



AI-Empowered Education: Challenges, Principles, and Interdisciplinarity in the Digital Intelligence Era

Wenlong Yi ^{1,*}

¹School of Software, Jiangxi Agricultural University, Nanchang 330045, China

Abstract

Against the backdrop of rapid advances in artificial intelligence and learning analytics, educational systems are undergoing structural transformation. The misalignment between the technicality of proposed solutions and the inherent complexity of education itself, the disconnect between researchers' design rationale and educators' practical experience, and the imbalance between data-driven decision-making and the humanistic values of education have given rise to research agendas that lack empirical validation and entail potential risks. As the inaugural editorial of the *Journal of Digital Intelligence in Education*, this article articulates the journal's academic positioning, research scope, and scholarly principles. The journal is committed to building an interdisciplinary platform for collaborative inquiry, bringing together scholars and practitioners from technology development, educational research, the learning sciences, ethics, and public policy, to foster a research paradigm that integrates innovative efficacy, empirical rigor, and critical reflection on values.

Keywords: digital education, artificial intelligence, pedagogical research, inaugural editorial.

1 Introduction

In recent years, artificial intelligence technologies—exemplified by large language models—have advanced rapidly and are progressively being integrated into a wide array of educational contexts, including teaching and learning, learner support, and instructional management [1]. From the successive introduction of AI usage guidelines by institutions of higher education, to the gradual adoption of intelligent learning platforms in classrooms, and the widespread deployment of AI-based assessment tools in vocational training, the extensive application of AI technologies is reshaping the operational modalities of educational practice. Core elements of education—such as curricular content, teacher–student interaction, and assessment methods—are exhibiting new characteristics and demands [2, 3]. However, the driving forces behind this transformation have primarily originated from industry and computer science laboratories, rather than from the educational research community. As a consequence, despite broadly optimistic expectations regarding AI-empowered education, a scholarly discourse capable of genuinely integrating technological logic, learning theory, and value-based



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*Corresponding author:

✉ Wenlong Yi

yiwenlong@jxau.edu.cn

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concerns remains underdeveloped [4].

A review of the relevant literature over the past three years reveals markedly divergent foci across disciplines. Publications in the field of computer science are overwhelmingly focused on algorithmic optimization and predictive accuracy, yet often reduce "learning" to a set of quantifiable behavioral indicators [5]. Case studies in educational technology are enthusiastic about demonstrating the feasibility of innovative applications, yet often overlook the pedagogical rationale and value orientations embedded in specific educational contexts [6]. Research drawing on educational philosophy or critical pedagogy has tended to engage insufficiently with the technical core of AI systems, and has largely remained confined to macro-level risk discourse [7]. These disciplinary differences in research perspectives and priorities leave frontline educational decision-makers without genuinely actionable scholarly guidance when confronting questions of whether to deploy AI systems, how to deploy them, and upon what principles such deployment should be based.

In this context, the *Journal of Digital Intelligence in Education* has been established. This journal holds that the impact of digital technologies and artificial intelligence on education has reached a historical juncture that demands systematic, critical, and constructive scholarly dialogue. The reductive understanding of technology as merely a tool for enhancing efficiency, or of education as a system to be optimized, has revealed its limitations in both theory and practice. What is needed is a more nuanced, historically informed, and ethically responsible analytical framework for research.

2 Journal Positioning and Scope

The academic mission of the *Journal of Digital Intelligence in Education* can be articulated along three interrelated dimensions: advancing interdisciplinary dialogue, championing responsible innovation, and bridging research, policy, and practice. In terms of thematic scope, the journal will focus on—but not be limited to—the following four core areas:

2.1 Design, evaluation, and critical examination of intelligent educational systems

This area encompasses the development and empirical investigation of technological entities, including adaptive learning platforms, personalized learning systems, learner profiling models, and educational

robots. The journal does not accept submissions that are purely technical demonstrations. Papers involving technical solutions must clearly articulate what pedagogical challenges the technology addresses and what potential adverse effects it may engender. Drawing on existing research that distinguishes among three evolutionary models of student roles—"student as recipient," "student as partner," and "student as leader"—the design philosophy underlying intelligent systems inherently embodies particular educational values, and this constitutes an important dimension of the peer review process.

2.2 Agency and ethical boundaries in intelligent education

As technologies for learning analytics, affective computing, and behavioral prediction are deployed in educational settings, the everyday activities of students and teachers are subjected to increasingly granular "computation" and "intervention." Existing empirical evidence indicates that teachers generally lack adequate training to engage with such systems, while students' personal data are often collected without their full informed consent. The journal welcomes research that draws on perspectives from educational philosophy, educational psychology, ethics, sociology, and related fields to conduct in-depth explorations of issues such as digital empowerment, algorithmic bias, privacy boundaries, and informed consent. Priority will be given to manuscripts that integrate theoretical inquiry with empirical evidence, while purely conceptual pieces or descriptive accounts lacking theoretical grounding will not be favored.

