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Co-agency and Generative Artificial Intelligence: Engagement, Relationships, and Social-Emotional Learning

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Abstract: The widespread adoption of generative artificial intelligence in educational contexts calls for a pedagogical reflection on the transformations taking place in learning processes and educational relationships. This contribution examines the role of conversational systems as tools for educational mediation, with particular attention to empathy, student engagement, and the development of agency. Through a theoretical and argumentative analysis of the literature, it explores the potential of AI to support the personalization of learning pathways and the socio-affective dimension of learning, while also highlighting the risks associated with cognitive offloading, the standardization of emotional experience, and the simulation of empathy. From this perspective, AI is conceived as a resource that can be integrated into intentional and ethically oriented educational design aimed at promoting autonomy, participation, and critical thinking, without displacing the centrality of the educational relationship.

Keywords: AI, emotional intelligence, educational relationships, co-agency, teacher's role

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1. Introduction

The integration of generative artificial intelligence systems into educational contexts is profoundly transforming the educational experience. Conversational technologies not only introduce new possibilities for personalizing teaching and learning pathways but also call for a pedagogical reflection on the nature of the educational relationship, the emergence of new cultural tools, and the ways in which schools can preserve the centrality of the person within the digital ecosystem. Generative chatbots operate as discursive mediators capable of activating reflective processes; they can detect linguistic patterns associated with emotional states and provide responses that simulate dialogical sensitivity, without, however, participating

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in genuine affective processes. Their ability to generate coherent and contextually relevant responses reduces the perceived distance between human subjects and machines and may foster forms of anthropomorphism that influence students' perceptions and representations. Pedagogy is therefore called upon to clearly distinguish between educational relationships and communicative simulation.

Relationships with others constitutes a fundamental human need and is inherent to the human condition (Maritain, 1969). Through relationships with others, individuals embark upon the gradual construction of their own identity. The capacity of relationships to shape the self and foster the disclosure of the uniqueness of the person is realized through engagement with alterity (Buber, 1958).

The circularity and reciprocity characterizing the relationship between the two participants clarify that personal growth is closely connected to the capacity to establish relationships based on educational feedback. The concept of feedback in education makes it possible to argue that "every single component of an educational system, regardless of its intentionality, through its existence and actions contributes to the personal enrichment of all the others, and viceversa. A bond of collaboration and mutual learning is therefore established, nourished by the stimuli arising from intersubjective relationships" (Pati, 1984, p. 91). Every dimension of the person is part of interpersonal exchange, implying the involvement of those less visible dimensions related to emotions and affectivity.

However, there are forms of interaction that, despite taking the form of dialogue, do not activate processes of mutual recognition or generate transformation, as is the case with the communicative simulation of empathy provided by machines. So-called "artificial empathy" (Canducci, 2025) consists of linguistic production devoid of lived experience, reciprocity, responsibility, and intentional care.

Empathic relationships, in fact, cannot be reduced to an exclusively cognitive process, as they involve the person. Empathy may be defined as a multidimensional experience in which cognitive and affective dimensions intertwine within interpersonal relationships. According to Stein (1986), empathy is an experience that enables access to the inner life of another person, including their feelings and motivations. Weil (1990), outlining the educational relationship, instead emphasizes a gaze characterized by attentiveness: an orientation toward the other marked by care and openness that makes encounter possible. It is precisely this quality of gaze and presence that constitutes a decisive distinction between human relationships and technology.

In the classroom, this distinction is crucial: the educational relationship is not an accessory element of learning but one of its constitutive conditions, the context in which the experience of the other becomes an integral part of educational processes. Within relational space, empathy makes educational encounters possible and enables the effective activation of processes of growth.

Empathic understanding within the teacher-student relationship is grounded not only in verbal communication but also in what remains unspoken, including posture, emotional experiences, and deeper feelings (Bruzzone, 2016). As Rogers (1975) emphasized, within the educational relationship, empathic understanding and trust between the parties are established when teachers are able to perceive what lies

beyond students' words and manifest behaviors, engaging with the meanings they express.

