

From “Assistance” to “Domination”: The Crisis of Alienation and the Reconstruction of Subjectivity in Higher Education in the Age of Artificial Intelligence

Ning Sun*

Inner Mongolia University of Finance and Economics, Hohhot, Inner Mongolia 010010, China

**Author to whom correspondence should be addressed.*

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Abstract: The deep application of generative artificial intelligence in universities is triggering a subtle crisis of subjectivity. Drawing on the fourfold determinations of Marx’s theory of alienated labor as an analytical framework, this paper examines the forms of alienation that have emerged following AI’s entry into the field of higher education: the estrangement between academic output and the learning subject, the degeneration of learning activity into technological dependence, the subsumption of creativity by instrumental logic, and the fragmentation of the teacher–student community into data nodes. The study finds that the core mechanism of alienation lies in the normalization of “cognitive outsourcing” and the covert operation of technological power, the result of which is to push students from “subjects who control tools” toward “objects controlled by tools.” The key to breaking this impasse lies not in rejecting or restricting technology, but in reaffirming the “species-essence” character of educational activity—establishing critical thinking, meaning construction, and intersubjective communication as inalienable core capacities, and, through institutional reform and a transformation of teaching paradigms, safeguarding human subjectivity within human–machine collaboration.

Keywords: Artificial intelligence; Alienation; Higher education; Subjectivity; Cognitive outsourcing

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1. Introduction

A 2025 survey jointly released by China Youth Daily, the China Youth Media Group, and Soul App shows that 99.2% of the college students surveyed are using AI tools, and 47.1% report that they “can no longer do without AI” ^[1]. When “when in doubt, ask AI” has shifted from a jest to a daily routine, the question facing higher education is no longer “whether it should embrace artificial intelligence,” but “what artificial

intelligence is turning higher education into.”

The urgency of this question lies in the fact that AI’s intervention in higher education is undergoing a qualitative transformation from “tool empowerment” to “ecological reconstruction.” However, mainstream discussions have mostly focused on “gain-oriented” research concerning teaching efficiency, personalized learning, and assessment optimization, while lacking sufficient theoretical awareness of the bigger risks of alienation—namely, how AI in turn dominates human cognitive activity and dissolves the subjectivity of learning. Existing studies have concentrated on the alienation predicaments triggered by college students’ excessive dependence on generative AI, such as “the deconstruction of knowledge systems at the level of cognitive capacity” and “the dissolution of subjectivity at the level of thinking”^[2]. Such phenomena pose a challenge to existing theoretical paradigms and therefore urgently require an analytical approach with greater explanatory power.

This paper attempts to use Marx’s theory of alienated labor as an analytical framework to examine the manifestations, mechanisms, and paths of sublation of human alienation in higher education in the age of artificial intelligence. The fourfold determinations of alienation proposed by Marx in the *Economic and Philosophic Manuscripts of 1844*—the alienation of the worker from the product of labor, from the activity of labor, from species-essence, and from other human beings—although born in the era of large-scale machine industry, still possess strong explanatory power for understanding the crisis of subjectivity under conditions of intelligent technology^[3-4].

2. The fourfold dimensions of alienation: The crisis of subjectivity in AI’s intervention in higher education

2.1. The separation of academic achievements from the subject

The first dimension of alienation revealed by Marx is the separation of the worker from the product of labor: the more the worker produces, the poorer he himself becomes; the product stands opposed to the producer as an alien force^[3]. In higher education in the AI era, this structure reappears in a paradoxical manner: the more knowledge products students “produce” with the help of AI, and the more polished these products become, the thinner the intrinsic connection between students and these products grows.

When a student uses generative AI to complete a course paper, the paper may be formally standardized, logically coherent, and even novel in its arguments, yet it may have no connection whatsoever to the student’s cognitive structure. The more fluent and complete the “academic achievement” generated by AI, the more hollow the process by which the student “writes” it. Academic achievement is no longer a record and confirmation of the student’s thinking process, but has become an object external to the student that can be “submitted.” Zeng Yuan (2025) summarizes this phenomenon as “the separation of academic achievements from the student subject”^[5]. The consequences of this separation are profound: not only does it render the evaluation system ineffective, but more importantly, students lose a crucial experience in this process—the experience of transforming chaotic intuitions into clear expression through exploration and writing, which is precisely the core value of academic training.

2.2. The degeneration of learning activity into technological dependence

The second dimension of alienation concerns the activity of labor itself. Marx points out that in alienated labor, “labor is not voluntary, but coerced; it is not the labor of the worker, but belongs to another”^[3].

Learning should be an autonomous and dynamic cognitive activity, but in scenarios of deep AI intervention, learning is becoming a technical operation of “prompt input—result reception.”

