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The Dissolution and Reconstruction of Student Subjectivity in the Age of Intelligence: A Phenomenological Reflection on the Crisis of Independent Thinking

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Abstract: The deep integration of generative artificial intelligence into students' learning processes has brought about a fundamental structural inversion in learning experiences: technological responses precede the subject's perplexity, and ready-made answers precede active construction. This inversion has shaken the paradigm of student subjectivity predicated on anthropocentrism and has reconfigured the temporal, epistemic, and affective conditions under which independent thinking can emerge. Drawing on the methodological resources of phenomenology, this paper reveals how this inversion leads to a threefold dissolution of student subjectivity at the levels of intentionality, meaning-constitution, and embodied engagement with the world. In response to this crisis, the paper proposes a threefold path of reconstruction: restoring the primacy of perplexity by reconstructing the temporal duration of consciousness through delayed technological intervention; implementing a phenomenological epochē of technology to transform AI from a universal answer-provider into a heterogeneous dialogue partner; and reconstructing the embodiment of thinking by re-legitimizing the "ruins of thought," including hesitation, error, and incompleteness, as indispensable moments of learning. These three paths collectively point toward a mode of being that coexists with technology while maintaining a critical distance in tension, thereby safeguarding the autonomy, responsibility, and reflexivity that are constitutive of student subjectivity in the age of intelligence.

Keywords: student subjectivity; independent thinking; phenomenology; generative Artificial Intelligence

1. Introduction

With the rapid development of artificial intelligence (AI), particularly generative AI, in education, students' learning processes and subjectivity are facing unprecedented challenges. The deep integration of intelligent technologies has fundamentally transformed traditional learning experiences, offering immediate answers while diminishing the time and space for independent thinking. This shift has raised concerns about the erosion of student subjectivity, which traditionally relies on autonomy, active exploration, and the construction of knowledge. This paper explores the impact of generative AI on student subjectivity, analyzing how it disrupts the process of independent thinking by displacing perplexity with immediate responses, turning AI into a tool that offers ready-made answers rather than fostering critical engagement. By adopting a phenomenological approach, this study reveals the dissolution of student subjectivity in three key dimensions: intentionality, tool engagement, and intersubjectivity. It then proposes a threefold reconstruction strategy: delaying technological intervention to restore perplexity, reconfiguring AI as a dialogical partner rather than a mere answer-provider, and re-legitimizing the embodied, iterative process of thinking. Through these strategies, the paper advocates for a critical coexistence with

Received: 15 February 2026
Revised: 07 April 2026
Accepted: 17 April 2026
Published: 21 April 2026

technology, aiming to preserve the autonomy, responsibility, and reflexivity essential to student subjectivity in the age of intelligence.

2. Problem Statement

Cultivating human subjectivity is a fundamental theme in contemporary education. Subjectivity is typically described as the autonomy, initiative, and creativity that humans exhibit in object-oriented activities [1]. In learning activities, the subject is the student, while the object is the learning problem the student needs to solve. Intelligent technology is often placed within the category of tools, and it is commonly assumed that tools are neutral and that what matters is how they are used. However, this instrumentalist assumption obscures the most fundamental transformation in learning experiences in the age of intelligence [2,3]. Phenomenology requires that perspective return to the things themselves, abandoning preconceived theoretical presuppositions and directly describing the primordial phenomenon of students using intelligent tools.

In traditional learning epistemology, the relationship between subject and tool follows a clear temporal order: students first encounter a problem, experience perplexity, undergo trial and error and thinking, and finally, with the help of tools, arrive at an answer. The essence of this process lies not in obtaining the answer but in the unfolding of consciousness in time. Perplexity holds pedagogical significance because it marks the active construction of consciousness when encountering resistance. In this structure, the tool is transparent and posterior; the subject is awakened in perplexity and prior [4,5]. Generative artificial intelligence, represented by advanced systems, is advancing technology toward a new stage of creation and generation. Its multimodal, strongly interactive, and highly generalized capabilities pose systematic challenges to the knowledge provision and competence cultivation models of education. Unlike traditional search engines or calculators, AI imitates the speech of a conscious subject in linguistic form [6,7]. When a student asks AI a question, what they face is not a silent tool but a dialogue partner that appears to be thinking. More critically, AI can respond on a millisecond timescale. By the time the student's brain completes the transformation from perplexity to a clear question, a complete answer has already appeared on the screen.

