation and oversight raise concerns about access and autonomy. Access is often unequal because AI tools are typically developed by private companies and made available primarily to well-funded institutions, while autonomy is challenged as educators and learners may become dependent on proprietary platforms with commercial interests. The tiered pricing structure of widely used AI tools exemplifies this access challenge (Korinek, 2025). Other issues include limited transparency and minimal control over how AI systems operate. However, with fewer regulatory barriers in this model, innovation is less constrained.

Overall, no single governance model fully safeguards all educational values; instead, each one emphasizes certain priorities while compromising others to varying degrees. As a result, in the age of AI, teaching and learning in higher education are expected to follow diverse, non-converging trajectories globally.

5. Three Visions of Future Learning

Table 1 maps each governance model against the three educational values, illustrating three distinct visions of how teaching and learning may be reconfigured in the age of AI.² In the state-

² The pattern that emerges is consistent with a view of AI-driven transformation in higher education as non-linear and with multiple possible futures (Márquez-Ramos & Mourelle, 2016, 2018), as each governance model generates a distinct configuration of gains and losses, and no single model fully safeguards all three educational values.

led vision, centralized infrastructure enables broad access but constrains autonomy and innovation. In the rights-based vision, strong ethical and data-protection frameworks preserve autonomy but challenge access and innovation. In the market-driven vision, private-sector dynamism drives innovation but produces unequal access and erodes the autonomy of educators and learners. Taken together, the governance context in which AI is adopted shapes which educational values are prioritized and which are compromised, with consequences for HEIs and learners in different national and institutional contexts.

Table 1. Governance Models, Educational Values, and Visions of Future Learning

Governance/Value	Access	Autonomy	Innovation
State-led	Less challenged: Centralized infrastructure and uniform rollout support broad access.	Most challenged: Curriculum and AI tool choices determined at national level; monitoring practices may constrain academic freedom.	Challenged: Limited academic freedom may discourage educational experimentation.
Rights-based	Challenged: Compliance burden may exclude under-resourced HEIs from AI adoption.	Less challenged: Data protection rules preserve learner and educator control over personal data and decision-making.	Most challenged: Ethical and legal constraints slow experimentation and discourage risk-taking.
Market-driven	Most challenged: Tiered pricing and private development concentrate AI tools in well-funded HEIs.	Challenged: Dependency on proprietary platforms reduces agency and transparency for educators and learners.	Less challenged: Few regulatory barriers enable rapid private-sector innovation.

Note: Green = less challenged; Yellow = challenged; Red = most challenged.

6. Conclusion

In the age of AI, the future of higher education is diverging across socio-political contexts. The three governance models identified in this paper reveal that none fully safeguards access, autonomy, and innovation. AI-driven transformation in higher education evolves through creative destruction, and governance shapes which elements are displaced, and which new forms of teaching and learning emerge. The future of higher education is not given but governed. A key takeaway is that higher education is being reshaped by the priorities that define our societies. Critical reflection on governance is therefore crucial, as it defines the educational values we are willing to defend and those on which we are prepared to compromise.

This paper offers a conceptual contribution by linking debates on AI in education with broader governance structures, moving the discussion beyond purely pedagogical or technological considerations to situate AI within institutional and policy contexts. By framing AI implementation through governance models and value configurations, it expands the debate

toward questions of management and institutional decision-making, an area that remains underexplored but increasingly necessary as HEIs develop AI adoption strategies.