Su Dechao distinguishes two aspects of AI usage: first, treating AI as a tool to explore the space of possibilities in knowledge; second, treating AI as a “host,” entrusting one’s thinking, writing, and judgment to AI, and gradually handing over the cognitive process itself to AI ^[6]. When the “host” mode becomes habitual, the internal structure of learning activity is thoroughly transformed: students no longer undergo the complete cognitive process of “confusion—trial and error—reasoning—judgment,” but jump directly to the result. The loss of this process means that learning as “labor” is alienated—cognitive labor no longer confirms human essential powers, but instead becomes passive adaptation to the technological system.

2.3. The inversion of creative essence and instrumental rationality

Marx’s third dimension of alienation is the most fundamental: the alienation of man from his own “species-essence.” Man’s species-essence lies in “conscious, free activity,” in the capacity to “produce according to the standards of any species,” and in knowing how to “apply the intrinsic standard to objects everywhere” ^[3]. In other words, human essence is creativity, transcendence, and self-determination.

The deepest risk of alienation posed by generative AI in higher education lies in its erosion of this “species-essence.” When students become accustomed to demanding “standard answers” from AI, and when teachers discover that the knowledge-transmission link—where “AI does better than students”—no longer requires human participation, the most distinctively human dimensions of educational activity—posing questions, setting goals, and making value judgments—are compressed to a minimum. Su Dechao observes that students “increasingly tend to obtain answers directly, rather than forming their own answers through trial and error, reasoning, and judgment” ^[6]. In this process, humans are not using tools; they are redefining themselves according to the “standards” of tools. Huang Beibei et al. point out that AI is “increasingly targeting judgment and cognitive capacity, not merely effort” ^[7]. When judgment is outsourced, instrumental rationality replaces value rationality.

2.4. The transformation of community into a data network

The fourth dimension of alienation concerns the relationship between human beings. Marx holds that man’s relationship to himself can only be realized through his relationship to others ^[3]. Education is essentially an intersubjective activity: the teacher’s “teaching” and the student’s “learning” jointly constitute the educational experience through dialogue and interaction. However, AI’s intervention is changing the basic structure of this relationship.

What is taking shape in higher education is a “teacher–student–AI” triangular interaction paradigm. The triangular relationship itself does not necessarily imply alienation. The problem lies in the fact that when AI’s role shifts from “mediator” to “dominant,” direct interaction between teachers and students is diluted. A bigger change lies in the fact that the algorithmic logic and commercial logic behind AI systems are beginning to blur or even replace the ethical relationships within the educational community. “AI teaching assistants” push exercises based on “weak points,” and “AI research assistants” analyze “teaching capacity improvement maps.” These functions appear to enhance efficiency, but in reality compress the rich, unquantifiable interactions between teachers and students into computable data flows. Huang Beibei et al. summarize this trend as the academic community “transforming into a data network,” where the “person-to-

person” cultivation in education degenerates into “system-to-person” discipline ^[7].

3. The generative mechanisms of alienation: Cognitive outsourcing, algorithmic power, and institutional lag

To understand the mechanisms of alienation, one must go beyond the simple judgment that “technology itself is harmful.” Alienation is not an intrinsic property of technology, but a systemic consequence of the way technology is applied under specific social conditions and institutional arrangements. Wang Kun and Ma Yina propose an operational criterion: when a technological application simultaneously satisfies “opacity” (users cannot predict or question the output) and “irreversibility” (the atrophy of skills or infrastructure makes exit costly), it possesses an alienating character ^[3]. Placing this criterion within the context of higher education reveals three mechanisms that exhibit mutually reinforcing structural characteristics.

The normalization of cognitive outsourcing. Cognitive outsourcing is not a new phenomenon; writing, books, and search engines have all served as tools for “outsourcing” cognition. What is distinctive about generative AI is that what it outsources is not information retrieval, but the cognitive process of “processing information” itself. Traditional tools expand human cognitive capacity; generative AI may “replace” it. Lu Jianhua calls this phenomenon “cognitive outsourcing”: when writing a paper, if one’s thoughts are confused, one relies entirely on AI to piece things together; even for simple decisions, one habitually asks AI first, gradually losing independent judgment ^[8]. Cognitive capacity has the characteristic of “use it or lose it.”

Long-term reliance on AI for reasoning and judgment will inevitably lead to the degeneration of critical thinking and independent judgment. Students who use AI large language models over the long term show significantly reduced brain activity and decreased neural connectivity ^[9]. Once this degeneration occurs, it possesses “irreversibility”: students find it increasingly difficult to complete cognitive tasks that should be done independently without AI, thereby forming a deep dependence on technology.

The covert operation of algorithmic power. AI systems are not neutral tools. They are developed by specific institutions and carry specific value presuppositions and optimization goals. When universities introduce commercial AI tools, the “purposes” of education may be displaced by the “goals” of the technological system. Some scholars point out that AI’s optimization objectives may “shift from users to institutional or commercial reasoning” ^[10]. This means that the process by which students use AI to “learn” is simultaneously a process of being “shaped” by AI systems according to commercial or managerial logic. More insidiously, this shaping occurs under the name of “personalized service,” so that what students experience is not domination, but “convenience.” Alienation arrives in a pleasant form.

