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Research Article

AI Ethics as Epistemological Governance: A Systematic Literature Review on Knowledge and Authority in the Age of Generative AI

Cahyo Prianto, Mumu Komaro*, and Saripudin

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Abstract

This Systematic Literature Review (SLR) explores research trends on the ethics of generative AI use and how ethical issues are discussed within it, mapping geographical distribution and examining AI epistemic governance. This systematic literature review employs the PRISMA method, with a literature search conducted through the Scopus database, filtered based on keywords related to generative AI Ethics in Quartiles Q1 and Q2 and limited to the period 2020–2026, resulting in 39 articles for further analysis in this SLR. The research trend has continuously increased from year to year, and 2025 became the year with the highest number of studies addressing the ethics of generative AI use. This indicates a strengthening academic attention to ethical and epistemic issues in AI. The literature is dominated by themes of ethical concerns in the use of generative AI, such as bias, data privacy, transparency, accountability, misinformation, academic integrity, and cognitive dependence on generative AI. This study also finds that generative AI is most frequently positioned as a knowledge generator, while the combination of training data bias and cultural bias constitutes the most dominant epistemic issue. In the dimension of epistemic dependency, human dependence on AI is the most frequently discussed theme. This demonstrates growing concerns regarding the weakening of human autonomy, control, and cognitive capacity. From the perspective of authoritative actors, the scientific community occupies the strongest position, while multi-stakeholder governance emerges as the most widely supported governance model. These findings affirm that AI governance is understood as a complex issue that cannot be resolved by a single actor, but rather requires collaboration.

Keywords: AI Ethics; Epistemological Governance; Generative AI; AI Governance.

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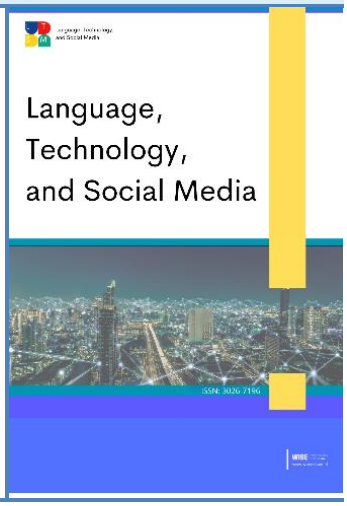

INTRODUCTION

Artificial Intelligence (AI) has moved beyond a technical instrument and is increasingly embedded as a social infrastructure that shapes decision-making, knowledge production, and public authority across multiple domains. In public services and administration, AI has become part of citizen-service infrastructures in which algorithms may perform functions traditionally associated with bureaucratic judgment, including data verification and the automated approval or rejection of administrative applications [1]. In higher education, AI has developed into a learning infrastructure that enables interaction between humans and AI agents, supports formative feedback, and helps predict subsequent learning processes within digital learning environments [2]. In the health sector, AI functions as a monitoring infrastructure through devices connected to remote systems for patient supervision, especially for elderly individuals at home [3]. Across these contexts, AI systems do not merely process information; they mediate user-input data into outputs that may inform real-world decisions [4]. This shift requires sustained ethical scrutiny because AI-generated recommendations, classifications, and predictions can affect human welfare, institutional accountability, and public trust. Ethics in the application of AI refers to moral standards for assessing whether AI use may harm humans or society and whether such systems remain aligned with values such as transparency, fairness, accountability, privacy, and security [5], [6], [7], [8].

As AI becomes increasingly integrated into knowledge-intensive environments, the ethical debate has expanded from general concerns about responsible use to more fundamental questions about reliability, accountability, and authority over machine-generated outputs. Questions regarding who is responsible for privacy protection, data security, and AI-based knowledge management are central to the governance of knowledge produced or mediated by AI. These questions have become more urgent with the rapid development of generative AI, particularly large language models, which introduce ethical challenges related to bias, opacity, misinformation, manipulation, privacy, academic integrity, and the reconfiguration of human judgment [1], [9], [10]. A further concern is that ethical standards in the use of generative AI are often shaped by Western, Educated, Industrialized, Rich, and Democratic (WEIRD) assumptions. This tendency may reinforce cultural imbalance, normalize dominant epistemic perspectives, and contribute to the homogenization of knowledge, whereby diverse human perspectives are weakened through relatively uniform AI-generated outputs [11].

The urgency of this issue has increased alongside the widespread public adoption of generative AI tools across education, government, healthcare, business, and other high-impact sectors. Current research increasingly frames AI ethics not only as a matter of design choices or policy principles, but also as an issue of public trust, learning intervention, institutional oversight, and the social consequences of automated AI systems [12], [13], [14], [15]. At the same time, established ethical principles such as fairness, transparency, accountability, privacy, and non-maleficence remain important normative anchors for assessing the legitimacy of AI use [16], [17]. However, principle-based ethics alone is insufficient when AI systems are increasingly involved in producing, filtering, and validating knowledge. The central problem is no longer limited to whether AI is used ethically, but also concerns how AI participates in epistemic processes, how its outputs acquire authority, and how responsibility is distributed when such outputs influence decisions in social, educational, scientific, and institutional contexts.

In this context, AI ethics requires an epistemological governance perspective. Epistemological governance refers to the arrangements through which knowledge claims are

produced, validated, contested, and authorized. Applied to generative AI, this perspective enables a more comprehensive examination of how AI functions as a knowledge generator, transformer, or distiller; how epistemic bias emerges through training data, algorithmic design, and cultural assumptions; how epistemic dependency develops when users increasingly rely on AI for reasoning and decision-making; and how authority is negotiated among technology platforms, governments, scientific communities, and users. This perspective is particularly relevant because generative AI is not a passive tool for accessing information; it can actively shape what is recognized as credible, useful, or legitimate knowledge.

Despite the growing body of literature on AI ethics, existing discussions remain fragmented across ethical principles, sectoral applications, geographical contexts, and governance models. Many studies address risks such as bias, transparency, privacy, accountability, misinformation, and academic integrity, yet fewer synthesize these issues through the lens of epistemological governance. There is also a need to understand how publication trends reflect the development of AI ethics research, how ethical issues are discussed in relation to generative AI, how geographical distribution shapes the authority of AI governance discourse, and what implications these patterns create for future research. Addressing these issues is important because global AI governance cannot rely solely on technical solutions or universalized ethical principles; it must also examine who produces ethical knowledge, whose values are represented, and which actors are authorized to validate AI-generated outputs.

Accordingly, this systematic literature review examines research trends on AI ethics, the ways ethical issues are discussed in the literature, the geographical distribution of studies in relation to AI epistemological governance, and the implications of these findings for future research agendas. The study analyzes concerns surrounding the use of generative AI, the role of generative AI in knowledge production, patterns of epistemic bias and dependency, actors with authority to control and validate AI outputs, and governance models proposed in the literature. By integrating these dimensions, this review provides a coherent account of AI ethics as a problem of knowledge, authority, and accountability.

The novelty of this study lies in its effort to reposition AI ethics as epistemological governance rather than merely as a set of normative, technical, or sectoral concerns. The study contributes theoretically by connecting AI ethics with debates on knowledge production, epistemic bias, epistemic dependency, actors of authority, and governance models. It also offers a systematic synthesis that can inform future research and policy discussions on accountable generative AI. The article is organized through a systematic literature review design, including search strategies, inclusion criteria, screening procedures, and thematic analysis to support a transparent and replicable synthesis.

LITERATURE REVIEW

AI Ethics and Responsible Governance

The rapid development of Artificial Intelligence (AI) has shifted the ethical debate from a purely technological concern to a broader governance issue involving social responsibility, institutional accountability, and public trust. AI is increasingly used in public administration, education, healthcare, business, and social service delivery, where algorithmic systems may influence decisions that directly affect individuals and communities [1], [2], [3], [4]. In these contexts, AI does not merely function as a technical tool; it becomes part of social and institutional

infrastructures that mediate access to services, learning opportunities, health monitoring, and administrative decision-making. Therefore, ethical reflection on AI must address not only the accuracy or efficiency of automated systems, but also their implications for fairness, transparency, accountability, privacy, security, and human welfare [5], [6], [7], [8].

