Negotiated Augmentation: How Generative AI Reshapes Creative Workflows, Agency, and Authorship in Architecture and Design

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Abstract

Over the past four decades, digital tools have reshaped creative practice, progressively reconfiguring the human-technology nexus through which designers ideate, decide, and innovate. The emergence of generative artificial intelligence (GenAI), including large language models and multimodal image generators, marks a new phase in this technological trajectory, introducing linguistic prompting and rapid synthesis into early design work. This paper presents findings from a qualitative study (N = 20) in which architects and experience designers completed a time-bounded conceptual design task using think-aloud protocols, followed by semi-structured interviews and analysis of design artefacts. Through a multi-stage qualitative content analysis, grounded in interpretivist, practice-based human-computer interaction research, we examine how professionals integrate GenAI during early-stage ideation and how these tools influence workflow, creativity, cognitive effort, and perceptions of agency and authorship. The findings show that GenAI expands early ideation and accelerates routine or information-seeking tasks, but also introduces new cognitive workload related to prompting, verification, and style alignment. Participants negotiated when and how AI could enter their workflow, expressed ambivalence about authorship when starting with AI-generated material, and highlighted client-facing risks around disclosure and trust. The pilot study, part of a broader project, contributes to interdisciplinary debates on human-AI collaboration and innovation by empirically conceptualising GenAI not as an autonomous creative agent, but as a negotiated socio-technical actor that reshapes authorship, responsibility, and professional identity.

1 Introduction

Creative disciplines such as architecture and experience design have historically relied on hand sketching, physical prototyping, and iterative co-creation. Over the past decades, the adoption of computer-aided design (CAD), building information modelling (BIM), and digital fabrication has gradually shifted these workflows toward computational environments (Picon, 2010; Oxman, 2017; Norman, 2013). The recent rise of generative artificial intelligence (GenAI) represents the latest transformation in this trajectory. Large language models (LLMs) such as OpenAI - ChatGPT and multimodal diffusion models like Midjourney or DALL·E can translate linguistic prompts into conceptual sketches, generate rapid design variations, and support early framing of a brief (Chandrasekera et al., 2024; Barbieri & Muzzupappa, 2024; Kumar et al., 2025).

While these systems promise new forms of ideation and increased efficiency, their integration raises fundamental questions about creativity, authorship, agency, and professional identity. Prior work in human-computer interaction (HCI) and design research has examined AI-assisted ideation, biases in algorithmic outputs, and the dynamics of human-AI co-creation (Kim & Maher, 2023; Buçinca et al., 2021; Shi et al., 2023; Yu, 2025). However, existing studies predominantly focus on either single disciplines or specific interaction modalities, leaving a gap in understanding how different design professions incorporate GenAI in early-stage creative tasks. Recent work has begun to surface the human and organisational implications of data-driven and AI-mediated design, highlighting tensions between

efficiency, creativity, and invisible human factors embedded in computational systems (Kumar & Zallio, 2025; Kumar et al., 2025). In parallel, research on inclusive and human-centred emerging technologies has argued that AI systems should be evaluated not only for performance, but for how they redistribute access, inclusion, agency, responsibility, and ethics across sociotechnical contexts (Zallio & Clarkson, 2022a; Zallio & Clarkson, 2024; Zallio et al., 2025). Yet, empirical studies examining how these tensions are negotiated in real-time creative practice remain limited.

This paper addresses this gap by examining how architects and experience designers integrate GenAI tools during a controlled design task, combining think-aloud protocols, design artefacts, and semi-structured interviews. Our analysis focuses on how GenAI reshapes early ideation processes, influences perceptions of agency and authorship, and alters temporal and cognitive dynamics of design. To examine how GenAI reshapes innovation practices at the human-technology interface, we address the following research questions (RQs):

RQ1 (Process evolution)

How are GenAI and emerging technologies transforming the ideation processes and workflows in architecture and experience design?

RQ2 (Creative process)

What implications do GenAI have for creativity and the future of creative practice in architecture and experience design?

RQ3 (Comparative dynamics)

How do GenAI-mediated workflows differ between architects and experience designers?

RQ4 (Input modalities)

How does the shift from visual/tactile inputs to linguistic/multimodal prompting affect ideation and decision-making in architecture and experience design?

