

Editorial

Intelligent Education: Advancing Learning and Education in the Age of Artificial Intelligence

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1. Introduction

We are delighted to introduce Intelligent Education, an international, peer-reviewed, open-access journal dedicated to advancing research at the intersection of intelligent technologies and education.

Artificial intelligence is rapidly reshaping how knowledge is produced, accessed, represented, and used. Recent advances in generative artificial intelligence, large language models, multimodal systems, learning analytics, intelligent tutoring systems, robotics, and other emerging technologies are creating possibilities for education that would have been difficult to imagine only a few years ago. Learners can increasingly interact with intelligent agents capable of providing personalized explanations, feedback, and support; teachers can draw upon new forms of data and artificial intelligence to inform instructional decisions; and educational institutions are beginning to reconsider how learning environments, assessment systems, curricula, and professional practices should be designed in an AI-rich world.

Yet the significance of these developments extends beyond the introduction of new technological tools into existing classrooms. Artificial intelligence raises more fundamental questions about learning, teaching, cognition, human agency, and the organization of education itself. What forms of learning become possible when learners collaborate with increasingly capable intelligent systems? How should the roles of teachers and learners evolve? How can AI augment, rather than displace, human judgment, creativity, and social interaction? How can intelligent educational systems be designed to support meaningful learning while remaining equitable, transparent, trustworthy, and responsive to diverse cultural and educational contexts?

At stake, therefore, is not simply the digital enhancement of existing educational practices, but a possible transformation in the underlying logic of education: from predominantly knowledge transmission toward the development of competencies and higher-order capabilities; from relatively fixed roles of teachers and learners toward new forms of human–AI collaboration; from episodic assessment toward continuous and evidence-informed understanding of learning processes; and from education bounded by classrooms and institutions toward increasingly connected, adaptive, and lifelong learning environments.

Answering these questions requires more than technological innovation alone. It calls for sustained dialogue among education, learning sciences, artificial intelligence, cognitive science, data science, psychology, neuroscience, sociology, policy, and related fields. Intelligent Education is founded to provide a scholarly home for this interdisciplinary endeavor.



2. Why Intelligent Education?

The relationship between technology and education has entered a new phase. Earlier generations of educational technologies largely supported the delivery, organization, and management of learning. Increasingly, intelligent technologies can participate directly in processes that were traditionally regarded as fundamentally human: explaining, questioning, diagnosing, generating, evaluating, reasoning, and interacting.

This development creates extraordinary opportunities. Intelligent systems may enable more adaptive and personalized learning pathways, provide teachers with new forms of instructional support, make sophisticated learning resources accessible to broader populations, and help researchers understand learning processes at unprecedented levels of granularity. Human–AI collaboration may also open new possibilities for creativity, problem solving, knowledge construction, and lifelong learning.

At the same time, technological capability should not be equated automatically with educational value. More intelligent systems do not necessarily produce deeper learning, better teaching, or more equitable educational outcomes. The educational consequences of AI depend on how technologies are designed, how they are embedded within pedagogical and institutional contexts, how learners and teachers interact with them, and what values and assumptions guide their use.

The rapid development of generative AI has made these questions particularly urgent. Educational research must move beyond asking simply whether a technology “works”. We also need to understand for whom it works, under what conditions, through what mechanisms, toward what educational purposes, and with what intended or unintended consequences. Equally important is the need to examine how interaction with intelligent systems may transform learners’ cognitive and metacognitive processes, teachers’ professional roles, assessment practices, educational relationships, and broader systems of schooling and lifelong learning.

These transformations are already prompting efforts to rethink education at a systemic level. In China, for example, the emerging vision of intelligent education has been articulated through a “3N” framework—new stage, new standards, and new pathways—alongside four interconnected, future-oriented dimensions: future teachers, future classrooms, future schools, and future learning centers. This formulation reflects a broader shift from digitalization as the adoption of technologies toward intelligent education as a deeper transformation of educational purposes, structures, relationships, and environments.