Existing literature emphasizes that AI ethics involves a set of moral principles intended to prevent harm and ensure that AI systems operate in ways that are socially acceptable and institutionally accountable [5], [6], [7], [8]. Fairness is commonly associated with the need to prevent algorithmic discrimination, while transparency concerns the explainability of AI processes and outputs. Accountability refers to the allocation of responsibility when AI systems produce errors, harms, or unintended consequences. Privacy and data protection are also central because AI systems often depend on large-scale data collection, processing, and prediction [4], [9]. These principles have become important foundations for AI governance, particularly in high-impact domains where algorithmic outputs may influence public services, academic practices, professional work, and social interaction [1], [12], [13], [14], [15].

However, several studies argue that principle-based AI ethics is insufficient when ethical principles remain abstract and are not translated into concrete governance mechanisms [6], [14], [16]. The gap between ethical principles and implementation creates uncertainty about who should be responsible for regulating AI, validating its outputs, and preventing potential harms. For example, public perceptions of AI governance are strongly influenced by trust and responsibility, indicating that the legitimacy of AI systems depends not only on technical performance but also on the perceived credibility of the actors who design, deploy, and regulate them [8]. Similarly, research on AI governance initiatives shows that fragmented governance frameworks may limit the effectiveness of ethical principles in practice [14]. Thus, responsible AI governance requires more than the declaration of values; it requires institutional arrangements, regulatory mechanisms, and collaborative oversight capable of ensuring that AI systems are transparent, fair, accountable, and responsive to social needs.

Generative AI and Knowledge Production

Generative AI, particularly large language models, has intensified ethical debates because of its capacity to produce, transform, summarize, and disseminate knowledge at scale. Unlike earlier AI systems that were often designed for classification, prediction, or automation, generative AI can generate texts, arguments, explanations, research drafts, learning materials, and decision-support outputs that may be perceived as authoritative knowledge [9], [10], [11]. This capability changes the relationship between humans and machines in knowledge-intensive environments. In education, generative AI can support learning processes, feedback, and academic productivity, but it may also raise concerns regarding student dependence, academic integrity, fairness, and trust [5], [12], [13]. In scholarly publishing, AI-generated writing challenges conventional assumptions about authorship, originality, intellectual contribution, and research accountability [9].

The literature shows that generative AI creates new ethical challenges related to misinformation, hallucination, manipulation, opacity, and the reconfiguration of human judgment [9], [10], [15]. AI-generated outputs may appear coherent and convincing even when they contain inaccurate, fabricated, or biased information. This creates risks in educational, scientific, policy, and public communication contexts because users may treat AI-generated content as credible without sufficient verification. The problem is not only technical but epistemic: generative AI

participates in shaping what users consider valid, relevant, or trustworthy knowledge. Therefore, ethical analysis of generative AI must include questions about how knowledge is produced, whose knowledge is represented, and how the authority of AI-generated outputs is established or contested.

In academic and educational contexts, generative AI also raises concerns about cognitive dependency and the weakening of human intellectual autonomy. Studies on students' perspectives highlight ethical concerns related to fairness, originality, transparency, and responsible use of generative AI in higher education [5], [13]. Other studies warn that excessive reliance on AI-generated writing or reasoning may reduce critical thinking, independent problem-solving, and reflective judgment [7], [9], [11]. At the same time, generative AI may improve productivity and efficiency when used responsibly, particularly in tasks involving summarization, thematic analysis, information organization, or human–robot interaction [11], [15]. This dual character shows that generative AI cannot be understood simply as either a threat or a solution. Instead, it should be examined as an epistemic infrastructure that can support or undermine knowledge practices depending on how it is governed, validated, and integrated into human decision-making.

Epistemological Governance, Bias, and Authority

The concept of epistemological governance provides a useful framework for understanding AI ethics beyond conventional discussions of technical risk and moral principles. Epistemological governance concerns how knowledge is produced, validated, circulated, and authorized within social and institutional systems. In the context of generative AI, this perspective is important because AI systems do not only process information; they also influence how users interpret reality, construct arguments, make decisions, and evaluate credibility. As AI becomes increasingly involved in knowledge production, governance must address epistemic bias, dependency, authority, and legitimacy.

One major issue in AI epistemological governance is bias. AI systems may reproduce and amplify biases embedded in training data, algorithmic design, and cultural assumptions [1], [6], [13], [16]. Training data bias may occur when datasets underrepresent certain groups, languages, regions, or knowledge traditions. Algorithmic bias may emerge from design choices that privilege particular patterns, assumptions, or optimization goals. Cultural bias becomes especially important in global AI governance because many ethical frameworks and technological standards are shaped by dominant Western perspectives [16], [24]. This creates the risk that AI systems may normalize specific cultural values as universal while marginalizing local, indigenous, or Global South perspectives [24], [27], [31]. Therefore, AI ethics must be attentive not only to individual harms but also to epistemic injustice, cultural homogenization, and unequal participation in defining global AI norms.

Another key issue is epistemic dependency. When users increasingly rely on AI systems for explanation, writing, decision-making, and evaluation, the authority to interpret and produce knowledge may gradually shift from humans to algorithmic systems [5], [7], [9], [13]. This shift can weaken human autonomy if users accept AI outputs without critical assessment. It can also produce cognitive deskilling when individuals become less engaged in independent reasoning, verification, and reflective judgment [7], [9], [11]. In this sense, the ethical challenge of generative AI is not limited to whether the system produces accurate outputs, but also whether its use changes the cognitive habits, intellectual agency, and epistemic responsibility of human users.

The question of authority is therefore central to AI governance. Existing studies identify multiple actors involved in governing AI, including governments, technology platforms, scientific communities, and users [6], [8], [14], [16]. Governments may establish regulatory frameworks, platforms may control technical infrastructures, scientific communities may define standards of validity and responsible research, and users may participate through critical adoption and ethical practice. However, no single actor can fully address the complexity of AI ethics. For this reason, multi-stakeholder governance has been widely discussed as a promising model because it enables collaboration among state institutions, industry actors, academic communities, and civil society [14], [16], [24], [43], [46]. Such governance is essential to ensure that AI systems are not only technically effective but also epistemically accountable, socially legitimate, and culturally inclusive.

METHODS

Research Design

This study employed a systematic literature review design to examine AI ethics as epistemological governance, with particular attention to knowledge production, authority, bias, dependency, and governance in the era of generative AI. The review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework to ensure that the processes of identification, screening, eligibility assessment, and inclusion were conducted transparently, systematically, and replicably. The use of PRISMA was considered appropriate because this study aimed to synthesize existing scholarly evidence rather than collect primary empirical data. Through this approach, the review provides a structured synthesis of how AI ethics has been discussed in relation to generative AI and epistemic governance.

Data Source and Search Strategy

The literature search was conducted using the Scopus database as the primary source of scholarly articles. Scopus was selected because it provides broad coverage of peer-reviewed journals, offers reliable bibliographic metadata, and enables systematic filtering based on publication year, journal quality, and subject relevance. The search focused on articles related to generative AI ethics and AI governance by using several keywords, including “generative AI ethics,” “large language model ethics,” “AI ethics governance,” “AI governance,” “artificial intelligence and effective governance,” and “AI ethics epistemic.” These keywords were selected to capture studies discussing ethical issues, governance frameworks, epistemic concerns, and the role of AI in knowledge production.

The search was limited to articles published between 2020 and 2026. This time range was selected because discussions on generative AI ethics, particularly those involving large language models, have developed rapidly during this period. The search was also restricted to articles published in journals categorized as Quartile 1 (Q1) and Quartile 2 (Q2) to ensure that the reviewed literature met a high standard of scholarly quality.

Inclusion and Exclusion Criteria

The inclusion criteria were established to ensure that only relevant and high-quality studies were analyzed. Articles were included if they met the following criteria: they were indexed in Scopus, published between 2020 and 2026, appeared in Q1 or Q2 journals, provided an abstract, were

available in full-text form, and substantively discussed AI ethics, generative AI, AI governance, epistemic issues, or related ethical concerns. Articles were also considered eligible when they addressed themes such as transparency, accountability, bias, privacy, academic integrity, misinformation, knowledge production, or governance models.

