Journal of Inclusive Methodology and Technology in Learning and Teaching
ISSN 2785-5104
Anno 6 n. 3 (2026)

EDIZIONI UNIVERSITARIE ROMANE
editoria scientifica dal 1952

Rethinking Educational Change in the AI Era through Anticipation and University Governance

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Abstract: Generative artificial intelligence raises questions about how universities prepare students for uncertain futures and organise educational change. This article offers a critical, literature-based reflection on how anticipation can inform universities' educational and organisational responses to AI-related change. It brings scholarship on curriculum development and organisational learning into dialogue with perspectives on anticipation, futures literacy and anticipatory governance. The analysis connects educational purposes with the institutional processes through which priorities are interpreted, negotiated and translated into teaching and assessment. It identifies tensions between openness to uncertain futures and curricular coherence, institutional coordination and disciplinary judgement, and participation and influence over decisions. On this basis, the article delineates implications for governance and educational design, together with directions for future research. Anticipation is presented as an orientation for examining assumptions and informing present choices, whose educational and organisational consequences require empirical investigation.

Keywords: anticipatory governance; higher education; generative artificial intelligence; curriculum development; educational change.

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1. Introduction[1]

Generative artificial intelligence (AI) has brought questions about the purposes and organisation of higher education into renewed focus. Tools capable of producing text, code and other content offer possibilities for supporting teaching and learning, while raising concerns about information reliability, assessment and the exercise of human judgement (Kasneci et al., 2023; Miao & Holmes, 2023). For universities, engagement with these technologies involves decisions about what students should learn, how they should demonstrate their understanding and which responsibilities should remain with educators and institutions.

These decisions take place within a wider educational challenge: preparing students to act in circumstances that cannot be fully anticipated. Higher education

[1] All authors contributed to the conception, development, and writing of the manuscript. Specifically, Maria Clara Dicataldo wrote paragraph 3, 4, 5; Alessia Scarinci wrote paragraph 2; Laura D'Amico wrote paragraph 1; and Anna Dipace wrote paragraph 6.

must connect disciplinary knowledge with the capacity to question, interpret and respond to unfamiliar situations. Learning for an unknown future therefore raises questions about the qualities and dispositions cultivated through education, alongside the knowledge and skills that curricula seek to develop (Barnett, 2004). In the context of AI, this challenge invites universities to consider how educational experiences can support students' judgement and agency as the tools available for producing and using knowledge continue to change.

The institutional response also requires choices about the direction of educational change. Representations of AI as an inevitable transformation can make adaptation appear urgent while leaving its purposes insufficiently examined (Bearman et al., 2023). Universities consequently need opportunities to consider which developments warrant a response, what educational values should guide their choices and how different members of the academic community can contribute. Recommendations for the use of generative AI place pedagogical appropriateness, inclusion and human agency among the considerations that should inform institutional decisions (Miao & Holmes, 2023).

Anticipation offers a perspective from which to approach this task. It directs attention to how engagement with possible futures can inform present action, without requiring certainty about what will occur. In the governance of emerging technologies, anticipatory approaches emphasise the cultivation of capacities for foresight, participation and reflection (Guston, 2014). For higher education, this perspective opens a question about the relationship between preparing learners for uncertainty and developing institutions capable of examining and revising their own educational choices.

The aim of this article is to offer a critical, literature-based reflection on how anticipation can inform universities' educational and organisational responses to AI-related change. It considers the relationship between future-oriented education, institutional capabilities and educational design, asking how these perspectives can help universities deliberate about change while sustaining attention to agency, participation and educational purposes. By bringing these areas of scholarship into dialogue, the article seeks to identify implications for university governance and teaching, together with possible directions for institutional action and future research.

2. Curriculum development as an organisational process

The curriculum connects educational purposes with the organisation of students' learning through the selection of knowledge, the definition of intended outcomes and the relationship between teaching and assessment (Biggs, 1996). Competence-oriented approaches contribute by identifying capacities that education should cultivate, including systemic, anticipatory and critical thinking within education for sustainable development (Rieckmann, 2012). Translating these aspirations into a programme requires decisions about how students develop such capacities and how their achievement is recognised. Curriculum development therefore extends beyond adding topics or competence statements to programme documentation.

This work takes place across interconnected organisational settings. Institutional strategies establish priorities, departments interpret their disciplinary significance,

and teachers develop learning activities and materials. Connecting these settings requires negotiation over the educational meaning of change (Kandiko Howson & Kingsbury, 2023; Laivuori et al., 2026). A commitment to active learning, for example, acquires a disciplinary expression through choices about tasks, interaction and assessment. Formal agreement with a strategic objective can consequently coexist with different understandings of its implications for particular programmes.