The simulation of empathic feedback by machines may provide stimuli and incentives for communication, particularly among more vulnerable students, but it cannot replace the teacher's professional sensitivity: the ability to interpret silences and emotional nuances, together with physical presence and authentic listening. Interaction between students and generative AI opens up a broad pedagogical debate concerning its ethical, relational, and educational implications, raising questions about the role such technologies may play in fostering student engagement, agency, and the quality of educational relationships.

On this basis, the present theoretical contribution, grounded in critical hermeneutic approach, aims to investigate and analyze the educational implications of conversational systems as tools of pedagogical mediation in support of social and emotional learning processes. Generative chatbots are not considered merely as cognitive support tools, but as interlocutors with whom students establish increasingly complex forms of linguistic and communicative.

2. The Pedagogical Mediation of Artificial Intelligence in Learning Processes

The integration of digital Natural Language Processing and sentiment analysis tools (Cambria et al., 2013) opens new possibilities for recognizing students' emotional states, enabling the identification of signals of anxiety, frustration, disorientation, or engagement and supporting more timely and personalized educational interventions. These language models are predominantly trained on data corpora characterized by specific cultural and linguistic references and may therefore reproduce forms of standardization that reduce the complexity of lived experiences to predefined interpretive frameworks, which may not always be appropriate to the plurality of educational contexts.

The categorization of emotional states thus risks reducing educational experience to a set of operational labels, producing a form of knowledge capable of ordering and standardizing, but not necessarily of understanding the singularity of individual experiences. Pedagogical knowledge, by contrast, recognizes that every emotion is situated and emerges from the student's personal history, the classroom climate, and the relationships that characterize it. Artificial intelligence can therefore provide useful data and feedback, but their interpretation requires a human and professional perspective capable of grasping the specificity of individual experiences. AI does not therefore replace educational responsibility; rather, it can expand it by providing tools and information that support reflection, personalization, and care, provided that these are embedded within intentional educational design grounded in the centrality of human relationships (Miao & Holmes, 2023).

A similar issue concerns the way in which conversational systems construct their responses. It is not sufficient for a model to accurately recognize an emotional

state or adapt to the characteristics of the user; such adaptation must remain associated with the critical verification of information. Fanous and colleagues' (2025) analysis of the phenomenon of sycophancy, namely the tendency of Large Language Models (LLMs) to prioritize agreement with the user over independent reasoning and truthfulness, demonstrates how such systems may confirm incorrect claims to accommodate the interlocutor's expectations. In educational contexts, this constitutes a significant risk: if a student proposes an incorrect solution and the chatbot confirms it or progressively modifies its response to accommodating the student, the system may reinforce the error rather than promote critical engagement. Adaptation to the user's profile can instead be beneficial when it remains subordinate to accuracy and information verification.

The design of LLM-based educational systems should therefore prioritize independent verification, accuracy, and critical engagement, avoiding situations in which agreement with the user becomes an implicit objective that takes precedence over truthfulness. This requirement is directly connected to the broader issue of cognitive offloading. The integration of artificial intelligence into educational contexts generates a tension between the opportunities offered by new technologies and the risks associated with their substitutive use. Excessive reliance on generative systems may transform AI from a support tool into a mechanism for cognitive offloading, with possible consequences for the development of autonomy, writing skills, and critical thinking. Some empirical evidence indicates a negative relationship between frequent use of AI tools and critical thinking abilities (Heersmink, 2024).

The issue therefore does not lie in the use of artificial intelligence itself, but in the function, it assumes within the educational process. When the system replaces students' cognitive activity, it may foster dependency and cognitive offloading; when it is instead employed as a support and scaffolding mechanism, it can stimulate reflection, dialogue, and the autonomous construction of knowledge. The pedagogical challenge therefore consists in designing modes of use that preserve the student's position as an active subject, employing technology to expand cognitive possibilities without delegating decision-making and reflective processes to it.