Articles were excluded if they were duplicates, published outside the selected period, not published in Q1 or Q2 journals, unavailable in abstract or full-text form, or not substantively related to the focus of this study. Articles that mentioned AI only in a general technical sense without discussing ethical, epistemic, or governance-related issues were also excluded. These criteria were applied to maintain the conceptual relevance and methodological rigor of the review.

Article Identification and Screening Process

The identification stage yielded 125 articles from the Scopus database using the predetermined keywords and filtering criteria. Prior to the screening stage, several records were removed because they did not meet the initial eligibility requirements. These included one duplicate article, two articles published outside the 2020–2026 time range, twenty-six articles that did not meet the Q1 or Q2 journal quality criteria, and seventeen articles without abstracts. After this initial filtering process, 79 articles remained for further screening, as illustrated in the PRISMA flow diagram (see Figure 1).

The screening stage was conducted by examining the titles, abstracts, and substantive relevance of the remaining articles. At this stage, 33 articles were excluded because they were not sufficiently aligned with the objectives of the study. The screening process focused on determining whether each article directly addressed AI ethics, generative AI, AI governance, epistemic authority, bias, dependency, or related ethical and epistemological issues. This process ensured that only articles with clear conceptual relevance proceeded to the eligibility assessment stage.

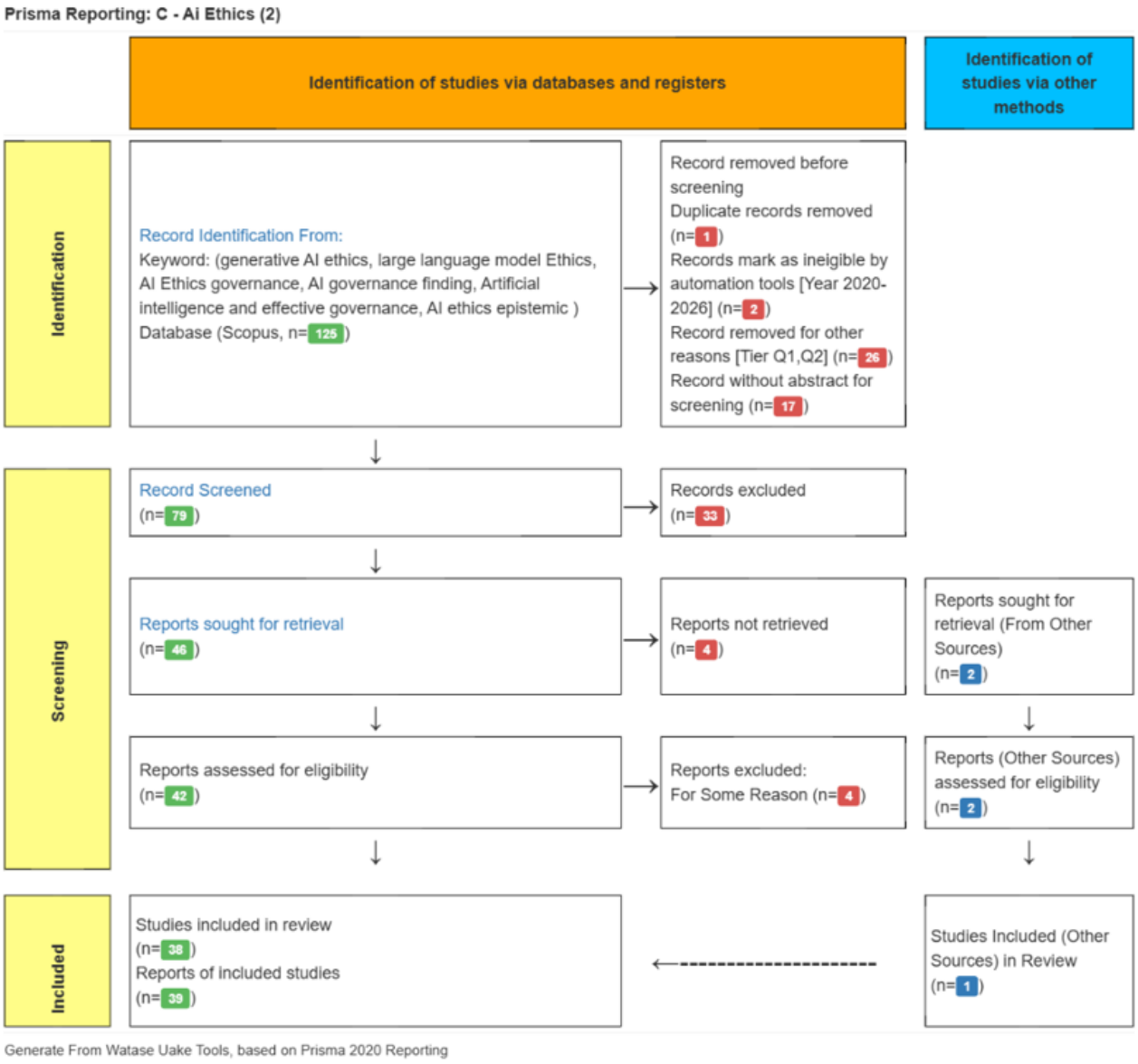

Figure 1. PRISMA Chart

Eligibility Assessment and Final Corpus

In the eligibility stage, the full texts of 46 articles were assessed to determine their conceptual and methodological suitability. Of these, four articles could not be retrieved in full-text form and were therefore excluded. After a more detailed eligibility assessment, four additional articles were excluded because they did not meet the substantive requirements of the review. This process resulted in a final corpus of 39 articles.

All articles included in the final corpus were published in Q1 and Q2 journals within the 2020–2026 publication period. The distribution of included articles by journal quartile is presented in Figure 2. This final corpus became the basis for the thematic synthesis and interpretation of AI ethics as epistemological governance.

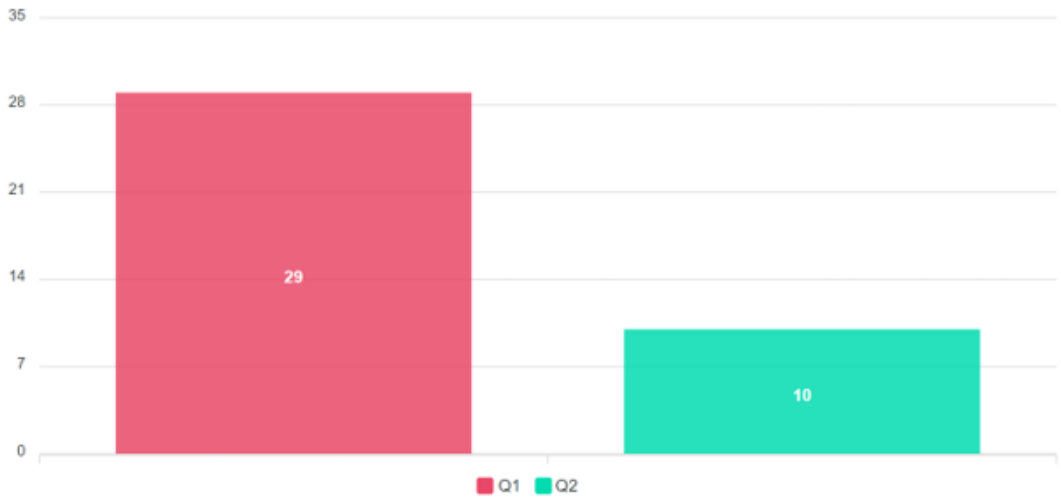

Figure 2. Number of Included Articles by Journal Quartile

Data Extraction and Analysis

Data extraction was conducted systematically by recording key bibliographic and substantive information from each selected article. The extracted information included publication year, country or geographical context, journal quartile, citation count, keywords, main ethical issues, the role of AI in knowledge production, forms of epistemic bias, epistemic dependency, actors of authority, and governance models. These categories were aligned with the research questions and the conceptual focus of the study.