RQ5 (Agency and authorship)

How does working with GenAI influence architects' and designers' perceptions of agency and authorship in the design process?

RQ6 (Temporal and cognitive effect)

What cognitive demands and time-allocation patterns emerge when architects and experience designers work with GenAI?

By situating our study within broader conversations on AI-augmented creativity and human-AI collaboration in design, this work provides empirical insight into how GenAI is reshaping professional

creative workflows. Our contributions are:

- A qualitative, cross-disciplinary study assessing how architects and experience designers engage with GenAI during real-time early-stage design.
- Early findings into ideation, cognitive effort, and authorship, showing how GenAI affects creative direction-setting, decision-making, and perceived ownership.
- Implications for design theory, tool development, and education, emphasising how GenAI can be integrated in ways that enhance creativity while preserving professional identity.

For this study, we conceptualize GenAI not as an autonomous creative agent, but as a negotiated socio-technical actor that reshapes authorship, agency, and professional identity in creative work. Beyond interaction design and HCI perspectives, this study contributes to broader debates on creativity, labour, and authorship in AI-mediated professional work.

2 Related Work

This section reviews prior scholarship across three areas central to our study. First, we outline the historical evolution of digital tools in architecture and experience design, situating GenAI within a longer trajectory of technological change. Then we examine how GenAI is currently used in creative and knowledge-intensive work, highlighting its impact on ideation, representation, and professional workflows. Finally, we focus on human-AI collaboration and the societal impact, synthesising literature on agency, authorship, and the organisational and ethical dynamics that arise when designers work alongside generative systems.

2.1 Digital tools for creative professions

Over the past four decades, the creative practices of architects and experience designers have been profoundly shaped by successive waves of digital technologies. The introduction of computer-aided design (CAD) in the 1980s and 1990s replaced labour-intensive manual drafting with computational precision, enabling rapid iterations and large-scale coordination (Picon, 2010). In architecture, the rise of building information modelling (BIM) provided an integrated framework for coordinating design, engineering, and construction, while parametric modelling platforms such as Rhino Grasshopper offered new possibilities for form exploration and generative workflows (Oxman, 2017). Similarly, in experience and interaction design, the emergence of digital prototyping tools such as Adobe Creative Suite, Figma, and Sketch facilitated low- and high-fidelity design exploration, collaborative workflows, and rapid usability testing.

These digital advances not only accelerated production but also reshaped professional cultures. Scholars have argued that computational tools introduced new epistemologies of design, privileging data-driven decision-making, simulation, and optimization (Kvan, 2004). While these tools expanded designers' capabilities, they also redefined what counts as creativity, shifting the focus from manual

craft toward computational fluency and the ability to navigate increasingly complex digital ecosystems (Oxman, 2017). In both architecture and experience design, digital technologies have thus acted as more than neutral instruments: they actively structure the design process, influence decision-making, and mediate the relationship between designers, clients, and end users. This view aligns with inclusive and human-centred design scholarship, which frames design tools as socio-technical infrastructures shaping who participates, whose knowledge counts, and how decisions are justified. The Inclusive Design Canvas, for example, conceptualises design as a distributed negotiation across human abilities, needs, and organisational constraints, rather than a purely technical optimisation problem (Zallio & Clarkson, 2022b).

Beyond enabling efficiency or precision, digital tools actively shape how knowledge is produced, validated, and communicated within creative practice. From this perspective, tools function not merely as neutral instruments but as epistemic mediators that influence what designers attend to, how problems are framed, and which forms of reasoning are legitimised. In architecture and experience design, the transition from hand sketching to CAD, parametric modelling, and digital prototyping has progressively shifted epistemic authority toward computational representations, simulations, and data-driven justification. GenAI extends this trajectory by introducing probabilistic synthesis and pattern-based generation into early ideation, altering not only what designers produce but how they come to know, test, and justify design ideas. Understanding GenAI therefore requires moving beyond questions of productivity or creativity to examine how these systems reconfigure epistemic practices, including sensemaking, evaluation, and the distribution of judgment between human expertise and computational output. This study situates itself within this historical lineage of digital transformation in creative professions, asking how GenAI extends, disrupts, or reconfigures existing design workflows in architecture and experience design.