Established practices also shape curricular decisions. Teaching materials, previous experiences, professional relationships and shared conventions form part of organisational memory, providing resources for planning while influencing how new information is incorporated (Hora & Hunter, 2014). Curriculum change thus involves everyday decisions about what to retain, modify or replace, alongside formal procedures for programme revision. Its development depends on how institutional priorities engage with the resources and routines through which teaching is sustained.

Collaboration and organisational support connect these decisions with broader educational purposes. Knowledge sharing enables staff to discuss interpretations, use feedback and build shared understandings, while coordination and communication provide structure for curriculum work (Laivuori et al., 2026). Coherence also requires attention to relationships between course-level design and programme-level aims: revising an intended outcome may entail reconsidering activities, assessment and contributions across the programme (Biggs, 1996; Kandiko Howson & Kingsbury, 2023).

For this article, institutional capability refers to the arrangements through which universities support continuing interpretation, coordination and revision of educational provision. This understanding connects disciplinary expertise, shared knowledge and established practices with the organisation of change (Hora & Hunter, 2014; Laivuori et al., 2026). It provides the context for examining anticipation: engagement with possible futures must enter the processes through which educational choices are made if it is to inform university teaching.

3. Anticipation as a perspective on educational change

Anticipation concerns how engagement with futures informs action in the present. It can be distinguished from forecasting, which extrapolates from data, and foresight, which explores possible futures: anticipation connects these representations with decisions and action (Poli, 2021). In anticipatory governance, this orientation also involves exercising capacities for responding to uncertain challenges, rather than preparing exclusively for a predicted event (Guston, 2014). Applied to educational change, anticipation directs attention to how expectations influence current priorities and how alternative possibilities can inform their reconsideration.

Futures literacy adds a reflexive dimension by addressing how and why people use the future, including the assumptions through which they imagine possibilities (Miller, 2018; Poli, 2021). Educational futures work can therefore question what is taken for granted about knowledge, learning and institutional arrangements, rather than simply describe what education might become (Facer & Sandford, 2010). Its

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educational significance lies in making expectations available for examination and opening space for choices that established assumptions may obscure.

This inquiry also involves questions of participation and authority. Different experiences and traditions shape how futures are understood, while frameworks presented as universally applicable may privilege particular forms of expertise and marginalise other ways of knowing (Facer & Sriprakash, 2021). Anticipatory practices consequently require attention to who frames the questions, whose expectations are recognised and how disagreement is addressed. In governance, engagement provides opportunities for exchange among different participants, while integration connects forms of expertise through substantive interchange between social and natural sciences (Guston, 2014).

For universities, the organisational question is how these activities become connected with educational decisions. Anticipatory governance links future-oriented inquiry with institutional capabilities spanning education, research, engagement and policy (Panizzon & Janissek-Muniz, 2026). Alongside the curriculum processes discussed above, this perspective suggests considering how emerging possibilities enter conversations about programme purposes and educational provision. Futures literacy development can support reflection on anticipatory assumptions, but learning reported within a development programme does not establish sustained institutional change (Kazemier et al., 2021).

Anticipation thus provides an orientation towards reflective inquiry and action, rather than a fixed sequence of reform. Its relevance to educational change depends on connecting exploration with decisions while preserving uncertainty, plural perspectives and opportunities to question the direction of change (Facer & Sriprakash, 2021; Guston, 2014; Poli, 2021). This connection establishes the basis for examining implications for university governance and educational design.

4. Implications for university governance and educational design

At the level of university governance, engagement with AI requires decisions about the educational purposes of adoption, the responsibilities involved and the conditions under which applications should be reviewed. UNESCO's guidance recommends consultation with researchers, teachers and learners, together with ethical and pedagogical validation before institutional deployment (Miao & Holmes, 2023). Questions of accountability are also central to understanding AI-mediated educational practices (Bearman et al., 2023). Together, these perspectives suggest making the rationale for institutional choices explicit, including who evaluates proposed applications and who remains responsible for their educational consequences.

Participation has implications for how those choices are informed. Collaboration among educators, students and technical specialists can bring different forms of knowledge into AI-related educational development (Bond et al., 2024). Student partnership in pedagogical planning offers a basis for incorporating learners' experiences into decisions about teaching and assessment, while retaining educators' expertise (Bovill et al., 2011). For governance, the resulting consideration is how consultation connects with decision-making: collecting views should be accompanied by clarity about how contributions are considered and how decisions are communicated.

