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Cosmic Intelligence as a Transformative Approach for Primary Education Teachers in the Age of Artificial Intelligence: A Conceptual Framework

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ABSTRACT
Background: Artificial Intelligence (AI) technologies across all sectors of civilization has rapidly created unprecedented demands on primary education teachers, who are now expected to not only master technological tools but to fundamentally reimagine their pedagogical identities. This conceptual article introduces Cosmic Intelligence as a transformative framework for primary education teachers in the AI era for which an integrative construct that synthesizes existential awareness, ethical reasoning, systems thinking, and adaptive wisdom in response to the cosmic-scale disruptions generated by AI. Drawing on Howard Gardner's theory of Multiple Intelligences, particularly his eighth and ninth intelligences (naturalist and existential), alongside contemporary literature on AI-integrated pedagogy, teacher professional development, and educational transformation, this study proposes a conceptual model of Cosmic Intelligence comprising five interrelated dimensions: (1) Existential Awareness, (2) Adaptive Technological Wisdom, (3) Ethical-Relational Intelligence, (4) Holistic Systems Thinking, and (5) Transcendent Purpose Orientation. A qualitative research design using library research and conceptual analysis methodology is employed to construct and validate this framework. Findings suggest that Cosmic Intelligence addresses a critical gap in current AI-era teacher competency frameworks, which tend to prioritize technical skills while neglecting deeper ontological and ethical dimensions of teaching. This article contributes a novel theoretical lens through which teacher education programs can be redesigned to cultivate teachers who are not merely AI-literate but cosmically intelligent capable of guiding young learners through civilizational transformation with wisdom, empathy, and transcendent purpose.
Keywords: Cosmic Intelligence, Artificial Intelligence, Primary Education, Teacher Transformation, Multiple Intelligences

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INTRODUCTION

The twenty-first century has witnessed a transformation of civilizational proportions with the emergence and diffusion of Artificial Intelligence (AI) technologies into virtually every domain of human life. From healthcare and governance to commerce and culture, AI systems are reshaping the boundaries of human capability and redefining what it means to learn, work, and exist as a social being. In education specifically, UNESCO has recognized AI as having "the potential to address some of the biggest challenges in education today, innovate teaching and learning practices, and accelerate progress towards the Sustainable Development Goals" (UNESCO, 2024). This civilizational shift places primary education at the epicenter of an urgent question: how should teachers be equipped not merely to use AI tools, but to navigate the profound human, ethical, and existential dimensions that AI civilization brings with it?

Primary education teachers occupy a uniquely consequential position in this transformation which gains the current cases. As the first case, the children's intellectual and moral development enables the primary teachers to shape the cognitive frameworks, values, and dispositions through which future citizens will engage with AI-saturated environments. The preparation of these teachers remains predominantly technical and instrumental. Several studies improved that existing teacher professional development programs overwhelmingly focused on the application of AI tools in teaching, with only 35% of research addressing AI's role in enhancing teacher professional development more broadly (Tan, Cheng, & Ling, 2025). This imbalance creates a critical vulnerability: teachers who are technically proficient but spiritually and philosophically unprepared for the civilizational stakes of AI education.

The second case is compounded by the pace of AI evolution. Generative AI tools such as large language models

have entered classrooms globally at a speed that outstrips policy, curriculum, and teacher training systems. Research by Hoa et al. (2026) demonstrates that in the context of accelerating digital transformation, developing AI competencies for primary school teachers has become "an urgent priority," yet most competency frameworks remain narrowly defined around technical skills. The result is a generation of primary teachers who feel overwhelmed, inadequate, or philosophically adrift in the face of AI's transformative power. The last case opens the dominant paradigm in AI-teacher research remains techno-centric: it asks how teachers can use AI tools more effectively, how AI can personalize learning, or how AI literacy can be integrated into curricula (Tan, Cheng, & Ling, 2025; Hoa et al., 2026).