2.2 GenAI and knowledge work

GenAI has become increasingly embedded in knowledge-intensive and creative domains, with tools such as LLMs and diffusion-based image generators widely adopted to augment ideation, analysis, and communication. Unlike earlier forms of automation, which primarily focused on efficiency and routine task execution, GenAI systems can produce novel text, images, and multimodal content that can shape the direction of knowledge work itself (Brown et al., 2020). These affordances position GenAI not merely as a productivity enhancer but as a co-creative partner in professional practice, leveraging data-informed approaches and cloud computing (Kumar & Zallio, 2025).

Recent studies highlight its growing use across diverse professional fields, from software and interface design (Kim & Maher, 2023; Zhang et al., 2023) to architecture and product development (Chandrasekera et al., 2024; Barbieri & Muzzupappa, 2024). In these contexts, GenAI tools enable practitioners to externalize and iterate ideas more rapidly than traditional methods, offering computational support for both divergent exploration and convergent refinement of concepts (Kumar et al., 2025). At the same time, empirical work shows uneven adoption across stages of professional workflows: prototyping and visual generation have seen high uptake, while early conceptualization and evaluation processes remain

comparatively underexplored (Li et al., 2025). A recent systematic review of GenAI in UI/UX and creative workflows synthesised evidence showing that AI tools primarily reshape early-stage ideation, research, and sensemaking, while leaving final decision-making and authorship largely human-led (Kumar et al., 2025). However, the review also identified a lack of in-situ qualitative studies capturing how these dynamics unfold in real-time creative practice, particularly across different design disciplines.

The introduction of GenAI into knowledge work also raises fundamental questions about authorship, decision-making, and methodological rigor. Scholars caution that while AI-generated outputs may accelerate workflows, they also risk narrowing creative diversity or embedding hidden biases from training data (Doshi & Hauser, 2024; Binns, 2018). This has fuelled growing interest in frameworks for human-AI collaboration that balance efficiency with transparency and agency (Shi et al., 2023; Yu, 2025). Moreover, organisational perspectives show that adoption is not only a technical issue but also a cultural and ethical one, requiring new professional norms and responsible integration strategies (Holmström & Carroll, 2024; Ghafoori et al., 2025).

2.3 Human-AI collaboration in creative practice and social impact

Human-AI collaboration has emerged as a central theme in recent scholarship on GenAI in creative and knowledge-intensive work. Unlike earlier forms of automation, where human input was confined to oversight or error correction, generative systems now take on roles traditionally associated with human creativity, such as idea generation, visual representation, and narrative framing (Lee, 2025; Yu, 2025). This shift has prompted new theoretical debates about the balance of agency between humans and AI, as well as practical concerns about how to structure workflows where computational and human contributions are interdependent.

Empirical studies demonstrate that human-AI collaboration is often unevenly distributed across different phases of the design process. Designers tend to employ AI tools more readily for repetitive or technically demanding tasks, such as producing visual assets or synthesizing textual inputs, while reserving higher-order judgment, contextual interpretation, and ethical decision-making for themselves (Shi et al., 2023; Chandrasekera et al., 2024). This division of labor has led to proposals for “human-in-the-loop” frameworks, which explicitly delineate roles and responsibilities between human practitioners and AI systems (Holzinger, 2016). However, these frameworks remain relatively underdeveloped in creative practice, where the boundaries between inspiration, authorship, and decision-making are often fluid.

At the same time, collaboration with AI raises epistemological and professional questions about authorship and ownership. Studies have found that designers sometimes accept AI-generated outputs uncritically, particularly when those outputs appear polished or professional (Raji et al., 2020). This over-reliance can obscure the influence of training data and algorithmic biases, producing what Buçinca et al. (2021) describe as “automation bias” in creative decision-making. Conversely, other research highlights the potential of AI to act as a provocateur, challenging human designers to reconsider assumptions and explore alternative directions they might not have pursued independently (Kim & Maher, 2023; Kumar et

al., 2025). These dual dynamics, i.e., over-reliance and provocation, reveal the need for new conceptualizations of co-creation that go beyond simple augmentation or substitution.

