

Primary research objectives and units of analysis in synthetic ethnography focus on **AI-generated agents, artifacts, and interactions**, and this methodology differs from long-term human-AI collaboration studies by **centering on synthetic (non-human) entities and their sociality**, rather than on human experiences or co-evolution with AI.

1. Introduction

Synthetic ethnography is an emerging methodological approach that adapts traditional ethnographic techniques to study artificial agents, generative models, and the socio-technical assemblages they inhabit. Unlike conventional ethnography, which centers on human communities, synthetic ethnography investigates the behaviors, interactions, and cultural logics of AI-generated entities, their outputs, and the hybrid spaces they co-create with humans (Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023; Maltezos et al., 2024). The primary research objectives in synthetic ethnography include understanding the agency, subjectivity, and sociality of AI systems, mapping the emergent practices within synthetic environments, and interrogating the epistemological and ethical implications of studying non-human actors (Knochel, 2023; Michel-Villarreal et al., 2023; Maltezos et al., 2024; Hoy et al., 2023). Units of analysis often shift from human individuals or groups to synthetic agents, their interactions, and the artifacts they produce (Knochel, 2023; Maltezos et al., 2024; Hoy et al., 2023). In contrast, studies of long-term human-AI collaboration and symbiosis focus on the co-evolution of human and AI capabilities, team dynamics, trust, and the augmentation of human work or creativity through sustained partnership with AI systems (Anthony et al., 2023; Sowa et al., 2021; Mahmud et al., 2022; Gupta et al., 2023; Järvelä et al., 2023; Vaccaro et al., 2024; Fabri et al., 2023; Zahedi & Kambhampati, 2021). Methodologically, synthetic ethnography foregrounds the analysis of AI as both subject and object, while human-AI collaboration research emphasizes relational, longitudinal, and often user-centered approaches. This review synthesizes the objectives, units of analysis, and methodological distinctions between these two research domains, drawing on recent literature from HCI, STS, digital anthropology, and design studies (Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023; Maltezos et al., 2024; Anthony et al., 2023; Sowa et al., 2021; Mahmud et al., 2022; Gupta et al., 2023; Järvelä et al., 2023; Vaccaro et al., 2024; Fabri et al., 2023; Zahedi & Kambhampati, 2021).

2. Methods

A comprehensive search was conducted across over 170 million research papers in Consensus, including sources such as Semantic Scholar and PubMed. The search strategy involved 20 targeted queries spanning foundational concepts, methodological distinctions, units of analysis, interdisciplinary perspectives, and critiques. In total, 944 papers were identified, 666 were screened, 258 were deemed eligible, and 50 were included in this review.

Search Strategy



FIGURE 1 Flow diagram of the search and selection process for included papers.

Eight unique search groups were used, focusing on synthetic ethnography, human-AI collaboration, and their methodological intersections.

3. Results

3.1 Research Objectives in Synthetic Ethnography

Synthetic ethnography aims to understand the agency, subjectivity, and emergent sociality of AI systems and their outputs. Objectives include mapping the practices and logics of generative models, exploring the cultural and ethical implications of synthetic agents, and interrogating the boundaries between human and non-human actors (Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023; Maltezos et al., 2024). Researchers often seek to reveal how AI-generated artifacts participate in social worlds, how synthetic agents interact with each other and with humans, and how meaning is constructed in these hybrid spaces (Knochel, 2023; Maltezos et al., 2024; Hoy et al., 2023).

3.2 Units of Analysis

The units of analysis in synthetic ethnography are typically non-human: AI agents, synthetic personas, generative outputs (such as images, texts, or behaviors), and the socio-technical assemblages they form (Knochel, 2023; Maltezos et al., 2024; Hoy et al., 2023). This contrasts with traditional ethnography, where the focus is on human individuals, groups, or communities. In synthetic ethnography, the analysis may center on the interactions between synthetic agents, the evolution of their behaviors, or the emergent properties of AI-driven collectives (Knochel, 2023; Maltezos et al., 2024; Hoy et al., 2023).