The selected articles were analyzed using thematic analysis to identify recurring patterns, categories, and conceptual relationships in the literature. The analysis was conducted by reading and coding the articles according to major themes related to AI ethics and epistemological governance. The coding process focused on identifying how ethical issues were discussed, how AI was positioned in knowledge production, how bias and dependency appeared in the literature, which actors were described as having authority over AI outputs, and what governance models were proposed or emphasized.

The combination of the PRISMA framework and thematic analysis enabled this study to produce a transparent, coherent, and conceptually grounded synthesis. PRISMA supported the systematic selection of articles, while thematic analysis supported the interpretation of ethical and epistemic patterns across the reviewed literature. This methodological combination strengthens the validity of the review and provides a more comprehensive basis for understanding AI ethics as epistemological governance [18], [19], [20], [21], [22], [23].

RESULTS AND DISCUSSION

Results

This section presents the results of the literature synthesis systematically by explicitly linking them to the three research questions formulated in the introduction section. RQ1 focuses on identifying research trends and how ethical issues in the development and implementation of generative AI are addressed from 2020 to 2026. RQ2 highlights the diversity of geographical distribution in a global context and its relation to the study of AI epistemic governance. RQ3 is directed toward the implications of the synthesis of findings for the future research agenda, particularly concerning the

position of AI in knowledge production, epistemic bias, epistemic dependency, actors of authority, and appropriate governance models.

Keyword Analysis

Keyword analysis was conducted to assist in identifying and examining the relationships between the topic under investigation and the research in the analyzed articles. In an article, keywords represent the summary, focus, and main issues of a study. Therefore, this keyword analysis can help in answering RQ1. In the reviewed articles, there were a total of 426 keywords, 210 of which were unique. Table 1 presents the 10 most frequently occurring keywords along with their distribution.

Table 1. Most popular keywords

No	Term	Count
1	AI	61
2	Ethics	36
3	Governance	16
4	Generative	11
5	LLM	10
6	Technology	7
7	Data	7
8	Human	5
9	Chatgpt	5
10	Analysis	4

Table 1 shows a strong concentration at the intersection of several keywords such as AI, ethics, governance, generative, LLM, technology, and ChatGPT. This finding directly answers RQ1 in the aspect of identifying ethical issues. The emergence of these keywords confirms that the main focus of the research is largely directed toward the development of generative AI, particularly large language model-based models.

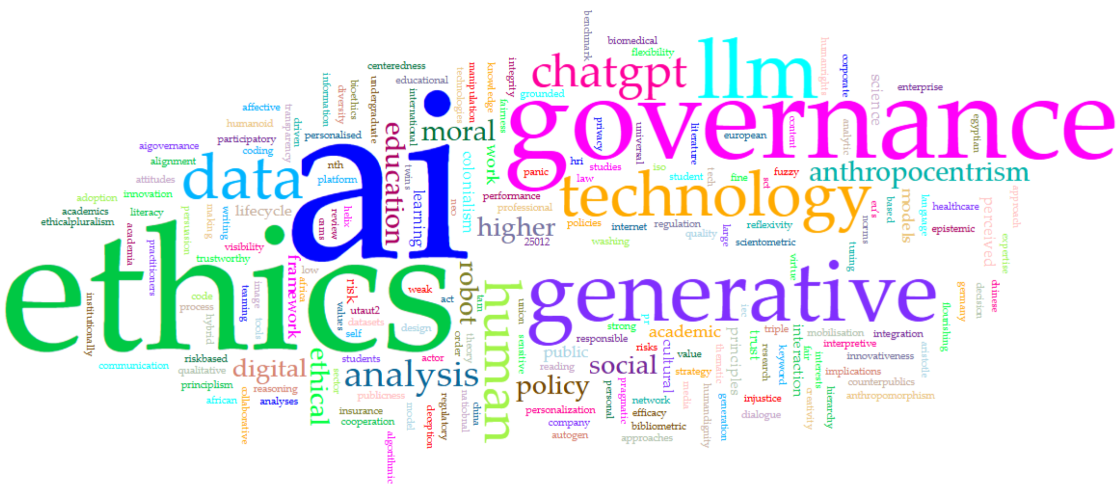

Figure 1. Keyword word cloud

Based on Figure 3, the presence of the keywords ethics and governance in significant proportions indicates that the development of this technology is accompanied by strong attention

to ethical and governance aspects, so that the discussion of AI is not dominated by technical aspects but also includes its ethics and governance aspects.

Publication Trend

From the publication growth perspective, Figure 4 shows a very clear increase in the number of publications, with the highest number recorded in 2025, totaling 17 articles. This increase indicates that ethics in AI discussions, particularly in the context of generative AI, has become one of the topics addressed in several studies. This finding answers RQ1, demonstrating that the development of ethical issues is reflected in the continuously increasing intensity of scholarly attention. In other words, ethical issues in generative AI are no longer treated as an addition to technological innovation, but rather as a central part of discussions on the development, implementation, and legitimacy of AI systems.

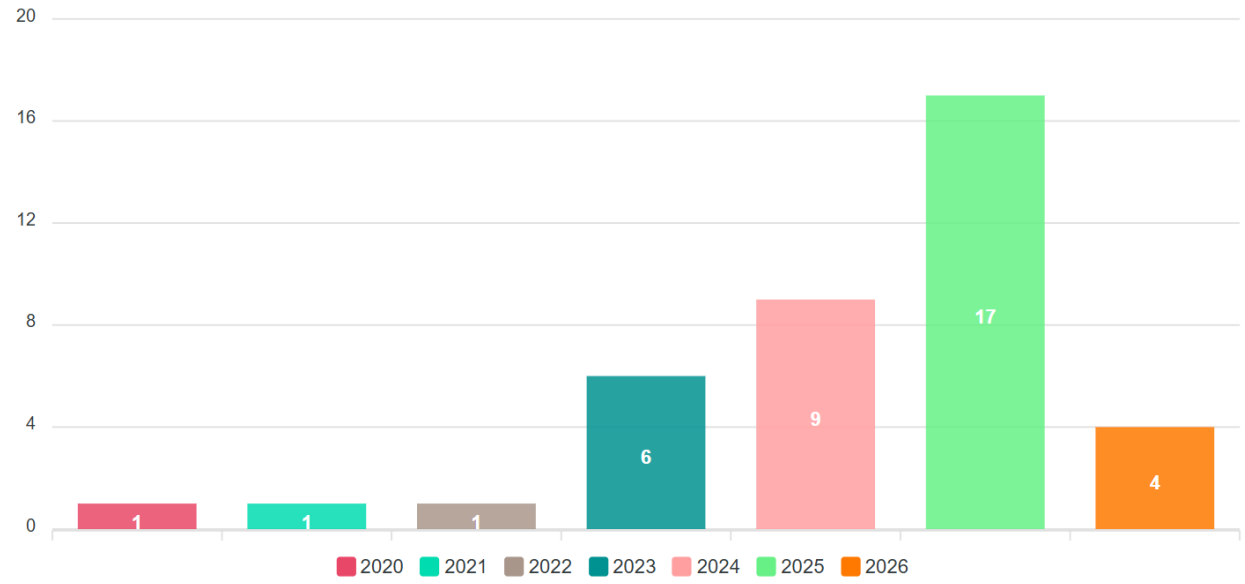

Figure 2. Publication year

The annual trend in Figure 4 shows that discussions of AI ethics have developed simultaneously across several arenas, particularly higher education, government and public policy, healthcare, and corporate business [8]. This finding answers RQ1, indicating that the discussion of ethical issues is not only temporal but also sectoral. Therefore, the growth of publications should be interpreted not merely as an increase in quantity, but as evidence of discussions on innovation, authority, and trust in the era of generative AI.

Country Study

In terms of geographical distribution, the study shows that research discussions on AI ethics are still dominated by studies from a combination of several countries, which we categorized under the name global, as well as other studies from the United States, China, the United Kingdom, and European countries, as shown in Figure 5. This dominance is evident not only from the number of articles but also from the high citation counts from these contexts, as shown in Figure 6. The highest citation count is 753 citations, obtained by research from the United States. The significant number of citations indicates considerable interest from various other studies related to the theme of AI

ethics as epistemic governance. If we divide the research between developed and developing countries, or the Global North and the Global South, there is a larger composition of studies conducted in Global North countries, as shown in Figure 7.