2.3 Teacher roles and professional development amid AI-driven transformation

An objective gap exists between the pace of AI iteration and the tempo of educational reform. Most AI-based educational products are developed by software engineers, with limited in-depth involvement from educational scholars and frontline teachers, leading to a default reliance on behaviorist instructional models that fail to support constructivist or sociocultural approaches to learning adequately. At the same time, many teachers maintain cautious or even reserved attitudes toward AI—a stance attributable not only to technical barriers and varying levels of digital literacy, but also to concerns about professional identity, pedagogical responsibility, and future career prospects. The journal is committed to publishing research that closely examines shifts in teacher cognition, explores effective models of professional development, and

contributes to redefining teachers' core competencies in the digital intelligence era.

2.4 AI, educational inclusion, and cross-cultural comparison

The application and development of intelligent technologies are always embedded in social contexts, and institutional environments, regional conditions, and socioeconomic factors shape their impacts. Significant disparities exist among student populations across countries, regions, and backgrounds in terms of access to intelligent educational resources, conditions of use, and application outcomes. The journal welcomes research spanning macro-level policy analysis to micro-level classroom practice, with a focus on how the implementation of intelligent technologies affects the distribution of educational resources, the reconfiguration of cultural identities, and the interaction with existing mechanisms of social stratification.

3 Methodological Stance and Scholarly Commitments

Regarding research methodology, the journal upholds an open and inclusive scholarly stance. Quantitative research, qualitative research, mixed-methods research, design-based research, action research, and other methodological approaches each have their appropriate domains and research value. However, we maintain one fundamental standard: the choice of research method must be congruent with the nature of the research question, the research process should conform to the corresponding methodological norms, and research conclusions should be grounded in sufficient evidence and rigorous argumentation. Furthermore, the journal encourages methodological cross-fertilization and supports the integration of emerging research methods—such as computational social science and learning analytics—with interpretive approaches in education, thereby broadening the understanding of educational phenomena. The journal's scholarly commitments can be summarized as three forms of "steadfast dedication":

3.1 Steadfast dedication to the institutionalization of interdisciplinary dialogue

Research on digital intelligence in education spans multiple disciplinary domains, including education, computer science, the learning sciences, sociology, and philosophy, and many questions cannot be

adequately addressed from any single disciplinary perspective. Technology researchers must attend to the authentic contexts and complex needs of pedagogical practice; educational researchers must understand algorithmic mechanisms and technological logic; sociological researchers must illuminate the institutional environments and social factors underlying technology adoption; and researchers in philosophy and ethics must provide analytical perspectives that render implicit value commitments explicit. Through thematic special issues, roundtable forums, and methodological workshops, the journal will create a more open platform for interdisciplinary collaboration.

3.2 Steadfast dedication to the critical scrutiny of responsible innovation

The journal will uphold rigorous yet open standards for scholarly peer review. Technology-oriented research must address not only model performance and technical metrics, but also articulate the practical significance of such work for educational practice. Empirical studies must fully disclose research conditions and methodological limitations to enhance the credibility of their conclusions. Theoretical and speculative research must be grounded in a thorough understanding of both technological developments and educational realities. Rigorous scholarly standards not only improve research quality but also serve as an essential foundation for establishing academic influence and public trust.

3.3 Steadfast dedication to bridging research with policy and practice

In addition to scholarly articles, the journal will explore diverse formats for disseminating findings—including policy briefs, practice guidelines, and case repositories—to facilitate the translation of research outcomes into educational practice and public policy. What is needed in the current process of educational digitalization is not merely the continuous accumulation of individual research findings, but rather a knowledge system capable of synthesizing diverse forms of evidence and responding to complex real-world challenges, thereby providing informed guidance for educational administrators and practitioners.

4 Vision and Conclusion

This journal aspires to become a scholarly platform that combines academic rigor with social relevance,

fostering a rational, prudent, and impactful research culture in the field of Digital Intelligence in Education. We attend to the new opportunities that technological innovation brings to educational development, while also taking seriously the risks and challenges it may pose. We acknowledge the significant impact of technology on educational transformation, yet we resist reducing educational development to a function of technological factors alone. We value innovation and efficiency, but we also foreground the agency of educational subjects, human development, and the social responsibilities of education. We champion interdisciplinary collaboration, while equally respecting discussion and debate among diverse scholarly positions.

The founding of a journal marks but the beginning of a new chapter in scholarly exchange; its sustained development depends on the participation and contributions of the broader academic community. We extend a sincere invitation to scholars from the fields of education, computer science, artificial intelligence, sociology, psychology, philosophy, law, and public policy, as well as to frontline educators, policymakers, and technology developers, to engage collectively in the study and discussion of issues about digital intelligence in education. In an era in which digital technologies continue to permeate educational systems, how best to promote human growth and holistic development remains a vital question that calls for our shared reflection and sustained inquiry.

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Conflicts of Interest

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AI Use Statement

The author declares that no generative AI was used in the preparation of this manuscript.

Ethical Approval and Consent to Participate

Not applicable.

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