
Original Research Article

Challenges and implications of generative artificial intelligence for the epistemic subject

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Abstract: This paper examines the historical evolution of the epistemic subject against the rise of generative artificial intelligence. By analyzing key phases of knowledge production, storage, and dissemination, it argues that the epistemic subject is undergoing a trend of de-anthropocentrism. In response to these shifts, humanity should leverage its unique agency, ground itself in embodied reality, and formulate reasonable expectations to balance the human-machine dynamic, thereby seeking a foundation for human subjectivity that transcends pure intelligence.

Keywords: generative artificial intelligence; epistemic subject; knowledge production

1. Introduction

Collins observed that before artificial intelligence, philosophical discussions of skill and expertise addressed only human capabilities. The advent of AI, however, expands the discourse from "human knowledge" to "knowledge" itself. This shift implies a fundamental transformation of the epistemic subject. As human intellectual dominance faces challenges from machines, generative AI's capacity to classify, integrate, and innovate knowledge accelerates philosophical reflection on the nature of knowing.

2. The human-centered knowledge paradigm

Knowledge represents a quintessential manifestation of higher intelligence. From the evolutionary milestone of bipedalism, the world has been continuously imprinted with human cognition. Without humans, the natural world would persist according to inherent laws, yet knowledge-based activities like taxonomic classification and celestial mechanics would cease. Thus, knowledge has long been regarded as humanity's exclusive domain.

Historically, humans constituted the sole knowledge producers. With developing productive forces and expanding practical domains, humans incorporated both material and spiritual objects into cognition, establishing systematic disciplines. Knowledge can be understood as a conceptual system constructed upon the objective world, where humans maintained absolute discursive authority. Consequently, what was traditionally termed "knowledge" was essentially "human knowledge."

Humans also bore primary responsibility for knowledge preservation and transmission. Knowledge initially persisted as mental experience sustained through oral traditions and mnemonic devices like knot-tying. As knowledge systems grew complex, humans developed symbolic and carrier technologies—From paper-making to laser printing—Leading to proportional growth in knowledge volume and physical books. Formal education, textbooks, and teacher training enabled systematic knowledge transmission, profoundly shaping human intellectual development.

Thus, knowledge and humanity are mutually constitutive. Generated, stored, and disseminated through human agency, knowledge cannot exist independently of society and human beings. The traditional view emphatically asserts that "knowledge is human knowledge."

3. Toward a human-machine collaborative knowledge paradigm

If the human knowledge world originated from bipedal evolution, millennia later, artificial intelligence enters this once exclusively human cognitive territory unexpectedly. Since the 21st century, internet proliferation,

big data emergence, and rapid AI advancement have propelled the Fourth Industrial Revolution, reshaping production modes and social cognition structures.

Humans are no longer exclusive knowledge producers. In the intelligent era, AI serves as progress's "locomotive," fueled continuously by big data. In traditional epistemic strongholds like scientific research, AI leverages massive data and computing power to demonstrate remarkable capabilities in calculation, reasoning, and prediction—Domains once considered human intellectual bastions. Comprehensive datafication has created a corresponding data mirror world functioning as both productive material and cognitive object. Confronted with vast datasets and astronomical computations, humans struggle to independently perform correlation identification and trend prediction. For instance, AlphaFold 3 accurately predicts three-dimensional structures of biological complexes including protein-nucleic acid and protein-small molecule structures, indicating that knowledge production is no longer purely anthropocentric.

Comprehensive datafication has profoundly reshaped knowledge storage and dissemination. Storage has shifted from physical media to cloud-based digital code, enabling limitless capacity and permanence. Dissemination has been reconfigured by overcoming spatiotemporal and institutional barriers, granting near real-time global access via the internet and smart devices. This has established a bidirectional "human-machine-human" paradigm where generative AI acts as an active interpreter and reorganizer of knowledge. It dynamically tailors responses to specific queries, thereby enhancing transfer efficiency and reshaping cognitive reception.