Collaboration with AI also extends to team-level and organisational dynamics. In collective settings, AI tools may accelerate communication and coordination by generating shared visual or textual references, but they can also complicate collaboration when outputs reflect cultural biases or lack contextual nuance (Figoli et al., 2022; Holmström & Carroll, 2024). Current tools are largely optimized for individual use, offering limited support for multi-stakeholder processes such as design reviews, participatory workshops, or client negotiations. This gap highlights the importance of designing GenAI systems that are not only technically capable but also socially legible, i.e., able to communicate their reasoning, limitations, and provenance in ways that support trust and accountability among diverse stakeholders (Binns, 2018; Sánchez Chamorro et al., 2023). From an ethical and governance perspective, recent frameworks such as IDEAS (Inclusion, Diversity, Equity, Accessibility, and Safety) argue that AI systems must be evaluated through their impact on human agency, trust, and social responsibility, not solely on efficiency or novelty (Zallio et al., 2025).

Finally, the literature emphasizes that human-AI collaboration is not a static arrangement, but an evolving relationship shaped by experience, training, and institutional norms. Longitudinal studies suggest that as practitioners gain familiarity with generative tools, their perceptions of agency and authorship may shift, leading to new hybrid practices that combine human creativity with machine-generated content in novel ways (Polyportis, 2024). However, there is little consensus on what “good” collaboration looks like in practice. Some advocate for strong human oversight and minimal delegation (Holzinger, 2016), while others envision distributed forms of authorship where human and machine contributions are co-constitutive (Yu, 2025). What is clear is that collaboration with AI in creative domains cannot be reduced to questions of efficiency alone; it also involves complex negotiations of responsibility, creativity, and professional identity.

In the context of architecture and experience design, these dynamics are particularly salient. Both disciplines rely on iterative, collaborative, and often interdisciplinary processes where authorship is already distributed among multiple actors. The introduction of GenAI further complicates these dynamics, raising new questions about how design teams negotiate ownership, maintain creative integrity, and integrate computational suggestions into workflows traditionally grounded in human expertise and tacit knowledge.

Across this literature, a central tension remains unresolved. On one hand, studies on automation bias warn that designers may over-trust AI-generated outputs, accepting them uncritically and allowing algorithmic suggestions to narrow creative diversity or obscure responsibility. On the other hand, emerging accounts frame generative systems as creative provocateurs: tools that disrupt habitual thinking, surface unexpected alternatives, and expand conceptual exploration beyond human preconceptions. These competing perspectives raise a critical question for creative practice: whether GenAI primarily constrains design agency through subtle forms of automation, or whether it

meaningfully augments creativity by challenging designers' assumptions. Existing research rarely examines how this tension is negotiated in situated professional workflows, where issues of authorship, client trust, and accountability are at stake. Therefore, the present study addresses this gap by empirically investigating how architects and experience designers navigate between automation bias and provocation when integrating GenAI into early-stage creative work.

3 Methods

This study adopts an interpretivist, practice-based research perspective, treating creative work as a situated, socially mediated activity rather than a purely technical process. The aim of this study is not to evaluate the performance or efficiency of GenAI tools, but to understand how creative professionals make sense of, negotiate, and integrate GenAI within their everyday design practice. Accordingly, participants' verbal accounts, design artefacts, and reflections are analysed as expressions of professional judgment, identity, and epistemic reasoning, rather than as objective measures of creativity or output quality. In the following subsections, we detail the study design, including participant recruitment and characteristics, the session procedure, and our data collection and analysis approach.

3.1 Participants

We recruited 20 creative professionals across two disciplines: architecture (n = 9) and experience design (n = 11). Participants were early- to mid-career practitioners (2–15 years of experience), with two senior participants (> 15 years). Recruitment was conducted through professional networks, LinkedIn outreach, and snowball sampling, enabling access to practitioners actively engaged in contemporary design workflows. Participants demonstrated varied familiarity with generative AI, ranging from expert users to those with no prior experience, allowing us to capture diverse perspectives on GenAI adoption in practice.