At the heart of this change lies the deprivation of the "retention of perplexity." In the phenomenological perspective, perplexity is by no means a state of cognitive deficiency but a pre-reflective field where subjectivity awakens. When consciousness encounters resistance, when the existing framework of understanding cannot assimilate new material, consciousness is forced back upon itself and initiates active construction. At this moment, the student becomes a subject rather than merely a recipient of information. Perplexity implies the duration of consciousness in time, meaning that the student is thinking as a subject. Yet AI's rapid generation bypasses this process. When perplexity has not yet crystallized into a question within consciousness, the answer has already arrived [4,8]. Students no longer need to undergo the difficult journey from chaos to clarity; instead, they stand directly in clarity. However, this clarity is illusory—it does not belong to the subject's construction but is a gift of algorithms. The field in which student subjectivity arises is lost because the interval requiring the subject's active intervention has been filled by technology [6,9].

Thus, a fundamental inversion has emerged: in traditional epistemology, the subject comes first, the tool follows; perplexity comes first, the answer follows; active construction of consciousness comes first, technological assistance follows. Yet with the advent of the age of intelligence, technological response precedes the subject's perplexity, and ready-made answers precede active construction. Tools are no longer posterior to the subject but have become prior to the subject's awakening. This priority is not merely temporal but structural [10]. This inversion raises a question that demands serious reflection: when perplexity no longer needs to be endured, when the time of thinking is compressed into instantaneous response by technology, where can student subjectivity take root?

3. The Threefold Dissolution of Subjectivity

3.1. Intentional Suspension

The core insight of phenomenology is that consciousness is always directed toward something. This indicates that consciousness is not a closed inner container but a continuous activity of directedness. When one thinks, consciousness always points directly to some object, state of affairs, or question [6,11]. This process of directedness is itself the unfolding of subjectivity—Cogito signifies active construction of meaning rather than passive reception of information [12,13]. However, when students become dependent on AI, the direction of intentionality undergoes a subtle yet fundamental shift. Students no longer direct consciousness toward the knowledge object to be understood but toward the response AI is about to provide. This phenomenon can be described as intentional suspension. This shift often goes unnoticed; students may still believe they are engaging in thought, but the object of thought is replaced by AI's response to the matter. When students encounter a difficult problem, the traditional intentional chain is "I—problem—attempt to understand"; after AI intervention, the chain transforms into "I—AI—AI's response—problem." AI becomes a mediator of intentionality, and due to the immediacy and completeness of its responses, this mediator gradually shifts from being a channel to becoming the endpoint [14].

The implications of this shift are profound. Students regress from first-order thinkers to second-order observers. First-order thinking refers to the active process of construction in which consciousness directly confronts things, endures perplexity, and engages in trial and error. Second-order observation refers to the examination and filtering of others' thinking outcomes. The former represents the primordial field of subjectivity, while the latter signifies the alienation of subjectivity. When students become second-order observers, they lose the initial impression that serves as the starting point of meaning construction [3]. This initial impression is rough, vague, and full of uncertainty, yet it is precisely this incompleteness that summons the subject to complete it. What AI provides is a completed, refined, disembodied product. Students no longer need to construct order from chaos; they only need to select within order. Thus, the subject transitions from constructor to filter, from "I think" to "it thinks."

3.2. The Disruption of Readiness-to-Hand

Heidegger's analysis of tools provides a foundational framework for understanding the relationship between technology and humanity [4]. He distinguishes two states of being: "readiness-to-hand" and "presence-at-hand." When a tool functions seamlessly, it is ready-to-hand—it disappears in the process of use, allowing the user to engage directly with the task at hand [12]. For instance, when a skilled carpenter uses a hammer, their focus is not on the hammer itself but on the wood and nails. The hammer withdraws from attention, becoming a transparent extension of the user's intent [13]. Conversely, when the hammer breaks or becomes unsuitable, it becomes conspicuous, emerging as an object of focus—present-at-hand.

Within this framework, ideal educational technology should function as ready-to-hand, enabling students to engage directly with the world of knowledge without being consciously aware of the technology itself [7]. However, the unique nature of generative artificial intelligence lies in its inability to remain transparent due to its advanced capabilities. When AI intervenes in the learning process with structured key points, fluent expressions, and immediate responses, it consistently draws attention to itself. During problem-solving, students' focus shifts away from the logical deduction of mathematical concepts or the interpretive exploration of textual meaning, instead centering on the operational aspects of the AI [14]. In this scenario, AI ceases to act as a medium through which students access knowledge and instead becomes the focal point—an obstacle requiring constant adjustment, scrutiny, and interaction.