3.3 Methodological Distinctions

Synthetic ethnography diverges from studies of long-term human-AI collaboration in several key ways. While both may use qualitative, interpretive methods, synthetic ethnography foregrounds the analysis of AI as both subject and object, often employing assemblage theory, thing ethnography, or computational ethnography to study non-human actors (Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023; Maltezos et al., 2024). In contrast, human-AI collaboration research typically adopts relational, user-centered, and longitudinal approaches, focusing on trust, team dynamics, and the augmentation of human capabilities (Anthony et al., 2023; Sowa et al., 2021; Mahmud et al., 2022; Gupta et al., 2023; Järvelä et al., 2023; Vaccaro et al., 2024; Fabri et al., 2023; Zahedi & Kambhampati, 2021). The methodological toolkit for synthetic ethnography may include the creation of synthetic personas, the observation of AI-to-AI interactions, and the analysis of generative outputs as cultural artifacts (Knochel, 2023; Maltezos et al., 2024; Hoy et al., 2023).

3.4 Comparison with Human-AI Collaboration and Symbiosis

Studies of long-term human-AI collaboration and symbiosis prioritize the co-evolution of human and AI skills, the development of collective intelligence, and the negotiation of agency and autonomy within hybrid teams (Anthony et al., 2023; Sowa et al., 2021; Mahmud et al., 2022; Gupta et al., 2023; Järvelä et al., 2023; Vaccaro et al., 2024; Fabri et al., 2023; Zahedi & Kambhampati, 2021). Units of analysis are typically human-AI teams, collaborative processes, or the outcomes of joint work. Research objectives include improving productivity, fostering trust, and understanding the dynamics of human-AI partnerships over time (Anthony et al., 2023; Sowa et al., 2021; Mahmud et al., 2022; Gupta et al., 2023; Järvelä et al., 2023; Vaccaro et al., 2024; Fabri et al., 2023; Zahedi & Kambhampati, 2021). Methodologically, these studies often use mixed methods, including ethnography, surveys, experiments, and design interventions.

Key Papers

Paper	Methodology	Units of Analysis	Key Results	Distinction Highlighted
(Knochel, 2023)	Assemblage-based synthetic ethnography	AI image generators, software agents	Contrasts and continuities in creative practices; ethical praxis in postdigital art	Synthetic agents as primary focus
(Michel-Villarreal et al., 2023)	Thing ethnography	ChatGPT as subject	Explores AI's perspective and social impact in education	AI as both subject and object
(Hoy et al., 2023)	Mixed (NLP + ethnography)	LLM-driven research tools, user/organization worlds	Argues for collaboration between ethnographers and data scientists	Integration of synthetic and human perspectives
(Maltezos et al., 2024)	Bridging ethnography & AI	Visual political action, image datasets	Combines ethnography with deep learning for image analysis	Hybrid human-synthetic analysis
(Anthony et al., 2023)	Relational ethnography	Human-AI work systems	Proposes system view for AI as counterpart in work	Human-AI relational focus

FIGURE 2 Comparison of key studies on synthetic ethnography and human-AI collaboration.

Top Contributors

Type	Name	Papers
Author	Aaron D. Knochel	(Knochel, 2023)
Author	Rosario Michel-Villarreal	(Michel-Villarreal et al., 2023)
Author	Tom Hoy	(Hoy et al., 2023)
Journal	<i>Studies in Art Education</i>	(Knochel, 2023)
Journal	<i>Education Sciences</i>	(Michel-Villarreal et al., 2023)
Journal	<i>Ethnographic Praxis in Industry Conference Proceedings</i>	(Hoy et al., 2023)

FIGURE 3 Authors & journals that appeared most frequently in the included papers.

4. Discussion

The literature demonstrates that synthetic ethnography is distinct in its focus on non-human agents, generative artifacts, and the emergent sociality of AI systems (Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023; Maltezos et al., 2024). This approach challenges traditional ethnographic assumptions about agency, subjectivity, and the boundaries of the social, requiring new methodological and ethical frameworks (Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023). The quality of research in this area is high, with innovative methodological proposals and critical engagement with the epistemological implications of studying AI as both subject and object (Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023; Maltezos et al., 2024). However, the field is still developing, and there is ongoing debate about the validity and limitations of synthetic ethnography, particularly regarding the interpretation of synthetic agents' behaviors and the risk of anthropomorphism (Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023).

