

Alternative Human-AI Partnership Models for Shared Agency and Collaborative Goal-Setting in Open-Ended Creative Tasks

1. Introduction

The landscape of human-AI collaboration in creative tasks is rapidly evolving beyond the traditional "human-in-the-loop" (HITL) paradigm, which typically positions humans as supervisors or final arbiters of AI-generated outputs. Recent research highlights a shift toward partnership models emphasizing **shared agency** and **collaborative goal-setting**, where humans and AI systems act as co-creators, jointly exploring, generating, and evaluating creative solutions (Rezwana & Maher, 2022; Vinchon et al., 2023; Haase & Pokutta, 2024; McGuire et al., 2024; Issak et al., 2025; Moruzzi & Margarido, 2024; Zhang et al., 2023; Zhou et al., 2024; He et al., 2023; Rezwana & Maher, 2022). These alternative models—such as co-creative frameworks, mixed-initiative systems, and human-AI teaming—enable more dynamic, reciprocal, and flexible interactions, fostering greater innovation and creative diversity. Studies demonstrate that such partnerships can enhance both the quality and novelty of creative outputs, support user agency and satisfaction, and address the limitations of supervision-based approaches (Boussioux et al., 2024; Rezwana & Maher, 2022; McGuire et al., 2024; Hosanagar & Ahn, 2024; Zhang et al., 2023; Issak et al., 2025; Moruzzi & Margarido, 2024; Rezwana & Maher, 2022; Zhou et al., 2024; Kim & Maher, 2023). This review synthesizes the state of the art in alternative human-AI partnership models, focusing on frameworks, empirical findings, and design considerations for shared agency and collaborative goal-setting in open-ended creative domains.

FIGURE 1 Consensus on shared agency in human-AI creative partnerships

2. Methods

A comprehensive literature search was conducted across over 170 million research papers in Consensus, encompassing databases such as Semantic Scholar and PubMed. The search strategy included targeted queries on alternative human-AI partnership models, shared agency, collaborative goal-setting, and co-creative systems in creative tasks. In total, 1,025 papers were identified, 579 were screened, 401 were deemed eligible, and the top 50 most relevant papers were included in this review.

Search Strategy



FIGURE 1 Flow of paper selection for this review

Eight unique search groups were used, focusing on foundational paradigms, alternative models, interdisciplinary perspectives, and comparative analyses of partnership frameworks.

3. Results

3.1. Key Alternative Partnership Models

Several partnership models have emerged beyond HITL, including:

- **Co-creative frameworks:** Both human and AI contribute creative input, often in iterative or turn-taking processes (Rezwana & Maher, 2022; Moruzzi & Margarido, 2024; Zhang et al., 2023; Issak et al., 2025; Rezwana & Maher, 2022; Kim & Maher, 2023).
- **Mixed-initiative systems:** Humans and AI proactively take initiative, share control, and negotiate creative direction (Issak et al., 2025; Rezwana & Maher, 2022; Margarido et al., 2024; Ding & Chan, 2023).
- **Human-AI teaming:** Emphasizes mutual knowledge gains, trust-building, and productive dialogue for value co-creation (Simón et al., 2024; Iga et al., 2024; Mahmud et al., 2022; Haase & Pokutta, 2024).
- **Personalized and adaptive systems:** AI adapts to user preferences, supporting agency and ownership (Abuzurairq & Pasquier, 2024; Moruzzi & Margarido, 2024; Zhang et al., 2023).

3.2. Shared Agency and Collaborative Goal-Setting

Research demonstrates that shared agency—where both human and AI have meaningful influence over creative outcomes—leads to higher user satisfaction, creative self-efficacy, and more innovative results (McGuire et al., 2024; Rezwana & Maher, 2022; Moruzzi & Margarido, 2024; Zhang et al., 2023; Issak et al., 2025; Rezwana & Maher, 2022). Collaborative goal-setting, where humans and AI jointly define objectives and criteria, is shown to foster deeper engagement and more diverse creative exploration (Rezwana & Maher, 2022; Zhou et al., 2024; Shen et al., 2025; Cao et al., 2025).