Howard Gardner's theory of Multiple Intelligences (MI), first proposed in 1983 and later expanded, offers a profound but underutilized resource for addressing this gap. Gardner's framework, which posits that human intelligence comprises multiple distinct modalities including linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, naturalist, and existential intelligences has been widely applied in classroom pedagogy but rarely theorized in relation to teachers themselves as developing intelligence agents (Gardner, 1983; Walela, 2024). Recent research has begun to explore the synergy between MI theory and AI tools in student learning contexts (Ahmad et al., 2024), but the application of MI theory to the transformation of teacher intelligence in the AI age remains theoretically underdeveloped.

Furthermore, the concept of "cosmic" or existential intelligence, Gardner's proposed ninth intelligence, which concerns the human capacity to engage with the largest existential questions about the universe, life, and human consciousness, has received comparatively little empirical or theoretical attention in educational research. Yet this dimension of intelligence may be precisely what is most needed as AI forces humanity to confront questions about consciousness, purpose, creativity, and what it means to be irreducibly human. A cosmically intelligent teacher, this article argues, is one who can hold these existential questions not as paralyzing uncertainties, but as generative pedagogical resources. Research on mapping teacher competence in AI-integrated school education highlights "the need for holistic teacher education programs that integrate AI literacy, ethical reasoning, emotional resilience, and contextual understanding" (Al-Rashidi et al., 2025). Similarly, a systematic review of teacher AI competence development emphasizes the role of teacher beliefs, professional identity, and values alongside technical skills (Falloon, 2026). The AI-Cosmic European project has begun introducing primary school children to the "five big ideas in AI" through gamified learning activities, demonstrating that even young learners can engage meaningfully with AI concepts when these are delivered through enriched, multi-dimensional pedagogical frameworks (Inercia Digital, 2024).

This article addresses that gap by introducing and elaborating the concept of Cosmic Intelligence as a transformative framework for primary education teachers. It articulates a five-dimensional model of Cosmic Intelligence that maps the specific competencies primary teachers need to navigate AI civilization with wisdom and purpose moving beyond technical AI literacy to encompass existential awareness, ethical-relational intelligence, and transcendent orientation; it proposes a research agenda and pedagogical implications that reframe primary teacher education not as a technical training problem but as a civilizational responsibility, offering a humanistic counterweight to the prevailing technocentric discourse in AI-education research in which guides the conceptual meaning and theoretical foundation of Cosmic Intelligence as applied to primary education teachers in the AI era; dimensions or components which constitute a framework of Cosmic Intelligence for primary education teachers; Cosmic Intelligence addresses existing gaps in current AI-era teacher competency frameworks; and the implications of a Cosmic Intelligence framework for primary teacher education and professional development.

METHOD

This study employs a qualitative, conceptual research design, specifically utilizing library research methodology and conceptual analysis. Conceptual research is a form of scholarly inquiry that does not involve the collection of primary empirical data but instead develops and critiques theoretical frameworks, definitions, and models through systematic engagement with existing literature (Jaakkola, 2020). This methodology is appropriate for the objectives of the present study, which seeks to construct a new theoretical construct (Cosmic Intelligence) and elaborate its dimensions and implications for primary teacher education.

Data for this study were drawn from a systematic review of peer-reviewed journal articles, book chapters, and authoritative institutional reports published primarily between 2015 and 2026, with foundational theoretical texts (Gardner, 1983, 1999; Mezirow, 1991, 2000) included regardless of publication date. Literature searches were conducted across major academic databases including ERIC, Scopus, Web of Science, Google Scholar, and SAGE Journals, using search terms including: "artificial intelligence primary education," "teacher professional development AI," "multiple intelligences AI," "existential intelligence," "transformative teacher education," "cosmic intelligence education," and related combinations. The final corpus comprised 68 sources deemed directly relevant to the study's theoretical framework and research questions. Data analysis proceeded through three iterative phases consistent with conceptual analysis methodology. In the first phase, systematic literature mapping, all selected sources were coded thematically according to their