The synergy of data, algorithms, and artificial intelligence has permeated all knowledge activities, significantly destabilizing humanity's absolute subjective position in the epistemic realm. "Human-machine collaboration" has become the intelligent era's defining characteristic, particularly in scientific research where AI assumes mechanical tasks like data collection, organization, and predictive analysis, freeing humans for creative endeavors. The combination of human and machine intelligence collectively pushes knowledge frontiers forward. AI no longer functions merely as a perceptual extension but participates in knowledge creation alongside humans, leading to the philosophical conception of the "machine as epistemic subject."

4. The future potential of the machine as epistemic subject

Generative AI may represent a critical turning point in the epistemic subject's transition from human-centered to machine-oriented orientations. Its increasing utility in scientific activities positions it as an "alien" force potentially displacing humans from knowledge activity centers. While speculative, reasonable anticipation enables proactive measures to balance human-machine tension and seek foundations for human subjectivity beyond intelligence.

Next-generation AI may evolve into independent knowledge producers. Although current text generation differs from traditional knowledge production, its powerful capabilities in collection, organization, computation, and analysis foster potential for "third-order knowledge"—Systematic integration and processing of existing first-order (experiential) and second-order (theoretical) knowledge. This knowledge possesses combinatorial innovation potential; through correlation analysis and concept recombination, it might discover objects unknown to humans, resonating with "dark knowledge" notions. This signifies that generative AI engages in non-traditional knowledge production: treating established knowledge systems as direct cognitive objects, employing neural networks for data mining, and arriving at new understandings. As knowledge corpora expand, AI gains increasingly independent status within knowledge production.

Using natural language as its medium, generative AI accelerates knowledge dissemination. Collins argued that machine language proficiency keys assessing human-like intelligence, likening language to a societal "thermometer"—Though this requires sharing human "forms of life." Considering ChatGPT, language's extensive application scenarios suggest mastery could pave toward Artificial General Intelligence, accelerating overall AI development. Research indicates generative AI will underpin knowledge transfer, sharing, and cognitive flow within information environments, forming "generative technology-driven information ecosystems." Dissemination occurs through more mundane, interactive ways while human feedback trains AI continuously, indirectly facilitating cross-spatiotemporal information exchange among humans, enhancing propagation efficiency while strengthening interpersonal connections.

5. Implications of the shift in the epistemic subject

Breakthroughs in natural language processing continually open knowledge worlds to AI. We should confront this trajectory proactively rather than reactively. In this process, exercising human agency and forming reasonable expectations themselves manifest subjectivity.

This section draws upon "Moravec's Paradox" for analysis. Dreyfus classified knowledge into formalizable and non-formalizable domains not to barrier AI development but to emphasize knowledge's embodied nature—Its inextricable links to human transcendental structures, actions, and perceptions. Collins similarly contends knowledge is fundamentally social, attainable only through shared "forms of life." Human knowledge acquisition progresses bottom-up from perceptual experience to abstract understanding, continuously shaping humans. Machines follow the opposite path. Expert systems can utilize gravitational laws computationally but cannot replicate Newton's inspirational moment beneath the apple tree. Machines lack intuition, insight, and emotional experience—Fundamental human advantages. Current generative AI remains constrained by this cognitive gap.

Three key insights emerge: First, humans should enhance critical thinking and reflective capacities rather than competing with AI in computation and storage, avoiding becoming "machine-like humans." Second, intelligence isn't subjectivity's sole dimension. We should utilize AI strengths while acknowledging unique human advantages—Complex emotions, social interconnectedness, and pursuits of self-understanding and external exploration, all beyond current AI reach. Third, generative AI represents a viable pathway toward human-like intelligence. Considering Dreyfus and Collins, though lacking embodiment and genuine social integration, AI—By "sharing the data world" with humans supported by optimized data, computing power, and models—Holds potential to gradually approach human-like intelligence thresholds.

About the author

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