3.3. Comparative Outcomes and User Experience

Empirical studies reveal that:

- Co-creative and mixed-initiative models outperform supervision-based approaches in terms of creative quality, diversity, and user engagement (Boussioux et al., 2024; Rezwana & Maher, 2022; McGuire et al., 2024; Hosanagar & Ahn, 2024; Zhang et al., 2023; Issak et al., 2025; Moruzzi & Margarido, 2024; Rezwana & Maher, 2022; Zhou et al., 2024; Kim & Maher, 2023).
- Human-AI partnerships that emphasize communication, transparency, and flexible role negotiation are perceived as more reliable and intelligent (Rezwana & Maher, 2022; Lawton et al., 2023; Rezwana et al., 2021).
- The design of interaction models (e.g., real-time collaboration, iterative feedback, embodied agents) significantly impacts user perceptions of agency and partnership (Rezwana & Maher, 2022; Lawton et al., 2023; Lin et al., 2020; Rezwana et al., 2021).

3.4. Challenges and Design Considerations

Key challenges include balancing control and initiative, mitigating biases, ensuring ethical and inclusive collaboration, and supporting personalization (Vinchon et al., 2023; Rezwana & Maher, 2022; Moruzzi & Margarido, 2024; Zhang et al., 2023; Issak et al., 2025; Abuzuraiq & Pasquier, 2024; McGuire et al., 2024). Frameworks such as COFI (Rezwana & Maher, 2022), MOSAIC (Issak et al., 2025), and user-centered models (Moruzzi & Margarido, 2024) provide actionable guidelines for designing effective co-creative systems.

Key Papers

Paper	Model/Framework	Domain	Main Contribution	Sample/Method
(Rezwana & Maher, 2022)	COFI Framework	Co-creative systems	Categorizes interaction models, highlights communication and shared agency	92 systems analyzed
(McGuire et al., 2024)	Experimental study	Poetry writing	Shows co-creation (not editing) with AI boosts creativity and self-efficacy	2 experiments
(Issak et al., 2025)	MOSAIC Framework	Computational creativity	Balances autonomy, authority, initiative in co-creation	Systematic review (172 papers)
(Moruzzi & Margarido, 2024)	User-centered framework	Mobile co-creation	Identifies dimensions of agency/control, proposes customization tool	Framework + prototype
(Zhang et al., 2023)	Three-level framework	Sculpture design	Flexible AI involvement, user-adjustable levels	Prototype + user study

FIGURE 2 Comparison of key studies on alternative human-AI partnership models.

Top Contributors

Type	Name	Papers
Author	M. Maher	(Rezwana & Maher, 2022; Moruzzi & Margarido, 2024; Kim et al., 2021; Rezwana & Maher, 2022; Kim & Maher, 2023)
Author	Jeba Rezwana	(Rezwana & Maher, 2022; Rezwana & Maher, 2022; Issak et al., 2025; Rezwana et al., 2021)
Author	Jingoog Kim	(Kim et al., 2021; Kim & Maher, 2023)
Journal	<i>Proceedings of the CHI Conference on Human Factors in Computing Systems</i>	(Zhou et al., 2024; Han et al., 2024; Liu et al., 2023; Shen et al., 2025; Cao et al., 2025)
Journal	<i>ArXiv</i>	(Haase & Pokutta, 2024; Hosanagar & Ahn, 2024; Davis & Rafner, 2025; Ding & Chan, 2023)
Journal	<i>The Journal of Creative Behavior</i>	(Tang et al., 2024; Vinchon et al., 2023)

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

4. Discussion

The reviewed literature demonstrates a clear trend toward partnership models that move beyond the limitations of supervision-based HITL paradigms, enabling richer forms of shared agency and collaborative goal-setting in creative tasks (Rezwana & Maher, 2022; McGuire et al., 2024; Issak et al., 2025; Moruzzi & Margarido, 2024; Zhang et al., 2023; Rezwana & Maher, 2022; Zhou et al., 2024; Kim & Maher, 2023). High-quality frameworks such as COFI and MOSAIC provide robust theoretical and practical foundations for designing such systems, emphasizing the importance of communication, flexible control, and mutual initiative (Rezwana & Maher, 2022; Issak et al., 2025). Empirical studies consistently show that co-creative and mixed-initiative models yield superior creative outcomes and user experiences compared to traditional approaches (Boussieux et al., 2024; McGuire et al., 2024; Hosanagar & Ahn, 2024; Zhang et al., 2023; Rezwana & Maher, 2022; Zhou et al., 2024; Kim & Maher, 2023). However, challenges remain in balancing autonomy, ensuring ethical collaboration, and supporting personalization and inclusivity (Vinchon et al., 2023; Moruzzi & Margarido, 2024; Abuzuraiq & Pasquier, 2024; Issak et al., 2025). The field is still developing standardized metrics and best practices for evaluating shared agency and collaborative goal-setting, and more longitudinal and domain-specific studies are needed.