For educational design, the central issue is the relationship between an AI application and the learning it is intended to support. Constructive alignment connects learning outcomes with activities and assessment, while pedagogical validation requires attention to the appropriateness of particular uses of generative AI (Biggs, 1996; Miao & Holmes, 2023). This suggests specifying where students should exercise their own judgement and what evidence of learning an activity should produce. For example, students could compare an AI-generated response with disciplinary sources, justify revisions and explain their decisions. This is an illustrative design proposal, rather than an activity whose effectiveness is established here.

Institutional support also needs to address the conditions under which such designs can be developed and evaluated. Challenges concerning educators' knowledge, curriculum development and infrastructure indicate that access to tools alone is insufficient for educational integration (Bond et al., 2024). UNESCO's recommendations further require attention to accessibility, linguistic and cultural diversity, and the protection of human agency (Miao & Holmes, 2023). These considerations suggest connecting staff support and technical provision with scrutiny of who can participate in learning activities and whether their assessment criteria remain educationally appropriate.

The connection between governance and design therefore becomes concrete in decisions about purposes, participation, responsibility and evaluation. Institutional guidance can establish expectations, while evidence from teaching can inform their reconsideration. In this interpretation, educational experimentation provides material for institutional deliberation, with its consequences requiring assessment rather than being inferred from adoption itself (Bearman et al., 2023; Miao & Holmes, 2023).

5. Discussion and future directions

The preceding analysis brings into focus a tension between the openness required to engage with uncertain futures and the coherence needed to organise educational provision. Anticipation encourages exploration and reconsideration, whereas curriculum design requires explicit purposes and relationships among learning activities and assessment (Biggs, 1996; Poli, 2021). These demands can be understood as complementary, provided that coherence remains open to revision. On this reading, institutional preparedness concerns the capacity to make reasoned educational commitments while retaining opportunities to question their assumptions and consequences.

A second tension concerns the relationship between institutional coordination and disciplinary judgement. Curriculum change depends on how strategic intentions are interpreted within academic communities and incorporated into established practices (Hora & Hunter, 2014; Kandiko Howson & Kingsbury, 2023). This qualifies any expectation that a common institutional response to AI will produce uniform educational change. Shared principles may support consistency in responsibility and access, while their pedagogical expression requires sensitivity to disciplinary purposes. Research could examine how universities negotiate this relationship, including cases where institutional expectations and programme-level judgements diverge.

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Participation introduces a further critical question: whether opening deliberation also redistributes influence. Student partnership and engagement with diverse perspectives provide resources for questioning established priorities, but participation may remain superficial or reproduce existing hierarchies of expertise (Bovill et al., 2011; Facer & Sriprakash, 2021). Its value therefore cannot be inferred from the presence of consultative structures alone. Future inquiry should examine whose contributions shape decisions, how disagreements are handled and whether participants can challenge the assumptions through which educational problems are framed.

These tensions also clarify the limits of the present reflection. The literature considered includes conceptual proposals, situated empirical studies and normative guidance, which offer different kinds of support for institutional action. A conceptual account of anticipatory governance does not establish the effectiveness of its implementation, while perceived learning within a development programme does not demonstrate organisational transformation (Kazemier et al., 2021; Panizzon & Janissek-Muniz, 2026). Similarly, recommendations for responsible GenAI use identify considerations that institutions should address without resolving how competing educational priorities will be negotiated in practice (Miao & Holmes, 2023). The connections developed here should consequently be treated as interpretative propositions.

The most useful direction for further research is to investigate those connections over time. Longitudinal case studies could trace how future-oriented deliberation influences curricular decisions, how those decisions are enacted and what educational consequences follow. Comparative work could examine differences across disciplines and institutional settings, attending to initiatives that are revised or discontinued as well as those that persist. Such inquiry would connect research on everyday curricular decisions with questions about the development of institutional anticipatory capacity (Hora & Hunter, 2014; Panizzon & Janissek-Muniz, 2026).

For institutional practice, the resulting orientation is provisional and investigative: articulate the assumptions behind a proposed change, make responsibilities and participation explicit, and use educational evidence to reconsider subsequent decisions. This approach draws together the connection between foresight and engagement in anticipatory governance and the continuing validation recommended for educational uses of GenAI (Guston, 2014; Miao & Holmes, 2023). Its contribution would lie in making change more open to collective scrutiny, with its effects remaining a matter for empirical assessment.

6. Conclusion

This article has examined how anticipation can inform universities' educational and organisational responses to AI-related change. The literature-based reflection suggests that preparing learners for uncertainty also requires attention to the institutional processes through which educational priorities are interpreted and translated into curricula.

Anticipation offers a perspective for questioning the assumptions behind these priorities and considering alternatives in relation to educational purposes. Its relevance depends on connecting such inquiry with decisions about teaching, learning and assessment. The contribution of this article is to articulate this

connection as an orientation for institutional reflection, whose practical value and educational consequences remain open to investigation.

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