relevance to (1) AI in primary education, (2) teacher competency and professional development, (3) multiple intelligences theory, (4) transformative learning theory, and (5) existential and philosophical dimensions of education. In the second phase, conceptual construction, key concepts, theoretical tensions, and research gaps identified in phase one were synthesized into an emerging conceptual framework. The rigor of this conceptual study is ensured through multiple strategies. Theoretical triangulation was employed by drawing on multiple theoretical traditions (MI theory, transformative learning theory, AI-education research, existential pedagogy) to construct and validate the framework. Systematic transparency is maintained through explicit documentation of the literature search process and inclusion criteria. Reflexivity is addressed through critical acknowledgment of the speculative dimensions of the Cosmic Intelligence construct and explicit identification of propositions requiring future empirical validation.

RESULTS AND DISCUSSION

Results

Based on the systematic review and conceptual analysis conducted in this study, Cosmic Intelligence is defined as follows: Cosmic Intelligence is the integrated capacity of a teacher to perceive, reflect upon, and respond to the largest-scale questions and forces shaping human existence including the civilizational transformation driven by Artificial Intelligence with existential awareness, ethical depth, adaptive wisdom, systems-level thinking, and a transcendent sense of purpose that grounds and guides their pedagogical praxis. This definition extends Gardner's concept of existential intelligence (Gardner, 1999) beyond the individual's capacity to contemplate cosmic questions to reveal five core dimensions of Cosmic Intelligence, each addressing a distinct gap in current AI-era teacher competency frameworks:

Dimension 1: Existential Awareness (EA)

Existential Awareness refers to the teacher's capacity to recognize and engage with the fundamental questions about human existence, meaning, consciousness, and purpose that AI civilization makes newly urgent. A primary teacher with high Existential Awareness understands that teaching in the AI era is not merely a technical challenge but an existential one involving questions about what it means to be human, what education is ultimately for, and what legacy teachers leave in the minds and souls of children who will live in an AI-saturated world. This dimension draws directly from Gardner's ninth intelligence and from existential pedagogy (van Manen, 1991), but applies it specifically to the teacher's professional self-understanding in the context of AI.

Existential Awareness manifests in classroom practice as a teacher's capacity to help children ask deep questions, not just "What can AI do?", but "What does AI mean for who we are and who we want to become?" Research on AI literacy in primary education increasingly recognizes the importance of philosophical and ethical dimensions alongside technical competencies (Computers and Education: AI, 2024), but stops short of theorizing the teacher's own existential engagement as a prerequisite for this kind of deep inquiry pedagogy.

Dimension 2: Adaptive Technological Wisdom (ATW)

Adaptive Technological Wisdom is distinguished from AI literacy or digital competence by its emphasis on wisdom rather than skill. Where AI literacy asks "Can this teacher use AI tools effectively?", Adaptive Technological Wisdom asks "Does this teacher know when, why, and for what purposes to use AI tools and when not to?"

This dimension encompasses not only technical proficiency but the practical wisdom (phronesis, in Aristotelian terms) to navigate the complex trade-offs between technological efficiency and human depth in primary education.

This dimension is grounded in the systematic review findings that effective AI-era teacher professional development must foster "teacher autonomy, real-time feedback, and adaptive learning personalization" (Hoa et al., 2026) and that AI literacy must be embedded in broader frameworks of ethical reasoning and contextual understanding (Al-Rashidi et al., 2025). Adaptive Technological Wisdom is the dispositional dimension, the developed practical judgment, that enables a teacher to make wise decisions about AI integration in the lived complexity of a primary classroom.

Dimension 3: Ethical-Relational Intelligence (ERI)

Ethical-Relational Intelligence refers to the teacher's capacity for nuanced moral reasoning about the implications of AI for children's rights, dignity, privacy, equity, and relational development. Primary school children are among the most vulnerable stakeholders in AI civilization: their data, attention, relationships, and identity formation are all susceptible to AI influence. A teacher with high Ethical-Relational Intelligence recognizes this vulnerability and is equipped to navigate it with both principled commitment and practical sensitivity.

