An Ontological Diagnosis of the Educational Cognitive Crisis in the Age of Generative Artificial Intelligence: A Framework Based on *Knowing and Saying*

Xusheng Zhang[*1]

[1]College of Computer Science and Technology,Zhejiang University,Hangzhou,China

Abstract: The large-scale educational application of Generative Artificial Intelligence (GenAI) is reconstructing the fundamental conditions of human cognition at an unprecedented pace. Utilizing the three-layer cognitive structure of "Soma-Emotion-Meaning" established in Zhang Xusheng's Knowing and Saying as the core analytical framework, and integrating the "Progressive Weakening-Compensation Principle" from Wang Dongyue's The Theory of Universal Evolution as the ontological philosophical foundation, this paper presents a systematic ontological diagnosis of the educational cognitive crisis in the GenAI era. This paper argues that the crisis currently facing the educational field is not merely a problem of technological adaptation, but a profound cognitive ontological crisis: GenAI alienates the meaning-generation process from the cognitive subject through the "language concealment effect," erodes the cognitive foundation of somatic perception and emotional experience through "cognitive offloading," and disintegrates the formative mechanisms of judgment through the "algorithmic black box." Furthermore, drawing upon the speech act theories of Austin and Searle , this paper reveals the fundamental intentionality defects in the language output generated by GenAI, and proposes theoretical pathways for reconstructing cognitive integration anchors from the perspective of educational philosophy. The core contribution of this paper lies in introducing the cognitive ontological framework of Knowing and Saying into contemporary discussions of educational philosophy, providing a philosophical diagnosis that transcends the technicism perspective for the educational crisis in the GenAI era.

Keywords: Generative Artificial Intelligence; Educational cognitive crisis; Ontology; Soma-Emotion-Meaning; Language concealment effect; Cognitive offloading; Speech act theory

1 Introduction: A Crisis Obscured by Technological Discourse

Since 2023, generative artificial intelligence tools represented by ChatGPT have penetrated global educational systems at an astonishing speed. From classroom writing assistance to personalized learning systems, from automated grading to intelligent tutors, GenAI is redefining the fundamental forms of educational activities. However, amidst this global technological wave, mainstream discussions in the educational community largely remain at the instrumental level: how to use AI to improve learning efficiency, how to prevent academic misconduct, and how to cultivate "AI literacy." While these discussions possess practical significance, they collectively obscure a more fundamental philosophical question: when the core processes of cognition—the generation of meaning, the formation of judgment, and the construction of concepts—are offloaded to a language-generating machine, what exactly remains of education?

The severity of this question has already begun to emerge in recent educational philosophy research. Biesta [3] points out that the essence of education lies not in the transmission of knowledge, but in the "awakening of subjectivity" (subjectification), a process that is fundamentally non-outsourceable. Rivera-Novoa and Duarte Arias [16] analyzed the philosophical impact of GenAI on the science learning process from the perspective of extended cognition, pointing out that the intervention of generative AI carries the risk of downgrading learners from active cognitive subjects to passive recipients. Clark [4], in his latest discourse on the extended mind, reminds us that while humans naturally tend to build hybrid thinking systems, we must remain prudent when collaborating with GenAI. However, most of the aforementioned studies lack a unified theoretical framework capable of systematically integrating the three cognitive levels: soma, emotion, and meaning.

* Corresponding author: zhangxs001@zju.edu.cn

This paper attempts to fill this theoretical gap. The three-layer cognitive structure of "Soma-Emotion-Meaning" established in Zhang Xusheng's Knowing and Saying [23] provides an integrative framework capable of simultaneously grasping the biological foundation, emotional dimension, and meaning generation of cognition. The philosophical root of this framework stems from the "Progressive Weakening-Compensation Principle" in Wang Dongyue's The Theory of Universal Evolution [20]: in the course of material evolution, the self-subsistence capability (Degree of Existence) of entities decreases as the evolutionary level rises, while simultaneously, compensation mechanisms (Degree of Compensation) continuously strengthen to maintain existence. Cognition, concepts, and language are precisely the highest forms of compensation developed by humans as highly evolved entities. Understanding this ontological background is key to comprehending the deep roots of the GenAI educational crisis.