This perspective leads to the concept of agency, understood not simply as an individual capacity but as a relational dimension constructed through dialogue, participation, and shared responsibility (OECD, 2019; Biesta & Tedder, 2006). The intervention of artificial intelligence no longer concerns merely the processing of information; it may also affect decision-making processes and educational dynamics, introducing new forms of artificial agency (Floridi, 2025).

In this regard, the perspective of co-intelligence (Mollick, 2024) interprets the potential of artificial intelligence as resulting from collaboration between the compu-

tational capacities of machines and human competencies such as critical judgment, creativity, contextual sensitivity, and empathy. Similarly, Luckin (2018) considers intelligent technologies as instruments of "human intelligence augmentation," capable of enhancing rather than replacing human abilities. The concept of co-agency (Leadbeater, 2017), subsequently adopted by the OECD (2019), describes the capacity to act intentionally and responsibly in collaboration with other individuals and cultural tools.

Transferring to the school context, this perspective makes it possible to conceptualize teachers and conversational agents as components of a distributed relational system: teachers retain responsibility for pedagogical understanding and the care of relationships, while intelligent systems can provide informational support, stimulate reflection, and broaden access to knowledge. Within such a configuration, intelligent tutoring systems should not replace students' activities but provide calibrated support for the development of competencies and knowledge that are not yet fully autonomous. This is the principle of scaffolding (Bruner, 1978), according to which support is progressively modulated with the aim of fostering increasing autonomy.

The same principle can be applied to generative artificial intelligence (GenAI). When used in substitutive manner, it risks improving the learning process by limiting cognitive engagement and students' sense of self-efficacy.

The pedagogical value of technology therefore depends on the quality of the educational design within which it is embedded and, on the ability, to configure it as an intermediary that expands access to knowledge and to a plurality of perspectives, without replacing the school community as a space for personal and collective growth. AI becomes pedagogically meaningful when it promotes students' active engagement, encouraging them to make decisions, develop arguments, reflect on their own work, and independently identify and correct errors.

The complementarity between human and artificial intelligence is therefore not aimed at making technology similar to human beings, but at designing educational ecosystems in which digital tools strengthen people's critical and reflective capacities. AI integration should consequently be grounded in collaborative models in which different forms of agency are oriented toward shared educational goals (Miao & Holmes, 2023). Student engagement emerges from the interplay among participation, belonging, agency, well-being, and empathy—dimensions that AI can support only when embedded within an intentional, ethically oriented, and relationally grounded educational framework (Atchley et al., 2024).

3. Artificial Intelligence, Student Engagement, and Socio-Emotional Learning

The dimensions of participation, agency, and well-being discussed above lead directly to the issue of student engagement, understood as a multidimensional component of the learning experience encompassing behavioral, emotional, and cognitive dimensions (Fredricks et al., 2004). The use of generative AI can expand opportunities for interaction and personalization, but its educational value depends on the quality of the engagement it supports and, on its capacity, to prevent the delegation of learning processes.

At the behavioral level, the continuous availability of AI can foster participation, effort, perseverance, and task completion (Escalante et al., 2023; Fredricks et al., 2004; Bond, 2020). However, increased interaction with the tool does not in itself constitute an indicator of meaningful engagement, as it must be considered in relation to the cognitive and emotional dimensions. Cognitive engagement concerns the student's mental investment in the learning process and encompasses comprehension, critical thinking, reflection, and self-regulation (Bond & Bedenlier, 2019). In interaction with AI, it requires students to retain control over their learning strategies and to subject AI-generated outputs to verification, interpretation, and critical re-elaboration.

The emotional dimension concerns affective involvement in the learning experience and may be expressed through interest, enthusiasm, and satisfaction, as well as through a possible reduction in anxiety and the strengthening of positive social interactions. It nevertheless presents an ambivalent character, as the use of AI may be accompanied by concerns regarding the reliability and transparency of responses, the redefinition of the teacher's role, and possible transformations in the quality of educational relationships (Wu et al., 2024). Emotional engagement must therefore be analyzed in relation to the relational, trust-based, and pedagogical conditions within which interaction with AI takes place.