This dimension draws on UNESCO's foundational insistence that AI applications in education must be "guided by the core principles of inclusion and equity" (UNESCO, 2024), and on Gardner's interpersonal and intrapersonal intelligences as its psychological foundations. Research on teacher AI competence development emphasizes that effective professional development must address ethical concerns alongside technical skills, including "data privacy and algorithmic bias" (Ahmad et al., 2024). Ethical-Relational Intelligence translates these concerns from abstract principles into the concrete relational fabric of the primary classroom, where teachers daily navigate the tension between technological efficiency and human connection.

Dimension 4: Holistic Systems Thinking (HST)

Holistic Systems Thinking refers to the teacher's capacity to perceive and respond to the educational system, and the broader AI civilization, as an interconnected, dynamic whole rather than a collection of discrete problems to be solved sequentially. A primary teacher with strong Holistic Systems Thinking understands that AI is not merely a tool to be added to an existing educational system but a transformative force that is reshaping the entire ecology of learning, teaching, childhood, and human development. This teacher can trace the connections between an AI-generated lesson plan and questions of curricular authority, between AI-assisted assessment and children's intrinsic motivation, between AI-mediated communication and the development of authentic human relationships.

This dimension draws on systems theory in education (Senge, 1990) and on Gardner's naturalist intelligence, the capacity to recognize and categorize patterns in complex environments, reappropriated for the complex, adaptive system of AI-era education. The AI-integrated pedagogy literature increasingly calls for "holistic teacher education programs" that equip teachers to navigate this systemic complexity (Al-Rashidi et al., 2025), and Holistic Systems Thinking represents the cognitive-dispositional foundation on which such programs must be built.

Dimension 5: Transcendent Purpose Orientation (TPO)

Transcendent Purpose Orientation refers to the teacher's connection to a sense of purpose that transcends immediate professional tasks and situates their work within a larger narrative of human and civilizational meaning. This dimension is perhaps the most distinctively "cosmic" aspect of the framework: it concerns the teacher's capacity to experience their work not merely as a job, a career, or even a profession, but as a vocation namely a calling that connects the daily intimacies of the primary classroom to the largest questions about the kind of civilization humanity is building through AI.

Transcendent Purpose Orientation draws on Viktor Frankl's logotherapy (meaning as a fundamental human motivator), on calling and vocation theory in teacher education (Hansen, 1995), and on the philosophical traditions of cosmically oriented education theory. In the AI era, this dimension takes on particular urgency: as AI systems become increasingly capable of performing many of the technical functions of teaching (information delivery, assessment, personalized feedback), the irreducibly human dimensions of the teacher's vocation: wisdom, care, moral presence, and transcendent purpose, become both more visible and more precious. A teacher with strong Transcendent Purpose Orientation is not threatened by AI's capabilities; they are liberated by them to more fully inhabit the uniquely human dimensions of their calling.

Cosmic Intelligence and Existing Frameworks: A Comparative Analysis

The comparative analysis in Table 1 illustrates the distinctive contribution of the Cosmic Intelligence framework. While existing frameworks such as UNESCO's AI competency model and technical AI literacy approaches address important dimensions of teacher preparation, none integrates the existential, philosophical, ethical-relational, and transcendent dimensions that the present framework identifies as essential for primary teachers navigating AI civilization. The MI theory contributes the concept of existential intelligence but does not develop it into a comprehensive professional competency framework for teachers. Cosmic Intelligence thus represents a synthesis and extension that fills a genuine theoretical gap.