The sample showed balanced demographic diversity. Gender distribution included 40% male, 55% female, and 5% prefer not to say. Ages ranged across 18–24 (14%), 25–29 (9%), 30–39 (55%), 40–49 (14%), and 50–59 (9%). Ethnic backgrounds included Asian (18%), Black (9%), Hispanic/Latino (9%), White (59%), and prefer not to say (5%). Education levels ranged from high school (18%) to bachelor's (27%), master's (45%), and doctorate (9%). Employment included full-time (55%), part-time (18%), freelance (14%), self-employed (5%), student (5%), and other (5%).

Participants commonly initiated design tasks through hand sketching (48%), verbal briefing (24%), or digital sketching/CAD (20%), with 10% typically beginning with AI prompting. Prior GenAI use included ChatGPT (76%), DALL·E (52%), Midjourney (43%), and RunwayML (14%). Attitudes toward AI in creative design were generally positive (M = 4.1/5), and participants reported moderate comfort designing under time constraints (M = 3.6/5). Primary motivations in their design work were problem-solving (38%), creativity (24%), and efficiency (24%).

3.2 Procedure

The time-bounded design task was intentionally structured to capture early-stage ideation and problem framing, where creative decisions are most fluid and epistemically revealing. Early design stages are particularly sensitive to the introduction of new tools, as they involve exploratory reasoning, uncertainty management, and the establishment of conceptual direction (Kumar, T. et al, 2025).

Data collection took place between July and October 2025. Each study session was conducted remotely using an online meeting platform and lasted approximately 60 minutes, with participants joining from their respective locations (e.g., home offices or workplaces). Sessions were moderated by one of four researchers based in Finland and the United Kingdom, following a shared, standardized facilitator protocol (see *Appendix A*) to ensure consistent instructions, task framing, and participant support across sessions. Sessions began with a short introduction, reconfirmation of informed consent, previously obtained in accordance with the University's Research Ethics guidelines, and a technical check of audio, video, and recording tools. Participants then completed a short pre-task survey administered through Qualtrics, which collected demographic information, professional background, and self-reported familiarity with GenAI tools. Following this, participants undertook the design task, which lasted around 30 minutes. Architects were asked to develop a workplace concept that enhances physical and mental well-being in hybrid or remote settings, while experience designers were tasked with conceptualizing a digital experience, such as an app or web interface, addressing similar concerns. Both tasks were divided into three sequential subtasks, namely problem framing, ideation, and preliminary articulation, to capture different stages of early conceptual development. Participants were encouraged to use a think-aloud protocol throughout their work, verbalizing their reasoning, hesitations, and inspirations as they progressed.

Upon completing the design task, a semi-structured interview (approximately 20 minutes) was conducted to probe participants' reflections in greater depth. The interview focused on the study's six RQs, addressing themes of workflow, creativity, authorship, and tool interaction, while also allowing participants to elaborate on notable moments observed by the moderators during the task. Each session concluded with an open discussion and an opportunity for participants to ask questions. All sessions were screen-recorded. Design artefacts (sketches, screenshots, textual outputs) were collected and linked to participant transcripts. All information collected has been anonymised according to the research ethics and GDPR guidelines.

3.4 Data Collection and Analysis

The study generated multiple qualitative data sources that capture complementary dimensions of creative practice, including in-situ reasoning (think-aloud), retrospective sensemaking (interviews), and material traces of design thinking (artefacts). Short Likert-type survey scales (e.g., creativity, satisfaction, cognitive effort, tool comfort) were used only as prompts for reflection and triangulation, not for quantitative comparison. Items were connected to key inquiry areas such as creativity, tool interaction, cognitive load, authorship, and workflow transformation, but were analysed qualitatively as part of participants' verbalised reasoning. Think-aloud protocols were used not to capture internal

cognition in isolation, but to elicit participants' reflective reasoning as they navigated design decisions, tool use, and moments of uncertainty within their professional practice.

Our qualitative analysis was guided by principles of qualitative content analysis and thematic analysis, with an emphasis on interpretive depth rather than frequency or quantification. Coding served as an analytic scaffold to surface patterns of meaning across participants' accounts, while interpretation focused on how designers articulated agency, authorship, trust, and professional judgment in relation to GenAI. All qualitative data were analysed using the software NVivo (version 15.3) following a multi-stage qualitative content analysis (QCA) process (Elo & Kyngäs, 2008), as illustrated in Fig. 1, drawing on shared principles with thematic analysis (Terry et al., 2017), e.g., iterative coding, constant comparison.