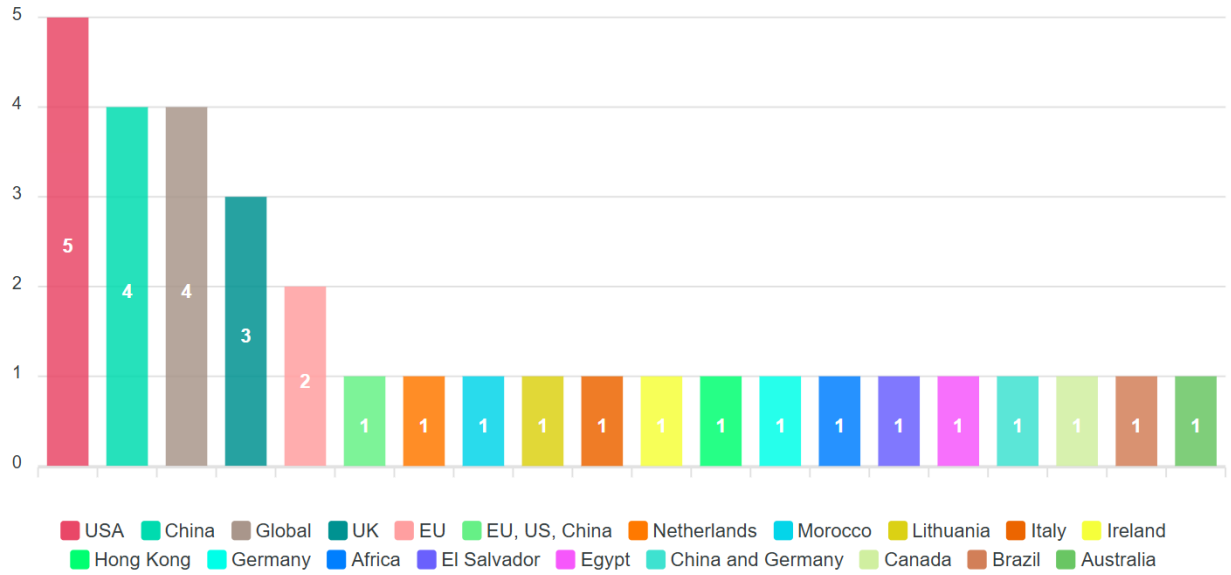

Figure 3. Country Study

This finding directly addresses an important part of RQ2, namely highlighting the diversity of geographical distribution in a global context and the distribution of authority in knowledge production. The review results show that most formulations of concepts, principles, and governance models are still largely built upon the institutional experiences of the Global North. In other words, the development of AI ethics is indeed becoming increasingly complex, but the foundation of contextual representation remains unbalanced. There is a gap in which the voices of developing countries are often overlooked, leading to epistemic injustice and raising concerns about digital colonialism or ethical colonialism, where Global North values are imposed as universal standards [16], [24]. Nevertheless, the data also show the growing contributions from several developing countries such as Brazil, Qatar, China, as well as a number of studies highlighting perspectives from Africa and the Global South. The presence of these studies is important because it signals a shift in the discussion that is no longer dominated solely by Global North countries.

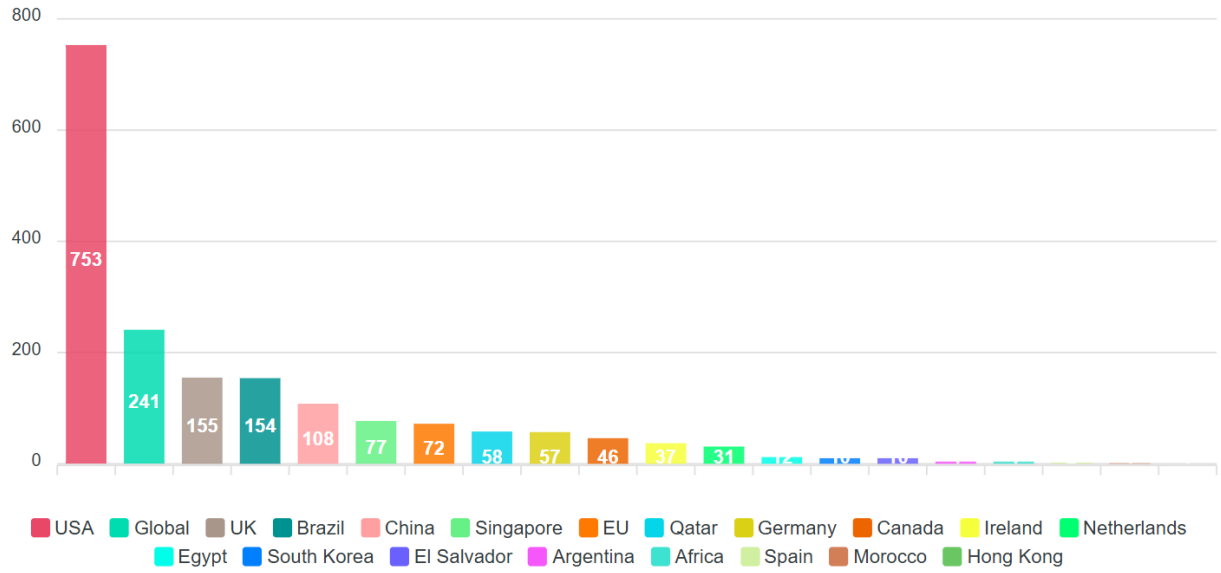

Figure 6. Number of Citations by Country

A comparison of the number of articles originating from developed and developing countries can be seen in Figure 7

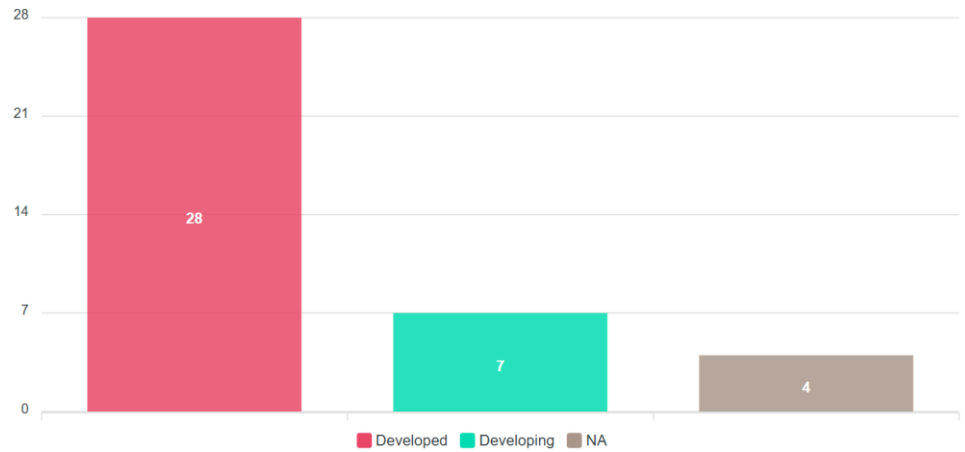

Figure 7. Types of countries

Key Findings

After mapping the conceptual structure, publication trends, and geographical distribution of the studies, the subsequent analysis is directed toward the substantive content of the most frequently emerging ethical concerns in the literature. This stage is particularly relevant to further deepen the answer to RQ1; therefore, Table 2 is examined to identify the most dominant main research findings while also interpreting how the literature frames the primary issues in the use of generative AI across various countries. The main findings presented in Table 2 do not imply that these are the only issues discussed in the articles, but rather represent the dominant aspects addressed, alongside minor discussions of other issues.