The lag of institutional response. Current higher education management systems, evaluation systems, and teaching models are mostly built on the premise that “humans independently complete cognitive tasks.” When AI invalidates this premise, institutions have failed to adjust in time. Some commentators note that the lag of educational institutions “exacerbates the generalization of tool dependence” ^[11]. Although universities such as Shenzhen University and Jilin University have issued regulations on AI use, clarifying academic integrity bottom lines and labeling requirements, mere evaluative punishment is insufficient to address systemic alienation trends ^[12–13].

4. Sublating alienation: Possible paths for the reconstruction of subjectivity

Marx's theory of alienation has always contained a dialectical dimension: the sublation of alienation and alienation itself are two sides of the same historical process. While AI causes cognitive alienation, it also creates an opportunity to redefine "what are the inalienable human capacities." The strategy of higher education in responding to alienation should not be a defensive "prohibition," nor should it merely remain at the level of technological empowerment; it should be a constructive "reconstruction."

4.1. Re-anchoring the "species-essence" goal of education

When AI can outperform human teachers in almost all links of "knowledge transmission," education must more consciously ask: what can only humans do, and what must be done by humans? Zheng Qinghua argues that as the cost of knowledge acquisition approaches zero, "the shaping of the person should focus more on the core competencies that artificial intelligence cannot replace—the ability to pose questions, and metacognitive and meta-learning capacities" [8].

This means that the goal of higher education needs to shift from "transmitting knowledge" to "cultivating judgment." Knowledge can be outsourced, but metacognitive capacities such as "knowing what is worth knowing," "knowing how to use knowledge," and "knowing when not to trust knowledge" cannot be outsourced. Establishing critical thinking, ethical judgment, and meaning construction as the core of education is itself a resistance to alienation.

4.2. From "cognitive outsourcing" to "cognitive collaboration"

The opposite of alienation is not "not using technology," but "using technology in a subjective way" [14]. This requires a paradigm shift at the teaching level from "outsourcing" to "collaboration." Su Dechao's advocacy of "treating AI as a tool rather than a host" and Huang Beibei et al.'s proposal to "cultivate a new type of human-machine partnership" both point in the same direction: letting AI enhance rather than replace human cognitive activity [7, 12].

Specific teaching strategies may include: designing learning tasks that are "irreplaceable by AI," such as ethical discussions requiring value trade-offs, practical judgments requiring bodily experience, and complex problems requiring cross-contextual transfer; introducing "process evidence" into assessment, requiring students to demonstrate the trajectory of their thinking rather than merely submitting a final product; and making AI use itself an object of critical reflection, allowing students to analyze the limitations, biases, and blind spots of AI output.

4.3. Institutional safeguards for "reversibility"

A key indicator of alienation is "irreversibility." If students cannot complete basic cognitive tasks once they leave AI, then this dependence already constitutes substantive alienation. Therefore, higher education institutions need to provide safeguards for "reversibility."

This includes: setting up "AI-free" learning segments, such as traditional examinations, oral defenses, and handwritten papers, to ensure that core cognitive capacities are independently tested; establishing transparent norms for AI use, such as the "full-process content labeling and traceability mechanism" piloted by Shenzhen University [12]; and, more importantly, elevating AI literacy education from "tool training" to "subjectivity education," helping students understand the capability boundaries, power structures, and ethical implications of AI.

4.4. The irreplaceability of the teacher's role

In an environment where “cognitive outsourcing” has become the norm, the value of teachers no longer lies in “knowing more,” but in “knowing how to know” and “knowing why to know.” Teachers need to transform from knowledge transmitters into “cognitive architects”—designing learning contexts, stimulating cognitive conflict, guiding value reflection, and safeguarding the ethical norms of the academic community.

This does not mean that teachers' work becomes easier. On the contrary, when AI assumes the function of information transmission, teachers face a more difficult task: how to rekindle students' interest in “questions” in an environment where “answers are readily available”; how to open students' willingness to face uncertainty and multiple perspectives within the “information cocoons” of algorithmic recommendation; and how to safeguard the irreplaceability of the educational relationship between human beings amid the convenience of human-machine interaction.

5. Conclusion

The relationship between artificial intelligence and higher education should not be reduced to the binary opposition of “empowerment” or “threat.” From the perspective of alienation theory, what is truly worth guarding against is not the power of technology itself, but the “compliance” with which humans abandon their subjectivity in the face of technology. When students hand their thinking over to AI, when teachers hand their teaching over to systems, and when universities hand the goals of education over to efficiency indicators, alienation has already occurred.

But alienation is not destiny. In discussing alienated labor, Marx always emphasized that alienation is a historical stage of human development, and that man “can and must recover himself”^[15]. In the AI era, this “recovery” means that higher education must more firmly place “the cultivation of the person” rather than “the transmission of knowledge” at the center. This is not merely an adjustment of educational philosophy, but a battle for subjectivity. The key to victory or defeat lies not in whether we can develop “better” AI, but in whether we still remember: the fundamental task of education has always been to help people become themselves.

Disclosure statement

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