The significance of such a framework extends beyond any single national context. It raises questions increasingly shared by education systems worldwide: What capabilities should learners develop when knowledge and cognitive tasks can be partly delegated to AI? What does it mean to be a teacher when intelligent agents become participants in teaching and learning? How should classrooms and schools be reorganized when learning can occur across physical, digital, and intelligent environments? And how can future learning ecosystems provide personalized and ubiquitous opportunities while preserving the social, ethical, and human purposes of education?

Intelligent Education, therefore, approaches intelligent education not as a narrow technological specialty, but as an emerging interdisciplinary field concerned with the co-development of human learning, educational practice, intelligent technologies, and educational systems.

3. Scope and Scholarly Mission

Intelligent Education seeks to provide an international platform connecting foundational inquiry with technological development, empirical investigation, and educational application.

The journal welcomes original research articles, reviews, perspectives, commentaries, and case studies addressing areas including AI-enhanced learning environments; adaptive learning and intelligent assessment; intelligent tutoring and conversational systems; educational data mining and learning analytics;

human–AI collaborative teaching and cognitive augmentation; educational large language models and generative AI; multimodal learning analytics and interaction analysis; and the design and evaluation of intelligent educational software and hardware.

Our scope also extends beyond individual technologies. We welcome scholarship examining the learning-science foundations of AI-driven education, educational neuroscience and AI integration, teacher–AI co-evolution and professional development, educational equity and accessibility, ethics and responsible AI, policy and governance, socio-technical infrastructure, technology transfer, cross-cultural and comparative perspectives, personalized and lifelong learning, and the future of education in an age of increasingly capable artificial intelligence.

Particularly important to the journal are studies that can connect these domains. Educational challenges rarely conform to disciplinary boundaries. A technically sophisticated intelligent tutor, for example, also embodies assumptions about cognition and pedagogy; its effectiveness may depend upon teacher practice and classroom context; its implementation may raise questions of equity and governance; and its long-term significance can only be understood through rigorous empirical investigation.

We are equally interested in research examining how intelligent technologies may change the nature of educational research itself. AI is not only becoming an object of educational inquiry but also transforming the tools, data, and processes through which educational knowledge can be generated. Large-scale longitudinal data, multimodal traces of learning, computational modeling, natural-language analysis, intelligent experimentation, and new forms of human–AI research collaboration may enable researchers to investigate educational processes with greater temporal, contextual, and behavioral granularity. These developments create opportunities to move beyond static snapshots of learning toward more dynamic accounts of how learning, teaching, and interaction unfold.

Such possibilities also require methodological reflection. More data do not automatically produce better evidence, and more powerful analytical models do not automatically produce stronger educational explanations. Intelligent education, therefore, needs research that combines computational capability with sound theory, appropriate research design, transparent inference, and sensitivity to educational context.

We encourage work that builds bridges: between artificial intelligence and the learning sciences, between technological design and educational theory, between data and evidence, between laboratory innovation and real-world implementation, between individual learning and system-level transformation, and between research communities across different regions of the world.

4. Rigor, Responsibility, and Openness

The speed of innovation in artificial intelligence creates a particular responsibility for scholarly publishing. Rapid technological change makes timely communication important, but speed must not come at the expense of rigor.

Intelligent Education is committed to rigorous peer review, methodological transparency, and evidence-based scholarly discourse. We welcome methodological diversity, including experimental and quasi-experimental research, learning analytics, computational approaches, design-based research, qualitative and mixed-methods inquiry, longitudinal studies, large-scale evaluations, systematic and scoping reviews, and theoretically grounded conceptual scholarship. What matters is that methods are appropriate to the questions being investigated and that claims are supported by the evidence presented.