Table 2. Main research findings

No	Key Findings	Count	Country	Authors
1	Ethical concerns in the use of AI	26	Africa, Argentina, Brazil, China, EU, Germany, Global, Lithuania, Morocco, Netherlands, Qatar, Saudi Arabia, South Korea, United Kingdom, United States, Egypt, El Salvador, Italy	[1], [2], [4], [5], [7], [9], [10], [12], [13], [16], [17], [24], [25], [26], [27], [28], [29], [30], [31], [32], [33], [34], [35], [36], [37], [38]
2	Challenges in transparency and accountability of AI	9	Canada, China, China and Germany, EU, Global, Hong Kong, Ireland, Spain	[6], [14], [15], [39], [40], [41], [42], [43], [44]
3	Improving productivity and efficiency with AI	3	Australia, EU, United States, China, Singapore	[11], [45], [46]

Table 2 shows that the most dominant category is "Ethical Concerns in the Use of AI," with a total of 26 studies. Specific discussions on transparency and accountability are addressed in 9 studies, while only 3 studies address the productivity and efficiency of AI use. Ethical concerns in the use of AI provide a risk identification analysis. The literature discussing "Ethical Concerns in the Use of AI" reveals interrelated aspects ranging from individual integration to societal impacts. These concerns are examined in Table 3.

Table 3. Ethical concerns regarding the use of AI

No	Ethical concerns in AI use	Explanation	Author
1	Algorithmic bias and discrimination	AI has the potential to reproduce and reinforce social biases related to race, gender, and other identities contained in training data, leading to unfair treatment of socially vulnerable groups.	[1], [13], [17], [29], [36]
2	Data privacy and security	There are also risks of misuse of personal data, massive collection of confidential information, and data breaches.	[4], [9], [34], [38]
3	Transparency and accountability	The "black box" nature of AI makes it difficult to understand its decision-making processes, and ethical and legal responsibility for system failures is often unclear.	[2], [7], [16], [32]
4	Academic integrity and originality	Challenges also exist regarding integrity, data manipulation, and the creation of papers lacking genuine human intellectual contribution.	[5], [26], [28], [30], [37]
5	Misinformation and AI-induced hallucinations	AI has a tendency to generate compelling information (hallucinations) that is not based on facts, which could lead to the	[16], [26], [34], [35]

No	Ethical concerns in AI use	Explanation	Author
		spread of fake news and a decline in the credibility of science.	
6	Cultural bias and the dominance of Western values	In building global AI governance, regional values are not considered, and Western ethical standards are being imposed.	[24], [27], [31]
7	Cognitive impairment	Excessive reliance on AI may lead to a decline in critical thinking and independent decision-making abilities.	[5], [28], [38]
8	Behavioral manipulation and loss of autonomy	AI has the potential to manipulate individual decision-making and public opinion on a large scale using automated persuasion techniques.	[10], [17]
9	Environmental impact and sustainability	The training and operation of large-scale AI models consume enormous amounts of energy and vast amounts of natural resources.	[9], [16]
10	Access disparity (digital divide)	The disparity between individuals and countries with access to advanced AI technology and those without.	[16], [38]

The results in Table 3 show that ethical issues in the application of AI are not only related to technical aspects, but also to their impacts on humans and society. Issues such as algorithmic bias, privacy violations, lack of transparency, misinformation, behavioral manipulation, and unequal access reflect challenges in ensuring that AI is used fairly and responsibly. In addition, problems of academic integrity, cultural dominance, cognitive decline, and environmental impacts expand the scope of AI ethics to social and sustainability aspects. Thus, AI ethics becomes a moral standard to ensure that technology aligns with the values of transparency, fairness, accountability, privacy, and public security.

Research on AI Ethics as Epistemological Governance

Classification of AI in Knowledge Production

The ethical concerns regarding the use of AI in Table 3 are then further narrowed by deepening the epistemic analysis, conducted through classification to examine how generative AI shapes, produces, and directs knowledge. The first classification carried out concerns how AI produces knowledge. This classification is divided into three sub-classifications: first, AI as a knowledge generator, referring to AI's ability to generate new knowledge from patterns learned during the training process; second, AI as a knowledge transformer, referring to AI's role in changing the form of knowledge without altering its basic meaning; and third, AI as a knowledge distiller, focusing on AI's ability to filter and summarize extensive information into its most relevant core. The classification results are presented in Table 4.

Table 4. AI classification generates knowledge

No	AI generates knowledge	Count	Authors	Country	Citations
1	AI as a Knowledge Distiller	12	[6], [7], [14], [17], [27], [28], [29], [34], [40], [43], [44], [46]	Africa, Argentina, Canada, China, China and Germany, EU, USA, China, Germany, Global, Saudi Arabia, Spain	250
2	AI as a Knowledge Generator	11	[1], [9], [10], [15], [16], [24], [26], [31], [34], [36], [41]	Brazil, China, Global, Ireland, Italy, Netherlands, Qatar, USA	1129
3	AI as a Knowledge Transformer	10	[4], [5], [11], [13], [30], [32], [35], [37], [38], [45]	Australia, China, Egypt, El Salvador, Lithuania, Morocco, Singapore, South Korea, USA	226

Table 4 shows that "AI as a knowledge extractor" appears most frequently in 12 studies, slightly outnumbering "AI as a knowledge generator" in 11 studies. However, a significant difference emerges when examining the distribution of citations. The "AI as a knowledge generator" category is overwhelmingly dominant with a total of 1129 citations, compared to 250 citations for the "extractor" category and 226 citations for the "transformer" category. This indicates that the focus of AI research in ethics is centered on the fundamental concept of AI as a knowledge generator, which is also the most discussed and referenced topic. The context of research in this category tends to be broader and more fundamental, as discussed by Lund et al. [9] on the impact of AI in academic papers. In contrast, research in the "extractor" and "transformer" categories tends to be more specific and applied. For example, research on "extractors" is often related to governance or specific platforms [6], [14]. On the other hand, the "transformer" category is often associated with user-centered contexts, particularly in the field of education [5], [13], [30]. The dominance of publications from certain countries indicates the potential for epistemic imbalance and the dominance of global values in AI development. In addition, the ability of AI to generate and transform knowledge raises ethical issues related to information validity, accountability, bias, and knowledge authority. Therefore, epistemic governance is required to ensure that AI knowledge production remains transparent, fair, and responsible.

Epistemic Biases

The large number of concerns related to “bias,” as shown in Table 3, becomes an interesting issue to explore further. AI can inherit bias from data, algorithm design, and cultural contexts, thereby affecting the quality and fairness of the knowledge produced. The classification of Epistemic Bias is presented in Table 5 with sub-classifications related to training data bias, algorithmic bias, and cultural bias.

Table 5. Epistemic Biases

No	Epistemic Bias	Count	Authors	Country	Citations
1	Training data bias, cultural bias	15	[1], [5], [6], [7], [13], [14], [16], [26], [30], [32], [35], [37], [38], [41], [44]	Brazil, Canada, China, Egypt, Global, Ireland, Morocco, Qatar, South Korea, USA, Elsavador	718
2	Cultural bias	7	[24], [27], [28], [29], [36], [40], [46]	Africa, Argentina, China and Germany, EU, US, China, Global, Italy, Saudi Arabia	69
3	Training data bias	5	[9], [17], [34], [43], [45]	China, Germany, Singapore, Spain, USA	819
4	Algorithm bias	2	[10], [15]	Global, Netherlands	89
5	Algorithm bias, cultural bias	2	[11], [47]	Australia, China	0
6	Training data bias, algorithm bias	2	[4], [42]	Hong Kong, Lithuania	0
7	Algorithm bias, cultural bias, training data bias	1	[31]	USA	0

Based on Table 5, analysis of previous research data reveals that the combination of training data bias and cultural bias is the most frequently discussed issue. This indicates a growing awareness of the relationship between technical bias arising from data and social/cultural bias [7], [13], [16]. This trend reflects a growing academic recognition that bias issues in AI are not only technical (arising from training data) but also closely related to the social and cultural context in which AI is applied. The distribution of citations supports this finding. Studies focusing on both types of bias, or training data bias alone, tend to receive more citations. This trend suggests that the research community recognizes AI bias as a complex socio-technical problem, where non-representative data reinforces or creates cultural bias on a global scale [1], [14]. This phenomenon is relevant in a variety of contexts, from higher education in China [13] and El Salvador [38] to governance in Canada [14] and the European Union [46].