The argument structure of this paper proceeds as follows: Section 2 reviews relevant literature to establish the theoretical positioning of this paper; Section 3 systematically expounds the three-layer cognitive structure framework of Knowing and Saying and its educational philosophical implications; Section 4 analyzes GenAI's systematic erosion of the three-layer cognitive structure; Section 5 utilizes speech act theory to reveal the intentionality defects of GenAI's language output; Section 6 explores the collapse of the meaning ecology and the crisis of judgment; Section 7 proposes philosophical strategies for reconstructing cognitive integration anchors; and Section 8 concludes.

2 Literature Review: Educational Philosophy's Response to Artificial Intelligence

2.1 The Limitations of the Technicism Perspective

Existing research on AI in education largely concentrates on the empirical level: measuring learning outcomes, changes in student engagement, and impacts on teacher workload. For example, systematic reviews by Wang et al. [21] and Dong et al. [7] demonstrate the broad potential of large language models in educational applications. While these studies provide important empirical data, they generally lack philosophical inquiry into the essential nature of cognition. As Selwyn [18] criticized, educational technology research has long been trapped in the dilemma of "technicism," viewing technology as a neutral tool while ignoring its transformative power over cognitive structures themselves.

At the philosophical level, Dreyfus [8] pointed out as early as the internet era that what computers lack is not computing power, but the embodied experience of "being-in-the-world"—which is the fundamental basis for human understanding of meaning. This insight has gained new urgency in the GenAI era. Hayles's [11] concept of "unthought" reveals how technological systems shape cognitive processes outside human consciousness, providing a theoretical tool for understanding the implicit impact of GenAI.

2.2 The Debate on Extended Cognition and Cognitive Offloading

The Extended Mind Thesis proposed by Clark and Chalmers [5] argues that cognitive processes can extend to external tools and environments; notebooks, calculators, and even the internet can become components of the cognitive system. This framework has been used by some researchers to defend AI-assisted learning [4]. However, critics point out that the applicability of extended cognition theory depends on whether external tools truly participate in the meaning-generation process, rather than merely providing information storage and retrieval.

Research by Rivera-Novoa and Duarte Arias [16] shows that GenAI's intervention differs fundamentally from traditional cognitive tools: the former not only stores and retrieves information but also actively generates language output, potentially replacing the learner's active participation in the core process of meaning construction and reducing them to a passive cognitive subject. Tian and Zhang's [19] empirical research further reveals the negative effects of "AI dependence": learners highly dependent on AI tools show a significant decline in critical thinking skills, with cognitive fatigue playing a mediating role. This "cognitive offloading" is reshaping human thinking in a dual manner: on one hand, it improves information processing efficiency; on the other hand, it erodes the developmental foundation of deep cognitive abilities.

2.3 The Philosophical Turn in Educational Ontology

In recent years, a distinct "ontological turn" has emerged in the field of educational philosophy. Biesta [3] re-placed the ontological problem of education at the center, emphasizing that education is not only an epistemological issue (how to know) but also an ontological issue (how to become). Arstorp and Lund [1] explored this ontological turn from the perspective of educational technology, pointing out that under the intervention of digital technologies and GenAI, learners' "being and becoming" are undergoing profound reconstruction. Jose and Cleetus [12] further noted that GenAI, as an "epistemic agent," is challenging traditional epistemic authority, reshaping the cognitive dynamics between teachers and students.

However, while these studies raise important philosophical questions, they lack a systematic theoretical framework capable of integrating the three dimensions of soma, emotion, and meaning. The three-layer cognitive structure provided by Knowing and Saying [23] precisely fills this theoretical gap.