A central priority of the journal is to advance data- and evidence-informed educational research. Intelligent technologies are making increasingly rich data available about learners, interactions, classrooms, institutions, and educational systems. The scientific challenge is to transform these data into credible evidence and, where appropriate, to translate that evidence into better educational decisions. We therefore encourage research that goes beyond demonstrating technical feasibility or reporting short-term effects to

investigate mechanisms, boundary conditions, replicability, sustainability, and implementation in authentic educational contexts. Evidence-based intelligent education should integrate rigorous empirical findings with educational theory, professional expertise, contextual knowledge, and the needs and values of learners and communities.

The transformation of educational research paradigms also calls for new standards of scientific responsibility. AI-assisted analysis, algorithmic inference, large-scale educational data, and increasingly autonomous research tools create new questions concerning validity, reproducibility, authorship, interpretability, and the provenance of evidence. As research practices evolve, the scholarly community must critically examine not only what AI allows researchers to do but also how new methods affect the reliability and meaning of educational knowledge.

Ethics and safety are equally foundational. Responsible intelligent education cannot treat ethical considerations as an afterthought to technological development. Issues of privacy and data protection, algorithmic bias and fairness, transparency and explainability, intellectual and academic integrity, cybersecurity, developmental appropriateness, accessibility, human oversight, and accountability need to be considered throughout the design, deployment, evaluation, and governance of intelligent educational systems.

At a deeper level, the ethical challenge concerns the relationship we wish to establish between human beings and intelligent technologies. Systems designed to optimize measurable performance may not necessarily promote autonomy, curiosity, creativity, well-being, or meaningful human relationships. The development of intelligent education must therefore remain guided by a human-centered principle: technology should expand human capabilities and educational opportunities while preserving human agency, dignity, responsibility, and the fundamentally social character of education.

As an open-access journal, Intelligent Education seeks to facilitate the broad circulation of knowledge and dialogue across geographical, disciplinary, and professional boundaries. Advancing intelligent education requires participation not only from researchers in artificial intelligence and educational technology, but also from learning scientists, teachers, institutional leaders, policymakers, developers, and other communities concerned with the future of education.

5. Looking Forward

We launch Intelligent Education at a moment when both artificial intelligence and education are undergoing profound change. The trajectory of this transformation is not predetermined. The educational future shaped by AI will depend upon the questions researchers choose to ask, the systems designers choose to build, the evidence communities choose to value, and the principles that guide implementation.

The challenge before us is therefore larger than incorporating AI into existing educational arrangements. It is to understand whether, where, and how intelligent technologies are changing the underlying structures of learning, teaching, research, assessment, governance, and educational organization—and to help shape those changes toward educationally meaningful ends. The mere presence of advanced technologies will not define future teachers, classrooms, schools, and learning centers. They will be defined by new relationships among learners, educators, intelligent systems, knowledge, evidence, and society.

Our ambition for Intelligent Education is therefore not simply to document the increasing use of artificial intelligence in education. We hope the journal will contribute to a deeper scientific understanding of how intelligence—human and artificial—can interact to advance learning, teaching, educational research, and educational development. We also hope it can provide a forum in which technological possibilities are continually examined against educational evidence, ethical responsibility, and the long-term purposes of human development.

We invite scholars from around the world and across disciplines to join this endeavor. We welcome theoretically ambitious research, innovative technologies grounded in educational needs, rigorous empirical investigations, critical perspectives, evidence syntheses, large-scale studies, and scholarship that challenges established assumptions and opens new directions for the field.

The emergence of intelligent technologies presents education with both a remarkable opportunity and a significant responsibility. By bringing together diverse perspectives and establishing a forum for rigorous, open, interdisciplinary, evidence-based, and ethically responsible scholarship, Intelligent Education seeks to help ensure that the next generation of educational innovation is not only more intelligent, but also more meaningful, inclusive, trustworthy, and human-centered.

We warmly welcome researchers, educators, practitioners, developers, and policymakers worldwide to contribute to Intelligent Education and to shape the future of learning and education together in the age of artificial intelligence.

Declaration of Competing Interest

The author declares that there are no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.