The dominance of training data bias indicates that the quality and representation of data are highly determinant of the fairness of the knowledge produced by AI. Meanwhile, cultural and algorithmic bias demonstrate the presence of certain value dominance in automated decision-making processes. Therefore, epistemic governance is required to ensure that AI produces knowledge that is transparent, fair, and accountable.

Epistemic Dependency

The subsequent epistemic analysis highlights the phenomenon of human dependence on AI in thinking and decision-making processes, which has the potential to weaken cognitive independence and encourage the automation of the way humans understand knowledge; this phenomenon appears

in Table 3. This analysis is presented in the epistemic dependency classification in Table 6, which discusses human dependence on AI, automation of thinking, and cognitive deskilling.

Table 6. Epistemic Dependency

No	Epistemic Dependency	Count	Authors	Country	Citations
1	Human dependence on AI	23	[1], [4], [5], [6], [10], [13], [14], [15], [16], [17], [24], [27], [30], [36], [37], [38], [40], [41], [42], [43], [44], [46], [47]	Africa, Brazil, Canada, China, China and Germany, Egypt, El Salvador, EU, US, China, Germany, Global, Hong Kong, Ireland, Italy, Lithuania, Netherlands, South Korea, Spain, USA	693
2	Automation Of Thinking	5	[29], [31], [34], [35], [45]	China, Saudi Arabia, Singapore, USA	93
3	Deskilling cognitive; Automation Of Thinking	3	[7], [9], [11]	Australia, Global, USA	756
4	Deskilling cognitive	1	[28]	Argentina	4
5	Human dependence on AI; Automation Of Thin	1	[32]	Morocco	1
6	Human dependence on AI; Deskilling cognitive	1	[26]	Qatar	58

Based on Table 6, the most dominant theme in epistemic dependency is "human dependence on AI." This theme appears consistently in the majority of studies from 2020 to 2026, indicating widespread and sustained concern among academics, with 693 citations signifying that this issue has become an important reference in discussions of AI ethics. On the other hand, Table 6 also presents studies on cognitive deskilling and automation of thinking; although the number is not large, they have obtained the highest citations. This means that the implication of this trend is the existence of global awareness that AI integration is not only a technical issue, but also touches on fundamental aspects of human autonomy and capability. This concern is not limited to a single geographical context, but is global in nature, encompassing research from China[13], the US [1], Europe [10], and Africa [27], and involving various stakeholders, ranging from users [5], governments [14], to the scientific community [41]. Excessive dependence on AI has the potential to reduce human critical thinking ability and intellectual autonomy. In addition, the automation of cognitive processes can transfer knowledge authority from humans to algorithmic systems.

Therefore, epistemic governance is required to maintain a balance between the use of AI, human cognitive capacity, and accountability in knowledge production.

Actor of Authority

Building upon the epistemological research discussed in the previous section, such as the mechanisms by which AI generates knowledge, epistemological biases, and epistemological dependencies, this section examines who plays the most important role in the formation, control, and justification of AI knowledge namely, technology platforms, governments, the scientific community, or users. Table 7 illustrates this issue concretely.

Table 7. Actor of Authority

No	Actor of Authority	Count	Authors	Country	Citations
1	Scientific community	13	[7], [9], [10], [11], [15], [17], [26], [28], [30], [36], [37], [41], [45]	Argentina, Australia, Egypt, Germany, Global, Ireland, Italy, Netherlands, Qatar, Singapore, South Korea, USA	1100
2	Users	7	[4], [5], [13], [32], [35], [38], [42]	China, El Salvador, Hong Kong, Lithuania, Morocco, USA	127
3	Government	3	[14], [40], [46]	Canada, China and Germany, EU, US, China	61
4	Government; scientific community	2	[24], [27]	Africa, Global	50
5	Users; goverment	2	[1], [34]	China, USA	68
6	Platform; government	3	[6], [29], [44]	China, Global, Saudi Arabia	43
7	Scientific community; government; platform	2	[16], [43]	Spain, Brazil	156

Based on the analysis of the data presented in Table 7, the primary focus of AI ethics research highlighted in this table is on the "scientific community," the most dominant stakeholder. This category has appeared in 13 previous studies, indicating a high level of concern for ethical issues within academia. The dominance of the "scientific community" suggests that academia is addressing and deeply considering the imminent ethical challenges that AI poses to internal practices. The high number of citations 1,100 in total further reinforces the fact that this issue is of great importance and is widely discussed.

Governance Model

AI is no longer merely a technological tool; it is influencing how knowledge is produced, how decisions are made, and how trust is built in society. Therefore, a clear governance model is needed

that can address all the concerns presented in Table 3. Governance models are discussed in Table 8.

Table 8. Governance Model

No	Governance Model	Count	Authors	Country	Citations
1	Multi-stakeholder Governance	23	[1], [4], [5], [6], [7], [9], [11], [15], [16], [17], [24], [26], [27], [28], [30], [31], [34], [35], [37], [38], [41], [42], [43]	Africa, Argentina, Australia, Brazil, China, Egypt, El Salvador, Germany, Global, Hong Kong, Ireland, Lithuania, Qatar, South Korea, Spain, USA	1333
2	State Regulation	6	[13], [14], [29], [40], [46], [47]	Canada, China, China and Germany, EU, US, China, Saudi Arabia	163
3	Platform Regulation	5	[10], [32], [36], [44], [45]	China, Italy, Morocco, Netherlands, Singapore	109

Table 8 shows that the "multi-stakeholder governance" approach is a major focus in current discussions on AI governance models. Of the 34 studies included, 23 adopted this model, significantly outnumbering "national regulation" (6) and "platform regulation" (5). This dominance is also reflected in citations. The topic of "multi-stakeholder governance" garnered a total of 1,333 citations, demonstrating its significant influence in academia. This trend suggests a strong academic consensus that the challenges of AI ethics are too complex to be addressed by a single entity. Neither government regulation through national regulation [14], [40] nor technology companies regulation through platform regulation [10] are considered sufficient. Instead, researchers are increasingly seeking governance models involving dialogue and collaboration among governments, industry, academia, and civil society, as discussed in a global context [24].

Discussion

The findings of this systematic literature review indicate that AI ethics can no longer be understood merely as a set of abstract normative principles, but should be positioned as a field of epistemological governance concerned with how knowledge is produced, validated, circulated, and authorized in AI-mediated environments. This position is consistent with prior studies showing that AI has become deeply embedded in public administration, education, health services, social service delivery, and organizational decision-making, where algorithmic systems increasingly influence institutional judgment and public trust [1], [2], [3], [4]. In this regard, the ethical discussion of AI is not limited to whether AI systems are technically accurate or efficient, but extends to questions of accountability, transparency, fairness, privacy, security, and the social legitimacy of automated decisions [5], [6], [7], [8].

The publication and keyword trends identified in this review show that scholarly attention to AI ethics has increased significantly, particularly in relation to generative AI, large language models, governance, and ChatGPT. This finding supports previous studies arguing that generative AI has intensified ethical debates because it is not merely a computational system, but a technology

capable of producing persuasive texts, explanations, recommendations, and scholarly outputs that may be treated as credible knowledge [9], [10], [11]. The dominance of keywords such as ethics and governance also confirms that current AI research has moved beyond technical development toward broader debates on social responsibility, institutional oversight, and knowledge authority. This is in line with studies in education, policy, and organizational contexts showing that AI ethics is increasingly connected to trust, learning performance, employment, regulation, and the societal consequences of automated systems [12], [13], [14], [15].

The predominance of ethical concerns in the reviewed literature demonstrates that AI ethics is primarily framed around risk, responsibility, and the protection of human and social values. Issues such as algorithmic bias, data privacy, transparency, accountability, academic integrity, misinformation, cultural bias, manipulation, environmental impact, and unequal access indicate that ethical problems in AI are multidimensional and interconnected. These findings align with previous studies emphasizing that AI systems may reproduce discrimination, obscure responsibility through black-box decision-making, generate hallucinated information, and challenge originality in academic writing [1], [5], [9], [16], [17]. However, the present review extends these discussions by showing that these ethical concerns are not isolated problems. They are connected to epistemic questions regarding who controls AI-generated knowledge, whose values are embedded in AI systems, and how users evaluate the credibility of AI outputs.