2.4 Speech Act Theory and the Philosophical Boundaries of AI Language

Austin [2], in How to Do Things with Words, distinguished between constative and performative utterances, revealing that language not only describes the world but also essentially changes it. Searle [17] further developed this theory, proposing that intentionality is the core condition of speech acts: true speech acts must be issued by subjects possessing intentional states. This theoretical framework provides an important tool

for analyzing the essential limitations of GenAI's language output.

In recent years, several scholars have applied speech act theory to the analysis of AI language. Floridi and Chiriatti [10] pointed out that language generated by large language models like GPT-3 is essentially a statistical simulation of human texts, lacking genuine semantic understanding and intentionality. This perspective profoundly echoes the discourse on the "language concealment effect" in Knowing and Saying.

3 Theoretical Framework: The Three-Layer Cognitive Structure of *Knowing and Saying*

3.1 Ontological Philosophical Foundation: The Progressive Weakening-Compensation Principle

To understand the theoretical framework of Knowing and Saying, one must first grasp its ontological philosophical foundation. Wang Dongyue, in The Theory of Universal Evolution [20], proposed the "Progressive Weakening-Compensation Principle": in the course of material evolution, the higher the form of existence, the lower its self-subsistence capability (Degree of Existence), but the stronger its compensation mechanism (Degree of Compensation). From elementary particles to atoms, molecules, living organisms, and finally human society, each evolutionary level trades a more complex compensatory structure for continued existence under more fragile existential conditions.

Human cognition—including perception, emotion, concept, and language—is precisely the highest expression of this evolutionary logic. Humans, as the entities with the lowest degree of existence (the most fragile) in nature, have developed the cognitive system with the highest degree of compensation. Cognition is not a luxury for humans, but a fundamental compensatory mechanism for maintaining existence. This ontological perspective allows us to fundamentally understand: when GenAI intervenes and partially replaces this compensatory mechanism, what is threatened is not only learning outcomes, but the very mode of human existence itself.

3.2 Connotation of the Three-Layer Cognitive Structure

Based on the aforementioned ontological foundation, Zhang Xusheng's Knowing and Saying [23] established the "Soma-Emotion-Meaning" three-layer cognitive structure framework. This framework has received preliminary empirical corroboration: Zhang et al. [22] integrated embodied cognition theory, the somatic marker hypothesis, and the Progressive Weakening-Compensation Principle to propose the same three-layer cognitive structure theory, and applied it to digital health intervention research on autism spectrum disorder and depression comorbidity, proving the framework's cross-domain explanatory power. The core content of this framework is as follows:

3.2.1 Layer 1: Somatic Layer

The somatic layer is the biological foundation of cognition, corresponding to the domain of natural existence. It includes the sensorimotor system, interoception, and the totality of embodied experience. The cognitive function of the somatic layer is not abstract information processing, but the establishment of a sense of "being-in-the-world" through direct contact between the body and the environment. Merleau-Ponty's [15] phenomenology of perception reveals the fundamental importance of this layer: the body is not the carrier of cognition, but its constitutive condition. Research on embodied learning (e.g., [9]) further shows that educational practices integrating physical activity, cognition, and environmental interaction are crucial for breaking traditional cognitive dualism.

3.2.2 Layer 2: Emotional Layer

The emotional layer is the dynamic core of cognition, corresponding to the domain of spiritual existence. It includes not only affective experiences but also motivation, value judgments, and the primordial forms of meaning perception. Damasio's [6] Somatic Marker Hypothesis demonstrates that emotion is not an interference factor in cognition, but a necessary condition for judgment and decision-making: cognition without emotional participation is incomplete. In the educational context, the activation of the emotional layer is a critical condition for deep learning—learners must be emotionally "present" to truly construct meaning.

3.2.3 Layer 3: Meaning Layer

The meaning layer is the highest form of cognition, corresponding to the domain of sociocultural existence. It includes the formation of concepts, the use of language, the operation of judgment, and the construction of value systems. One of the core arguments of Knowing and Saying is that concepts are not mirror reflections of reality, but "stabilization scaffolding" actively constructed by the cognitive subject through three stages: Recognition, Ideation, and Declaration (the RID model). This process is essentially active, embodied, and emotionally engaged, rather than passive information reception.