Two researchers independently reviewed all transcripts and open responses, generating an initial set of 13 deductive codes, which served as analytical anchors for early pattern recognition. These initial codes captured key domains relevant to GenAI-mediated design practice. The 13 codes are workflow, ideation, creativity, GenAI use, technology, inputs, decision-making and prioritisation, agency, ownership/authorship, perception, client dynamics, cognitive load, and time (as shown in Fig. 1, step 1). Both researchers conducted a second round of open coding, adding inductive codes to capture nuances not reflected in the initial scheme. This phase expanded the codebook to 41 inductive codes (as shown in Fig. 1, step 2). Through iterative discussion, researchers compared, merged, and refined these codes using constant comparison. Conceptually similar codes were grouped into broader categories, resulting in eight interrelated analytical themes that capture the key recurring patterns in participant accounts. These themes form the basis of the Results section (as shown in Fig. 1, step 3).

Design artefacts and survey comments were used to contextualize participants' verbal reflections. Cross-case comparisons (architecture vs. experience design; different experience levels; differing GenAI familiarity) were performed qualitatively to identify recurring vs. divergent patterns.

While coding supported systematic engagement with the dataset, the themes reported in the results represent interpretive constructs rather than exhaustive taxonomies of participant responses.

Notably, while GenAI tools were the object of study, no AI systems were used to generate, code, or interpret qualitative data. Instead, all coding, theme development, and interpretive decisions were conducted by human researchers. This distinction is critical to avoid conflating AI-mediated creative practice with AI-mediated research interpretation, ensuring epistemic transparency and methodological rigor.

4 Results

This section reports the results of the study from qualitative analysis of think-aloud protocols, interview data, and design artefacts. We first provide an overview of the qualitative analysis and theme structure, including visual mappings between RQs, themes, and their relative prominence. We then present eight

analytical themes in turn; each illustrated with representative participant statements to ground the analysis in situated professional practice.

4.1 Overview

The qualitative analysis generated 41 inductive codes, which were consolidated into eight interrelated analytical themes capturing how GenAI shapes early-stage creative practice across architecture and experience design.

Figure 2 provides an interpretive map linking each RQ to the themes that primarily address it, along with the key insight each theme contributes. Below, we present each theme with its summary description, supporting statements. The full mapping of the eight themes and their corresponding quotes and codes are included in *Appendix B*.

To contextualise the prominence of each theme before presenting detailed findings, Fig. 3 visualises the relative prominence of themes in the dataset. Each bubble represents one theme, sized by the total number of coded references aggregated from its constituent codes and inner segmentation showing contributions from architects and designers. In this view, themes such as Workflow Integration & Efficiencies, Tool Limitations & Quality Issues, and Agency & Authorship appear as the most frequently referenced, while themes like Cognitive Load and Client Dynamics & Disclosure are less frequent but still salient.

4.2 Agency and Authorship

Participants consistently framed authorship as a non-negotiable boundary of professional identity, positioning GenAI as an assistant that may enrich creative work and should not originate conceptual intent.

Authorship emerged as the most emotionally and professionally charged issue across the dataset. Participants repeatedly distinguished between human-led creativity and computational assistance, expressing some discomfort with initiating design work only using AI-generated material. Several architects argued that starting with GenAI undermined their sense of ownership. As one participant explained:

“If you’re doing [AI] since the beginning, then it’s not your work. If you’re doing it in the middle of the process… on the technical aspects, it’s helpful.” (P19)

Participants emphasised that creative intent must remain human-led, with GenAI supporting rather than replacing conceptual reasoning. As P19 further noted, *“the human touch in the creativity part is essential,”* while technical aspects were seen as more amenable to automation. Many described deliberately sequencing their workflows to protect authorship, beginning with hand sketching, personal reflection, or offline reasoning before introducing GenAI for enrichment or support.

Across both disciplines, GenAI was accepted as a mean of expanding or refining ideas, but not as the source of “the idea” itself. These boundaries were articulated regardless of participants’ familiarity with AI tools, indicating that resistance to AI-initiated authorship reflects shared professional norms rather than lack of technical confidence. Overall, GenAI was permitted entry into the workflow only after designers had established conceptual direction, reinforcing strong boundaries around agency and ownership.