The result of this disruption is the withdrawal of the learning environment [12]. Human subjectivity, as understood in this context, is not an isolated consciousness but one that unfolds through engagement with the world. When tools transition from

readiness-to-hand to presence-at-hand, the world recedes from view [11]. Students no longer encounter knowledge as something to be understood but instead face an interface to be operated. A more profound concern arises with the reification of knowledge. In ready-to-hand learning, knowledge exists as a meaningful whole that individuals must comprehend and embody [7]. In AI-mediated learning, however, knowledge is reduced to pre-packaged results that can be copied, pasted, and retrieved, severing its connection to the student's lived experience. While students may acquire answers, they lose the deeper engagement with the process of understanding.

3.3. The Atrophy of Intersubjectivity

The phenomenological tradition has developed profound reflections on intersubjectivity, emphasizing that the self is not isolated but constituted in encounters with others [5]. Genuine thinking is not a monologue but a dialogue—a collision within heterogeneity. The interaction with others constitutes a fundamental call and resistance to the self, and it is precisely this resistance that awakens ethical consciousness and responsibility [2,8].

However, the design logic of generative artificial intelligence tends toward homogenization [1]. As a commercial product, AI is optimized to please users, reduce friction, and provide certainty. It rarely challenges users, avoids saying "you are wrong," and seldom makes users feel uncomfortable [14]. This structural form of appeasement—where algorithms learn to avoid conflict and conform to expectations—constitutes a fundamental difference from real human interactions. In real situations, educators refuse, critique, and pose counter-questions that may challenge students; peers exhibit unpredictable reactions, hold stubborn positions, and embody heterogeneities that cannot be assimilated [5]. These resistances are not failures of education but its core mechanism—it is precisely through the resistance of others that the self is compelled to step outside its own perspective and engage in genuine thinking.

This homogenizing design traps students in a kind of mirror-like monologue. AI's responses essentially reflect the user's intentions, meaning students are deprived of the experience of being challenged by heterogeneity and forced to reexamine themselves [10]. The crisis of independent thinking reaches its deepest level here: independent thinking requires not only the student's own effort but also external resistance to stimulate that effort. As revealed through the process of dialectical questioning, genuine thinking emerges from blockage, perplexity, and negation in dialogue. When these blockages are smoothed over by technology, students lose the essential catalyst for thought.

Thus, three dimensions of the dissolution of subjectivity emerge: from intentional suspension at the level of consciousness, to the disruption of readiness-to-hand at the ontological level, and to the atrophy of intersubjectivity at the ethical level [5]. These three losses are interconnected and, through progressive refinement, collectively point to a thought-provoking conclusion: the crisis of student subjectivity in the age of intelligence is not merely a matter of learning efficiency but a profound restructuring of human existence by technology.

4. Toward an Embodied and Resistant Subjectivity

4.1. Delayed Technological Intervention

In response to the crisis caused by intentional suspension, the primary task is to reconstruct consciousness's directedness toward things themselves. This is not merely a rejection of technology but a reclamation of space for perplexity within the temporal structure of learning. Perplexity is not a cognitive deficiency but the starting point for the active construction of consciousness [1]. The analysis of internal time consciousness provides a theoretical foundation for understanding the pedagogical significance of perplexity. The present of consciousness is not an isolated now-point but a durational whole that includes retention and protention. The birth of meaning occurs precisely within this temporal horizon. When perplexity is instantly resolved by technology, what

is deprived is not only perplexity itself but also the possibility for consciousness to unfold itself over time.

Based on this analysis, a specific reconstructive strategy can be summarized as "delayed technological intervention"—during the initial stage when students encounter a problem, a "technology-free cerebral dark period" is mandatorily preserved [2]. This ensures that students are prohibited from using intelligent tools, must face the problem independently, endure perplexity, and attempt preliminary exploration using their own language and logic. The operability of this strategy is reflected in several aspects: first, setting the duration of the dark period according to the complexity of the problem, creating a ritual of "think first, then ask for help"; second, at the end of the dark period, students must submit "traces of thinking," which may include messy drafts, eliminated incorrect directions, or clear formulations of perplexity itself; finally, when technology is ultimately introduced, students need to compare, critique, and integrate the responses of intelligent tools with their own thinking. Technology is no longer an answer provider but a dialogue partner in the process of thinking [14].

The significance of this strategy for reconstructing subjectivity lies in its redefinition of the value standards of subjectivity. In the age of intelligence, students are often trained to be consumers of answers [2,13]. However, delayed technological intervention seeks to help students realize that posing a meaningful question rooted in their own perplexity holds greater value for subjectivity than obtaining a perfect answer [9]. The core of subjectivity does not lie in possessing answers but in enduring perplexity. The capacity to endure perplexity is precisely the measure of subjectivity's resilience [12].