3.3 Dynamic Integration of the Three-Layer Structure

The three-layer cognitive structure is not a static hierarchical division, but a dynamically integrated cognitive system. The bottom-up pathway (soma $\rightarrow$ emotion $\rightarrow$ meaning) is the foundational channel for meaning generation: embodied experiences activate emotional responses, which in turn provide motivation and direction for meaning construction. The top-down pathway (meaning $\rightarrow$ emotion $\rightarrow$ soma) is the control channel for cognitive regulation: meaning frameworks influence emotional interpretation, and emotional states regulate somatic perception. This bidirectional dynamic integration is the fundamental characteristic distinguishing human cognition from any machine information processing system.

4 GenAI's Systematic Erosion of the Three-Layer Cognitive Structure

4.1 Erosion of the Somatic Layer: The Dissolution of Embodied Experience

The core mode of GenAI's educational application is: learners interact with AI systems through text interfaces to obtain knowledge output in linguistic form. This mode fundamentally bypasses cognitive participation at the somatic layer. When a student obtains an article about "forest ecosystems" via ChatGPT, rather than constructing relevant knowledge through field observation, touching soil, and feeling the climate, the cognitive foundation of the somatic layer is quietly hollowed out.

This problem has profound theoretical roots in the phenomenological tradition. Dreyfus [8] pointed out that computers cannot truly "understand" human language because understanding requires the embodied background of "being-in-the-world"—which is fundamentally lacking in any form of symbol processing system. In educational practice, this means that relying on knowledge content generated by GenAI, learners acquire "disembodied" symbol sequences rather than true understanding. The scoping review by Faella et al. [9] emphasizes the critical role of embodied learning in school education, while the excessive use of GenAI may precisely deprive learners of the opportunity to construct meaning through physical movement and environmental interaction.

4.2 Erosion of the Emotional Layer: The Numbing of Meaning Perception

The erosion of the emotional layer is the most hidden and profound dimension of the GenAI educational crisis. The learning experience provided by GenAI is essentially emotionally neutral: AI systems possess no curiosity, no confusion, no joy of discovery, and no frustration of failure. When learners become accustomed to receiving immediate, fluent answers from AI, the emotional tension in the cognitive process—the very tension that drives deep learning—gradually disappears.

Damasio's [6] research shows that patients with emotional damage, despite retaining intact logical reasoning abilities, lose the capacity to make reasonable judgments. The educational implication of this finding is profound: judgment is not purely the product of cognitive ability, but the result of integrating cognition and emotion. When GenAI systematically reduces emotional participation in the learning process, it erodes not only the richness of the learning experience but also the emotional foundation for the formation of judgment. The systematic review by Lo et al. [14] on the influence of ChatGPT on student engagement shows that while AI can bring short-term satisfaction, it may also trigger academic misconduct (disengagement) and cognitive over-reliance.

4.3 Erosion of the Meaning Layer: The Offloading of Judgment

The erosion of the meaning layer is the most directly visible. When the construction of concepts, the formation of judgments, and the generation of meaning are offloaded to AI, the subjectivity of the cognitive subject itself faces a fundamental threat.

The RID model proposed in Knowing and Saying [23] reveals three key stages of meaning generation: Recognition—the cognitive subject identifies questions worth pursuing through contact with the world; Ideation—forming an initial understanding framework of the problem through the combination and reconstruction of concepts; Declaration—transforming internal understanding into communicable linguistic forms. GenAI's intervention often skips the first two stages, directly providing the output of "Declaration." This means that learners using GenAI acquire the final product of the meaning-generation process, rather than the capability of meaning generation itself.

Tian and Zhang's [19] empirical research confirms this risk: high dependence on AI tools significantly weakens college students' critical thinking skills. This state of the "hollowed mind" ([13]) indicates that when foundational knowledge and judgment processes are offloaded to algorithms, humans' core capabilities as cognitive subjects are atrophying.