Claims and Evidence Table







Claim	Evidence Strength	Reasoning	Papers
Co-creative and mixed-initiative models enhance creative quality and user satisfaction over supervision-based approaches	 Strong	Multiple experiments and reviews show higher creativity, satisfaction, and diversity in co-creative settings	(Rezwana & Maher, 2022; McGuire et al., 2024; Hosanagar & Ahn, 2024; Zhang et al., 2023; Rezwana & Maher, 2022; Zhou et al., 2024; Kim & Maher, 2023)
Shared agency and collaborative goal-setting foster deeper engagement and innovation	 Strong	User studies and frameworks highlight increased engagement, self-efficacy, and creative exploration	(Rezwana & Maher, 2022; Moruzzi & Margarido, 2024; Zhang et al., 2023; Issak et al., 2025; Rezwana & Maher, 2022; Shen et al., 2025; Cao et al., 2025)
Effective communication and flexible control are critical for successful human-AI partnerships	 Strong	Design frameworks and user studies emphasize the need for two-way communication and adaptable roles	(Rezwana & Maher, 2022; Rezwana & Maher, 2022; Issak et al., 2025; Moruzzi & Margarido, 2024; Rezwana et al., 2021)
Personalization and adaptive systems support user agency and ownership	 Moderate	Emerging research shows personalized AI models increase sense of control and creative ownership	(Abuzurairq & Pasquier, 2024; Moruzzi & Margarido, 2024; Zhang et al., 2023)
Challenges remain in balancing autonomy, mitigating bias, and ensuring ethical collaboration	 Moderate	Reviews and position papers identify ongoing issues in control, bias, and inclusivity	(Vinchon et al., 2023; Issak et al., 2025; Moruzzi & Margarido, 2024; Abuzurairq & Pasquier, 2024)
Standardized evaluation metrics for shared agency are underdeveloped	 Weak	Few studies provide robust, generalizable metrics for agency and goal-setting in co-creative systems	(Issak et al., 2025; Moruzzi & Margarido, 2024; Margarido et al., 2024)

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

5. Conclusion

Alternative human-AI partnership models—especially those emphasizing shared agency and collaborative goal-setting—offer significant advantages over traditional supervision-based paradigms in open-ended creative tasks. These models foster greater innovation, user satisfaction, and creative diversity, but require careful design to balance control, communication, and ethical considerations.

5.1. Research Gaps

Despite progress, gaps remain in the standardization of evaluation metrics, long-term studies of shared agency, and the development of domain-specific best practices for collaborative goal-setting and personalization.

Research Gaps Matrix

Topic/Model	Design Frameworks	User Studies	Longitudinal Studies	Personalization	Evaluation Metrics
Co-creative frameworks	7	8	1	2	2
Mixed-initiative systems	5	4	1	1	1
Human-AI teaming	3	3	GAP	1	GAP
Personalization/adaptive AI	2	2	GAP	3	GAP
Evaluation/metrics	1	1	GAP	GAP	2

FIGURE 5 Heatmap of research coverage and gaps by topic and study attribute.

5.2. Open Research Questions

Future research should focus on developing robust evaluation metrics, exploring long-term impacts of shared agency, and designing domain-specific, personalized co-creative systems.

Question	Why
How can we robustly measure shared agency and collaborative goal-setting in human-AI creative partnerships?	Standardized metrics are needed to compare models, guide design, and assess user experience across domains.
What are the long-term effects of shared agency on user creativity, satisfaction, and skill development?	Longitudinal studies will reveal whether co-creative partnerships sustain or erode human creative abilities over time.
How can co-creative AI systems be effectively personalized to support diverse user needs and creative domains?	Personalization is key to maximizing user agency, ownership, and creative potential in varied contexts.

FIGURE 6 Open research questions for future work on human-AI creative partnerships.

In summary, the field is moving toward richer, more collaborative human-AI partnerships, but further research is needed to standardize evaluation, support personalization, and understand long-term impacts.

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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