References

- Adams, R., Adeleke, F., Florido, A., de Magalhaes Santos, L. G., Grossman, N., Junck, L., & Stone, K. (2024). *Global index on responsible AI 2024 (1st Edition)*. South Africa: Global Center on AI Governance.
- Aghion, P., & Howitt, P. (1992). A Model of Growth Through Creative Destruction. *Econometrica*, 60(2), 323–351.
- Berendt, B., Littlejohn, A., & Blakemore, M. (2020). AI in education: learner choice and fundamental rights. *Learning, Media and Technology*, 45(3), 312–324.
- Boixader, E. (2025). La Inteligencia Artificial como elemento facilitador de la actuación de la docencia e Inspección de Educación. *Presentation at the UNED Course: IA Para Docentes, Directores e Inspectores. April-May*.
- Castells, M. (1996). *The Rise of the Network Society*. Oxford: Blackwell Publishers.
- Crawford, K. (2021). *Atlas of AI: Power, Politics, and the Planetary Costs of Artificial Intelligence*. Yale University Press.
- Esposito, M., Jean, A., Tse, T., & Sibout, G. (2023). AI: Why companies need to build algorithmic governance ahead of the law. In *World Economic Forum*. <https://www.weforum.org/stories/2023/10/ai-companies-algorithmic-governance/>
- Eubanks, V. (2018). *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. St Martin's Press.
- European Parliament, & The Council of The European Union. (2016). REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 April 2016 (GDPR). *Official Journal of the European Union*, L119/1-L119/88.
- European Parliament, & The Council of The European Union. (2024). REGULATION (EU) 2024/1689 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 June 2024 (Artificial Intelligence Act). *Official Journal of the European Union*, 1–144.
- Gao, H. S. (2022). Data Sovereignty and Trade Agreements: Three Digital Kingdoms. *SSRN Electronic Journal*, January. <https://doi.org/10.2139/ssrn.3940508>
- George, A. (2025). Beyond degrees: redefining higher education institutions as ethical AI hubs. *AI and Society*, 40, 5599–5601. <https://doi.org/10.1007/s00146-025-02303-z>
- Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. The Center for Curriculum Redesign, Boston, MA.
- Klein, C. (2025). By invitation: Europe has botched its approach to digital sovereignty, writes the boss of one of its biggest tech firms. *The Economist* (30 August 2025), Printed Version, 12.
- Korinek, A. (2025). AI Agents for Economic Research: August 2025 Update to “Generative AI for Economic Research: Use Cases and Implications for Economists.” *Journal of Economic Literature*, 61(4), 1–56.
- Lomas, N. (2023). Italy orders ChatGPT blocked citing data protection concerns. *Techcrunch*.

- <https://techcrunch.com/2023/03/31/chatgpt-blocked-italy/>
- Márquez-Ramos, L., & Mourelle, E. (2016). Selecting a suitable approach to analyze the future of higher education. *Procedia - Social and Behavioral Sciences*, 228, 86–91. <https://doi.org/10.1016/j.sbspro.2016.07.013>
- Márquez-Ramos, L., & Mourelle, E. (2018). On the relationship between society and higher education: what path should we take? *Distance Education*, 39(1), 19–36. <https://doi.org/10.1080/01587919.2018.1436401>
- Márquez-Ramos, L., & Mourelle, E. (2019). Education and economic growth: an empirical analysis of nonlinearities. *Applied Economic Analysis*, 27(79), 21–45. <https://doi.org/10.1108/AEA-06-2019-0005>
- Pablo-Martí, F., Mir, C., & Navarro, F. J. (2024). Reimagining higher education in the age of AI. *SCCS Perspectives*, January(2402). <https://doi.org/10.13140/RG.2.2.24322.04801>
- Royal Swedish Academy of Sciences. (2025a). *The Prize in Economic Sciences 2025. Popular Science Background. From stagnation to sustained growth.* <https://www.nobelprize.org/prizes/economic-sciences/2025/press-release/>
- Royal Swedish Academy of Sciences. (2025b). *The Prize in Economic Sciences 2025. Press Release.* <https://www.nobelprize.org/prizes/economic-sciences/2025/press-release/>
- Taeihagh, A. (2021). Governance of artificial intelligence. *Policy and Society*, 40(2), 137–157.
- The Economist. (2025). China makes its AI move. *Printed Version (6 September 2025)*, 52.
- UNESCO. (2021). *AI and education: guidance for policy-makers.* <https://doi.org/10.54675/pcsp7350>
- Vartiainen, H., Valtonen, T., Kahila, J., & Tedre, M. (2025). ChatGPT and imaginaries of the future of education: insights of Finnish teacher educators. *Information and Learning Sciences*, 126(1/2), 75–90. <https://doi.org/10.1108/ILS-10-2023-0146>
- Webster, G., Creemers, R., Kania, E., & Triolo, P. (2017). *Full Translation: China's "New Generation Artificial Intelligence Development Plan" (2017).* <https://digichina.stanford.edu/work/full-translation-chinas-new-generation-artificial-intelligence-development-plan-2017/>
- Whittaker, M. (2025). By invitation: The world must wake up to the threats AI agents pose to privacy, cyber-security, and even competition. *The Economist (13 September 2025), Printed Version*, 13.
- Williamson, B., & Eynon, R. (2020). Historical threads, missing links, and future directions in AI in education. *Learning, Media and Technology*, 45(3), 223–235. <https://doi.org/10.1080/17439884.2020.1798995>
- Yao, X., & Zhou, W. (2025). The “New Engine” of University Digit-intelligent Governance: Algorithmic Administration-Opportunities and Challenges. *Available at SSRN.* <https://ssrn.com/abstract=5137214>