5 Speech Act Theory Perspective: The Intentionality Defects of GenAI's Language Output

5.1 Austin and Searle's Intentionality Conditions

Austin's [2] core insight in How to Do Things with Words is: language not only describes the world but also changes it. The validity of performative utterances depends on a series of "felicity conditions," the most fundamental of which is: the speaker must sincerely hold the psychological state corresponding to the speech act.

Searle [17] systematized this insight into the theory of intentionality: all true speech acts are based on intentional states. A promise is a promise because the speaker sincerely holds the intention; an assertion is an assertion because the speaker sincerely holds the belief. "Language" without intentional states is not a true speech act in the philosophical sense, but merely a simulation of linguistic form.

5.2 The Essence of GenAI's Language Output: Statistical Approximation Rather Than Meaning Expression

Applying the aforementioned theoretical framework to GenAI leads to an important philosophical conclusion: the language output generated by GenAI fundamentally lacks an intentionality basis and therefore does not constitute a true speech act.

Floridi and Chiriatti [10], in analyzing GPT-3, pointed out that large language models are essentially auto-regressive generators of semantic content; through statistical learning of massive texts, they master the surface formal rules of language but lack any real understanding of the world to which the language points. This characteristic highly corresponds with the discourse on the "language concealment effect" in Knowing and Saying: the fluency of linguistic form conceals the absence of meaning content.

In the educational context, this problem has particularly serious consequences. When students view GenAI's output as a reliable source of knowledge, they are actually treating

statistical approximation as real understanding, and linguistic form as meaning content. This is not only an epistemological error but also an ontological confusion: it blurs the fundamental distinction between "knowing" and "having language about knowing"—which is precisely the core tension the title Knowing and Saying aims to reveal.

5.3 The Failure of Speech Acts in Education

The educational application of speech act theory reveals another important issue: core speech acts in education—questioning, explaining, arguing, evaluating—all depend on sincere intentional states. A true educational question is not only an interrogative sentence in linguistic form but also an expression of the questioner's real state of confusion. A true educational explanation is not only the transmission of information but also the explainer's sincere response to the explainee's cognitive state.

When GenAI intervenes in these educational speech acts, it can only provide a formal simulation, rather than genuine intentional participation. This means that GenAI-assisted educational interaction is, in a philosophical sense, a "hollowing out of speech acts": the shell of language is preserved, but the core of intentionality has disappeared.

6 The Collapse of the Meaning Ecology and the Crisis of Judgment

6.1 The Concept of Meaning Ecology

Knowing and Saying [23] introduces the concept of "meaning ecology," comparing the meaning network upon which human cognition depends to an ecosystem: various concepts, values, and judgment standards are interdependent and mutually restrictive, together constituting a dynamically balanced meaning environment. A healthy meaning ecology is a fundamental condition for maintaining human cognitive subjectivity.

The large-scale educational application of GenAI is destroying this meaning ecology in multiple ways. First, GenAI's language output tends toward the statistical mean, systematically suppressing the diversity of concepts and marginal thinking. Second, the immediacy of GenAI deprives the time dimension necessary for meaning construction—the cyclical process of confusion, reflection, and epiphany. Third, as Jose and Cleetus [12] point out, GenAI is becoming a new "epistemic authority," whose fluent and confident output suppresses learners' critical questioning of meaning.

6.2 The Ontological Roots of the Crisis of Judgment

Judgment is the highest capability of human cognition and the most important cultivation goal of education. Kant pointed out in Critique of Judgment that judgment is the ability to apply universal principles to specific situations; it cannot be regularized, because the application of rules itself requires judgment. This insight reveals the fundamental characteristic of judgment: it is a non-outsourceable cognitive capability.

The crisis of judgment brought about by GenAI is essentially an ontological crisis: when the process of judgment is offloaded to algorithms, judgment as a cognitive capability loses the conditions for development. This is not only a problem of capability degradation but also a problem of the loss of cognitive subjectivity.