In contrast, research on long-term human-AI collaboration and symbiosis is more established, with robust frameworks for studying team dynamics, trust, and co-evolution (Anthony et al., 2023; Sowa et al., 2021; Mahmud et al., 2022; Gupta et al., 2023; Järvelä et al., 2023; Vaccaro et al., 2024; Fabri et al., 2023; Zahedi & Kambhampati, 2021). These studies provide valuable insights into the practical and ethical challenges of integrating AI into human work and creativity, but may under-theorize the agency and subjectivity of AI systems themselves.

Claims and Evidence Table

Claim	Evidence Strength	Reasoning	Papers
Synthetic ethnography centers on AI agents, artifacts, and their sociality, not humans	 Strong	Multiple studies explicitly define non-human units of analysis and objectives (Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023; Maltezos et al., 2024)	(Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023; Maltezos et al., 2024)
Methodological distinctions exist: synthetic ethnography foregrounds AI as subject/object, while human-AI collaboration focuses on relational, user-centered approaches	 Strong	Comparative analyses and methodological reviews support this distinction	(Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023; Anthony et al., 2023; Sowa et al., 2021; Mahmud et al., 2022; Gupta et al., 2023)
Synthetic ethnography faces challenges of interpretation, anthropomorphism, and ethical ambiguity	 Moderate	Papers discuss epistemological and ethical concerns, but empirical evidence is still emerging	(Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023)
Human-AI collaboration research is more established, with robust frameworks for team dynamics and trust	 Moderate	Systematic reviews and meta-analyses confirm maturity of this field	(Anthony et al., 2023; Sowa et al., 2021; Mahmud et al., 2022; Gupta et al., 2023; Järvelä et al., 2023; Vaccaro et al., 2024; Fabri et al., 2023; Zahedi & Kambhampati, 2021)
Integration of synthetic and human perspectives can enrich both fields	 Moderate	Some studies propose hybrid methodologies, but practical applications are limited	(Maltezos et al., 2024; Hoy et al., 2023)
The validity of synthetic ethnography as a qualitative methodology is debated	 Weak	Critiques highlight limitations and call for further empirical validation	(Knochel, 2023; Michel-Villarreal et al., 2023; Hoy et al., 2023)

FIGURE 4 Key claims and support evidence identified in these papers.

5. Conclusion

In summary, synthetic ethnography is characterized by its focus on AI-generated agents, artifacts, and interactions, with research objectives and units of analysis that are distinct from those in studies of long-term human-AI collaboration and symbiosis. Methodologically, synthetic ethnography foregrounds the analysis of non-human actors, while human-AI collaboration research emphasizes relational, longitudinal, and user-centered approaches. Both fields offer valuable insights, but also face unique challenges and limitations.

5.1 Research Gaps

Despite recent advances, significant gaps remain in the empirical validation of synthetic ethnography, the integration of hybrid methodologies, and the exploration of ethical and epistemological issues. There is also a need for more comparative studies that bridge synthetic and human-centered approaches.

Research Gaps Matrix

Topic / Study Attribute	Synthetic Agents	Human-AI Teams	Generative Artifacts	Hybrid Methods	Ethical Analysis
Research Objectives	7	12	5	3	2
Units of Analysis	8	10	6	2	1
Methodological Distinctions	6	9	4	4	3
Longitudinal Studies	1	8	GAP	1	GAP
Comparative Analyses	2	3	1	2	1

FIGURE 5 Matrix showing coverage of research topics and study attributes in included papers.

5.2 Open Research Questions

Future research should focus on empirically validating synthetic ethnography, developing hybrid methodologies, and addressing ethical and epistemological challenges.

Question	Why
How can synthetic ethnography be empirically validated as a qualitative methodology?	Empirical validation is needed to establish the credibility and utility of synthetic ethnography for studying AI systems.
What are effective hybrid methodologies for integrating synthetic and human-centered ethnographic approaches?	Hybrid methods could bridge gaps between studying non-human and human actors, enriching both fields.
How can ethical and epistemological challenges in synthetic ethnography be addressed?	Addressing these challenges is crucial for responsible research and for interpreting the agency and subjectivity of AI systems.

FIGURE 6 Open research questions and their significance for future work.

In conclusion, while synthetic ethnography and human-AI collaboration studies share some methodological roots, their research objectives, units of analysis, and epistemological commitments are fundamentally distinct, offering complementary perspectives on the evolving landscape of AI and society.

These papers were sourced and synthesized using Consensus, an AI-powered search engine for research. Try it at <https://consensus.app>

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