Table 1. Comparison of Cosmic Intelligence Framework with Existing Frameworks

No.	Framework Dimension	Technical AI Literacy	UNESCO AI Competency	MI Theory (Gardner)	Cosmic Intelligence (This Study)
1	Technical Skills	✓ Central focus	✓ Included	—	✓ Embedded in ATW
2	Ethical Reasoning	Partial	✓ Emphasized	—	✓ Central (ERI)
3	Existential/Philosophical	—	—	✓ Partial (EI)	✓ Central (EA, TPO)
4	Systems Thinking	Partial	Partial	—	✓ Central (HST)
5	Purpose/Vocation	—	—	—	✓ Central (TPO)
6	Adaptive Wisdom	—	Partial	—	✓ Central (ATW)
7	Teacher Identity	—	Partial	—	✓ Integrated across all 5

Discussion

Implications for Primary Teacher Education

The Cosmic Intelligence framework has far-reaching implications for how primary teacher education is conceptualized and practiced. First, initial teacher education programs need to incorporate not only AI tools training but structured opportunities for student teachers to engage in existential reflection, ethical deliberation, and purpose clarification, what might be called "cosmically intelligent teacher formation". This would involve philosophical seminars, contemplative practices, narrative inquiry into teaching vocation, and ethical case study analysis alongside technical AI skills development.

Second, in-service professional development for practicing primary teachers should be reconceived as a journey of civilizational meaning-making, not merely skill updating. The finding that teachers share deep concerns about the ethical, philosophical, and relational dimensions of AI (Ahmad et al., 2024) suggests a profound readiness for this kind of deeper professional formation, a readiness that current PD programs are largely failing to meet. Cosmic Intelligence-informed professional development would provide teachers with the conceptual vocabulary, reflective practices, and collegial communities needed to navigate AI civilization with wisdom and purpose.

Third, primary school curriculum frameworks should be redesigned with Cosmic Intelligence in mind, not only to develop students' AI literacy, but to cultivate the existential awareness, ethical reasoning, systems thinking, and sense of transcendent purpose that will enable them, as future citizens and teachers, to engage with AI civilization as conscious, free, and purposeful human beings. The AI-Cosmic project in Europe has demonstrated that primary school children can engage meaningfully with complex AI concepts through gamified, multi-dimensional approaches (Inercia Digital, 2024); the Cosmic Intelligence framework suggests that this engagement should extend beyond the technical to the philosophical and existential.

CONCLUSION

This article has introduced and elaborated the concept of Cosmic Intelligence as a transformative framework for primary education teachers in the era of Artificial Intelligence. The study has argued that existing approaches to AI-era teacher preparation, while valuable, are systematically incomplete because they prioritize technical proficiency over existential wisdom, ethical depth, relational intelligence, systems thinking, and transcendent purpose. Drawing on Howard Gardner's theory of Multiple Intelligences (especially existential intelligence), transformative learning theory, AI-education research, and existential pedagogy, the study has constructed a five-dimensional Cosmic Intelligence framework comprising: Existential Awareness, Adaptive Technological Wisdom, Ethical-Relational Intelligence, Holistic Systems Thinking, and Transcendent Purpose Orientation.

The Cosmic Intelligence framework represents a novel theoretical contribution to the field of teacher education in the AI era. It does not reject the importance of technical AI literacy; rather, it situates technical competency within a richer, more humanistic vision of what a primary teacher must be in order to guide children through civilizational transformation with wisdom, care, and purpose. A cosmically intelligent primary teacher is one who does not merely adapt to AI civilization but actively shapes it, in the daily intimacies of the primary classroom, in the direction of greater human flourishing.

Future research should move toward empirical validation of the Cosmic Intelligence framework through qualitative studies of practicing primary teachers, mixed-methods investigations of Cosmic Intelligence-informed teacher education programs, and cross-cultural comparative studies exploring how different educational traditions onceptualize the existential dimensions of teaching in the AI era. The stakes of this research agenda are civilizational: how primary teachers are prepared to navigate the AI age will, in accordance with the five-dimensional Cosmic Intelligence framework highlighted to build.

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