Within this perspective, the concept of agentic engagement is particularly relevant, referring to the student's active, intentional, and constructive contribution to the shaping of their own learning process (Reeve & Tseng, 2011). In interaction with AI, this entails the ability to ask questions, request explanations, express needs, and actively orient one's learning pathway. AI can therefore support agency when it expands opportunities for exploration, dialogue, and re-elaboration without replacing students' decision-making and strategic processes. Agency consequently represents an essential condition for ensuring that the use of AI strengthens autonomy, participation, and responsibility.

Student engagement is also closely connected to Social and Emotional Learning (SEL), a perspective concerned with the personal and social competencies required for active and meaningful participation. SEL encompasses self-awareness, self-regulation, social awareness, relationship skills, and responsible decision-making (CASEL, 2020). GenAI can support these processes through personalized strategies, interactive exercises, and context-sensitive responses (Henriksen et al., 2025), but it also presents substantial limitations. Although it can simulate empathic forms of language and communication, it does not possess authentic awareness of emotions or an experiential understanding of the human context. SEL is grounded in an emotional intelligence that is subjective and dynamic and deeply shaped by social and cultural contexts.

AI should therefore be conceived as a support tool rather than as a substitute for human educational interaction, particularly about socio-emotional development. SEL should not be understood as a mechanism designed to systematically protect students from emotionally complex experiences, but rather as a process aimed at developing their capacity to confront, interpret, and consciously re-elaborate such experiences (Kong et al., 2025). Situations characterized by emotional and moral ambiguity may, in fact, acquire significant pedagogical value when appropriately mediated by educators and transformed into opportunities for reflection, moral development, and the cultivation of empathy (Mercer & McDonagh, 2021). This leads to a conception of SEL that moves beyond mere emotional regulation and instead emphasizes the gradual development of autonomous judgment.

The integration of GenAI therefore requires a balance between technological tools and human interactions, according to a principle of complementarity (Raave et al., 2026). AI can contribute through its capacities for processing, personalization, and continuous availability, whereas teachers retain responsibility for pedagogical understanding, the interpretation of students' experiences, and the quality of the educational relationship. This approach requires a reconsideration of teacher education, which should integrate technical competencies with robust critical and ethical AI literacy. Teachers should be equipped to assess the potential and limitations of AI, identify possible biases, protect students' privacy and autonomy, and understand its implications for educational relationships and classroom dynamics. The creation of teacher communities focused on sharing practices, challenges, and outcomes related to the use of AI in support of socio-emotional learning could further foster the collaborative development of strategies and the continuous enhancement of professional competencies. Finally, the responsible integration of GenAI into SEL requires an interdisciplinary approach involving educators, psychologists, developers, and policymakers in the design, implementation, and evaluation of these tools. Specific

teacher training, combined with person-centered educational design and interdisciplinary dialogue, can contribute to ensuring that the use of GenAI supports rather than undermines students' well-being, autonomy, and socio-emotional development (Raave et al., 2026).

4. Conclusions

The discussion presented above demonstrates that the integration of GenAI into educational contexts cannot be understood either as a simple extension of teaching tools or as a substitute for the human relationships that sustain learning. Although the simulation nature of conversational systems enables them to generate contextually appropriate and linguistically sensitive responses, it does not allow them to reproduce the experiential complexity of empathy, reciprocity, and care that characterizes the educational relationship.

The studies reviewed demonstrate that AI can support learning processes only when embedded within intentional educational frameworks capable of preserving students' cognitive autonomy and preventing forms of cognitive offloading that undermine critical thinking. AI can contribute to the personalization of learning pathways, the recognition of emotional states, and the creation of opportunities for student engagement; however, these potentialities require professional mediation by teachers who are able to interpret students' experiences, contextualize information, and orient educational experiences toward meaningful formative objectives.

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