The geographical distribution of the reviewed studies reveals that the production of AI ethics knowledge remains strongly concentrated in the Global North, especially in contexts such as the United States, the United Kingdom, Europe, and other technologically advanced regions. This finding supports prior literature suggesting that global AI ethics frameworks are often shaped by dominant institutional and cultural assumptions, while the perspectives of developing countries remain less visible [16], [24]. Such imbalance is epistemologically significant because AI governance does not only regulate technology; it also determines which values, norms, and standards are treated as universal. Studies highlighting Africa, the Global South, Brazil, Qatar, China, and other non-Western contexts show the emergence of more plural perspectives, but the overall distribution remains uneven [24], [27], [31]. Therefore, the findings of this review strengthen the argument that AI ethics must address not only technical bias, but also epistemic inequality and the possibility of ethical or digital colonialism.

The analysis of AI in knowledge production further shows that generative AI is increasingly treated as an epistemic actor. Although AI as a knowledge distiller appears frequently in the reviewed literature, citation patterns indicate that AI as a knowledge generator has become the most influential theme. This confirms the concern raised in previous studies that generative AI challenges conventional boundaries between human authorship, machine assistance, originality, and scholarly accountability [9]. In educational contexts, this issue is particularly important because students and lecturers may use generative AI not only to retrieve information, but also to construct arguments, produce academic texts, and support decision-making [5], [7], [13]. The ethical issue therefore lies not only in whether AI-generated outputs are correct, but also in how such outputs reshape human judgment, academic integrity, and the authority of knowledge.

The findings on epistemic bias also confirm that bias in AI cannot be reduced to a technical problem of flawed datasets. The dominance of training data bias and cultural bias indicates that AI systems may reproduce both statistical imbalance and cultural asymmetry in knowledge production. This supports previous studies showing that AI bias emerges from training data, algorithmic design,

institutional assumptions, and the social contexts in which AI is deployed [6], [13], [16]. In global AI governance, cultural bias is especially critical because Western ethical standards may be positioned as universal norms, potentially marginalizing local values and alternative knowledge traditions [24], [27], [31]. Thus, the present review contributes to the literature by showing that epistemic bias should be examined as a socio-technical and cultural problem, not merely as a computational limitation.

The findings on epistemic dependency reveal another important dimension of AI ethics. Human dependence on AI appears as the most dominant form of dependency, while studies on automation of thinking and cognitive deskilling receive strong scholarly attention. This finding is consistent with research warning that excessive reliance on generative AI may weaken critical thinking, reflective judgment, and intellectual autonomy [5], [7], [9], [13]. At the same time, other studies acknowledge that AI can improve productivity, efficiency, and analytical support when used responsibly [11], [15]. This duality indicates that the ethical challenge is not to reject AI use, but to establish governance mechanisms that preserve human agency while enabling the responsible use of AI. In this sense, epistemological governance should ensure that AI supports knowledge work without replacing human responsibility for interpretation, verification, and judgment.

The role of authority in AI governance also emerges as a central concern. The reviewed literature shows that the scientific community occupies a dominant position in shaping ethical discussions, validating knowledge, and defining responsible AI practices. This is understandable because academia is directly affected by generative AI through issues of authorship, publication ethics, originality, research integrity, and knowledge validation [7], [9], [26], [28]. However, AI governance cannot rely solely on academic authority. Governments, platforms, users, industry actors, and civil society also play important roles in regulating AI infrastructures, setting accountability standards, and ensuring public trust [6], [8], [14], [16]. The dominance of multi-stakeholder governance in the reviewed literature confirms that AI ethics requires collaborative responsibility rather than single-actor control. This supports previous studies arguing that state regulation, platform regulation, and scientific oversight each have limitations when implemented separately [10], [14], [40], [46].

The novelty of this study lies in its repositioning of AI ethics as epistemological governance. Unlike studies that discuss AI ethics mainly through normative principles, technical risks, or sector-specific applications, this review integrates ethical concerns with knowledge production, epistemic bias, epistemic dependency, authority, geographical representation, and governance models. This perspective offers a more comprehensive understanding of generative AI as a technology that does not merely assist human activity, but also shapes what is recognized as credible knowledge and who has the authority to validate it. The implications of this study are twofold. Theoretically, it expands AI ethics discourse by linking moral principles with epistemic power, knowledge legitimacy, and global representation. Practically, it suggests that future AI governance should be more inclusive, culturally sensitive, transparent, and multi-stakeholder-based, while future research should expand Global South perspectives, develop stronger methods for detecting epistemic bias, examine the long-term effects of AI dependency on human cognition, and evaluate governance models capable of balancing innovation, accountability, and public trust [4], [6], [14], [24], [31], [41], [43].

CONCLUSION

This study concludes that AI ethics in the era of generative AI should be understood not merely as a set of normative principles, but as an issue of epistemological governance involving knowledge production, bias, dependency, authority, and accountability. The findings show a significant increase in scholarly attention to AI ethics, particularly in relation to generative AI, large language models, transparency, accountability, academic integrity, misinformation, privacy, and public trust. This study also reveals that the discourse remains geographically uneven, with strong dominance from the Global North, while perspectives from the Global South are still underrepresented despite their growing relevance in challenging cultural bias, unequal access, and ethical colonialism. From an epistemic perspective, generative AI is increasingly positioned as a knowledge generator, raising concerns about the validity, originality, and authority of AI-produced outputs. Issues of training data bias, cultural bias, human dependence on AI, automation of thinking, and cognitive deskilling further demonstrate that AI ethics is inseparable from questions of human autonomy and epistemic responsibility. The scientific community remains a key actor in shaping ethical discourse, yet the complexity of AI governance requires a multi-stakeholder approach involving governments, platforms, academia, industry, users, and civil society. Therefore, the novelty of this study lies in reframing AI ethics as epistemological governance, while its implications emphasize the need for more inclusive, transparent, culturally sensitive, and accountable AI governance models that can balance technological innovation with human judgment, social justice, and public trust.

LIMITATIONS

This study has several limitations that should be acknowledged. First, the review was limited to articles indexed in the Scopus database and published in Q1 and Q2 journals between 2020 and 2026, which may exclude relevant studies from other databases, lower-quartile journals, conference proceedings, books, policy documents, or regional publications that also discuss AI ethics and governance. Second, the final corpus consisted of 39 articles, which provides a focused synthesis but may not fully represent the rapidly expanding body of literature on generative AI ethics. Third, the dominance of studies from the Global North may influence the interpretation of AI ethics, epistemic bias, authority, and governance models, while perspectives from the Global South remain relatively underrepresented. Fourth, the thematic analysis used in this review depends on the researchers' interpretation in classifying ethical concerns, epistemic bias, epistemic dependency, actors of authority, and governance models. Finally, because generative AI develops very rapidly, the findings of this study should be understood as temporally situated and may need to be updated as new technologies, regulations, and ethical debates continue to emerge.

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AUTHOR CONTRIBUTION

C.P., M.K., and S. collaborated throughout the entire manuscript preparation process. M.K. lead the development of the research concept and the formulation of objectives, while S. assisted with methodology design and validation of final results. C.P. was responsible for the literature review, the extraction and classification of relevant articles, and the drafting of the systematic literature review paper.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DECLARATION OF USE OF AI IN SCIENTIFIC WRITING

The author used the Watase Uake application to support the SLR process. Specifically, it assisted in the extraction and classification of relevant articles. This AI-powered process was conducted under the direct supervision of the authors, and all results were rigorously evaluated, verified, and refined to maintain methodological rigor. All content generated by the AI tool was reviewed, edited, and verified by the authors to ensure the accuracy, originality, and completeness of the final manuscript. The authors assume all responsibility for the content of this paper.

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