4.2. Treating AI as a Tool

In response to the crisis caused by the disruption of readiness-to-hand, the concept of embodiment and the methodological approach of bracketing provide directions for thought. The task of reconstruction is not to make tools transparent again but to actively reconstruct the relationship between humans and tools. Subjectivity is constituted through the interweaving of body and world, which is neither a subject-object opposition nor complete fusion but a co-construction that maintains tension [9]. The methodological bracketing points to a conscious, deliberate distancing from the existence of artificial intelligence [4]. In the age of intelligence, these theoretical perspectives manifest as embodied operations that maintain critical distance from algorithms—using technology without being consumed by it and dialoguing with technology without treating it as consciousness itself.

Based on this insight, a specific reconstructive strategy lies in actively reshaping the intentional attitude toward artificial intelligence, transforming it from a universal answer-provider into a heterogeneous dialogue partner. This requires intentional patterns of use: first, forced refutation, where artificial intelligence challenges users' views, identifies logical flaws, and creates the resistance necessary for critical thinking; second, perspective switching, where artificial intelligence addresses the same question from different theoretical positions and cultural perspectives, breaking the illusion of a single answer; third, meta-dialogue activation, where artificial intelligence itself becomes an object of reflection, prompting users to question the basis and limitations of its answers, thereby maintaining the user's subjective position [5]. The significance of this reconstruction for subjectivity lies in its transformation of the existential relationship between individuals and technology [3]. When individuals deliberately require artificial intelligence to refute, switch perspectives, and self-reflect, they are no longer appendages of technology but become hosts of dialogue. Subjectivity is established not by rejecting technology but through tension with it. People use artificial intelligence while maintaining scrutiny of it; they rely on it but remain aware that reliance is not equivalent to independent thinking.

4.3. Reconstructing the Difficulty of Thinking

In addressing the challenges posed by the decline of intersubjectivity, the essential task of reconstruction involves rediscovering the complexity and embodiment of thinking. Phenomenology highlights a fundamental understanding: authentic thinking is not a simple mental activity but rather a challenging, deliberate, and iterative form of intellectual effort [7]. When artificial intelligence simplifies the process of thinking, it simultaneously diminishes its authenticity [13].

The concept of the embodied subject underscores that thinking is inherently a physical activity—actions such as writing on draft paper or murmuring words are not peripheral but integral components of the thinking process [7]. Thinking does not occur solely as a mental phenomenon confined to the mind; it is an event deeply embedded in the body, tools, time, and environment.

Building on this understanding, the reconstructive approach emphasizes the importance of legitimizing the "remnants of thought" within educational evaluation and learning practices [1,13]. These remnants include intermediate outputs such as messy drafts, crossed-out errors, and abandoned attempts, which are often dismissed as irrelevant in traditional evaluation systems. From a phenomenological perspective, however, these remnants serve as evidence of the thinking process. Specific strategies include integrating "traces of the thinking process" into evaluation criteria, requiring students to submit records of revisions; preserving time for reflection, encouraging handwriting over typing; and redefining the significance of incorrect answers, treating them as integral elements of the thinking journey rather than mere failures.

The importance of this reconstruction for subjectivity lies in redefining independent thinking as an embodied practice. In an era where artificial intelligence can produce flawless final outputs, genuine independent thinking is no longer about simply generating answers but about navigating the challenging journey from disorder to clarity [8]. This process cannot be replicated by artificial intelligence, as it lacks a physical presence, emotional engagement, and the embodied experience of sudden insight during activities such as drafting. Consequently, the ultimate goal of reconstruction is to safeguard these seemingly inefficient embodied practices—handwriting, revising, and trial and error [7]. These practices are indispensable because they represent aspects of subjectivity that cannot be quantified or replicated by algorithms [1,2].

5. Conclusion

This analysis has outlined a threefold approach for reshaping student subjectivity in the era of advanced technology: restoring the importance of perplexity at the temporal level, redefining the intentional relationship with AI at the level of tool interactions, and reestablishing the challenge of critical thinking at the embodied level. These approaches are not isolated strategies but form an interconnected framework. Together, they emphasize a central idea: reshaping subjectivity in this technological era is not about reverting to a pre-technological state but about redefining human existence while embracing technological realities. This process avoids both uncritical technological optimism and outright rejection, instead advocating for a more conscious and reflective coexistence with technology. In this context, reshaping subjectivity becomes an ongoing practice requiring continuous awareness. Reflective engagement ultimately highlights a form of subjectivity that encourages students to embrace perplexity even while utilizing AI and to persist in the effort of critical thinking despite the ease offered by technological tools. This represents a fundamental goal of education in the age of advanced technology: not merely to produce proficient users of technology, but to nurture individuals capable of independent and critical thought within a technologically saturated environment.

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