6.3 The Ontological Boundaries of Education in the Context of Techno-Capitalism

The educational crisis of GenAI cannot be understood in isolation from its political economy background. Currently, the educational AI market is dominated by a few tech giant companies, whose commercial logic fundamentally conflicts with the ontological goals of education. In this context, the educational application of GenAI is not only a technological issue but also a political issue. Selwyn [18] pointed out that the promotion of educational technology often serves specific political and economic interests, rather than the values of education itself. The framework of Knowing and Saying reminds us: when evaluating the educational value of GenAI, we must ask: whose cognition is strengthened? Whose judgment is offloaded?

7 Reconstructing Cognitive Integration Anchors: Philosophical Strategies and Educational Pathways

7.1 The Educational Return of Embodied Cognition

Addressing the erosion of the somatic layer, the primary philosophical strategy is to re-establish the central position of embodied cognition in education. This means that in the GenAI era, education must more consciously design body-centered learning experiences: laboratory operations, field investigations, artistic creation, and physical sports. Faella et al. [9] emphasized the value of embodied learning in school education; in the context where GenAI largely undertakes information processing functions, the comparative advantage of education lies precisely in the embodied experiences it can provide—which no AI system can replace.

7.2 Educational Design for Emotional Participation

Addressing the erosion of the emotional layer, educational design must consciously create space for emotional participation. This includes: preserving confusion and uncertainty in the cognitive process; designing learning tasks that require emotional investment; and establishing teacher-student relationships based on emotional resonance. The concept of "stabilization scaffolding" in Knowing and Saying [23] provides a theoretical basis for educational design with emotional participation: the formation of concepts requires the participation of emotion, and the task of education is to provide supportive scaffolding for this emotional meaning construction.

7.3 The Philosophical Pathway for Cultivating Judgment

Addressing the erosion of the meaning layer, the most fundamental educational strategy is to place the cultivation of judgment at the core of educational goals. Education must shift from the paradigm of "knowledge transmission" to the paradigm of "judgment cultivation": not teaching students what to know, but teaching students how to judge and how

to question. This requires re-establishing human "epistemic agency" in collaboration with AI [12].

7.4 Redefining Critical AI Literacy

Current discussions on "AI literacy" in the educational community largely focus on the level of technology use. The framework of Knowing and Saying suggests that true AI literacy must include an ontological dimension: understanding the cognitive boundaries of AI systems, understanding which cognitive processes cannot be offloaded, and understanding the fundamental distinction between "knowing" and "having language about knowing." This critical AI literacy is a philosophical mastery of AI: the ability to soberly judge when using AI is an extension of cognition [4], and when using AI is a replacement of cognition.

8 Conclusion

Utilizing the three-layer cognitive structure of "Soma-Emotion-Meaning" from Zhang Xusheng's Knowing and Saying [23] as the core framework, and the Progressive Weakening-Compensation Principle from Wang Dongyue's The Theory of Universal Evolution [20] as the ontological foundation, this paper has presented a systematic ontological diagnosis of the educational cognitive crisis in the era of generative artificial intelligence.

The core arguments of this paper can be summarized in three points:

First, the educational crisis of GenAI is an ontological crisis, not merely a problem of technological adaptation. Through the systematic erosion of the three-layer cognitive structure—dissolving the embodied foundation of the somatic layer, numbing the meaning perception of the emotional layer, and offloading the judgment formation of the meaning layer—it threatens the fundamental conditions of human cognitive subjectivity.

Second, from the perspective of speech act theory, GenAI's language output fundamentally lacks an intentionality basis, constituting a "hollowing out of speech acts." Treating this statistical approximation as real understanding is the most dangerous epistemological confusion in current educational practice.

Third, the educational philosophical strategy to address this crisis must transcend the vision of technicism, reconstructing the anchors of cognitive integration from four dimensions: the return of embodied cognition, the design of emotional participation, the prioritization of judgment cultivation, and the redefinition of critical AI literacy.

The theoretical contribution of this paper lies in introducing the cognitive ontological framework of Knowing and Saying into contemporary discussions of educational philosophy, providing an original philosophical diagnostic framework for the educational crisis in the GenAI era.

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