4.3 Client Dynamic and Disclosure

Client relationships emerged as a key site where GenAI challenged professional legitimacy, shaping whether and how designers disclosed AI involvement. Participants described adjusting their disclosure strategies based on perceived client expectations and risk. Experience designers tended to be more transparent, framing AI-generated visuals as exploratory artefacts rather than final outputs. As one participant explained:

“I would be very open about AI… some of these images are generated from AI… it’s to give the idea.” (P7)

By contrast, architects expressed concern that acknowledging AI use could undermine credibility. One participant described intentionally concealing AI involvement during presentations:

“If we present to our clients… and it’s made by AI, they will skip that idea… they prefer something that has been thought by an architect.” (P19)

These contrasting strategies highlight how GenAI challenges professional legitimacy differently across disciplines, even when workflows are otherwise similar. Several participants noted that disclosure practices also varied by project stage, with AI use more acceptable during early exploration but less so in formal presentations. Overall, perceptions of AI legitimacy were shaped not only by individual attitudes but by disciplinary accountability regimes, liability concerns, and client-facing risk structures. GenAI thus becomes entangled with professional identity and trust, extending beyond internal workflow considerations.

4.4 Cognitive Load

Cognitive load is used here as a phenomenological construct, referring to participants’ perceived mental effort and attentional demands rather than experimentally measured workload.

Participants consistently reported that GenAI did not reduce cognitive effort; instead, it introduced new forms of mental work. Designers described increased effort associated with crafting prompts, evaluating outputs, and verifying accuracy. As one participant noted:

“You need to check what is coming out of the GenAI.” (P1)

Several participants described the cognitive cost of tool complexity. For example, P7 reflected that while image generators produced high-quality visuals, they required significant effort to understand and

control:

It gives me better images, but it's the harder platform to understand… you can only spend a certain amount of time doing that.

Others explicitly rejected the idea that GenAI reduces workload:

"You are not doing less work." (P19)

Participants also described a state of heightened vigilance, where speed gains were offset by the need for constant oversight. Taken together, these accounts indicate that GenAI reconfigures cognitive effort rather than eliminating it, shifting work from idea generation toward judgment, verification, and interpretation.

4.5 Workflow Integration and Efficiency

GenAI was consistently integrated as a workflow accelerator rather than a decision-maker, reducing friction in routine tasks while leaving core design reasoning intact. Participants described using GenAI to support activities such as background research, regulatory checks, justification of design decisions, layout generation, and early-stage prototyping. In experience design contexts, this included rapid wireframing and accessibility checks, while architects referenced zoning, code compliance, and precedent exploration. As one participant explained:

"Using ChatGPT to help me justify some design options." (P13)

"With Figma… wireframe quicker; plugins for accessibility checks." (P2)

Despite these efficiencies, participants were careful to position GenAI as complementary rather than substitutive. Many described sketching, reasoning, or discussing ideas with colleagues before introducing AI tools. As P6 noted, *"First draw by hand, and then I use the AI," emphasising that GenAI entered the process after initial intent was established.*

Efficiency gains were also described as uneven and context dependent. When prompts required extensive iteration, or when outputs failed to align with project constraints, time savings diminished. Several participants reported abandoning AI tools in such cases and reverting to conventional methods. As one designer explained, *AI "just speeds it up, but rarely delivers final outputs without refinement" (P7).*

Overall, GenAI reduced friction in routine or repetitive tasks, while core decision-making, prioritisation, and conceptual framing remained firmly human-led. Participants consistently described efficiency as acceleration within existing workflows rather than a restructuring of design responsibility.

4.6 Ideation Quality and Diversity

Participants widely reported that GenAI expanded ideation breadth by enabling rapid exploration of alternatives and variations. Several designers described using GenAI to surface unexpected directions or

visual interpretations that they might not have considered independently. As one participant noted:

“Sometimes it’s more than I expected.” (P3)

Beyond ideation, GenAI was also used to support sense-checking and verification, particularly for technical or regulatory considerations. One architect described using AI to confirm feasibility before pursuing a direction further:

“You can check if something you want to build is legal.” (P19)

At the same time, participants expressed caution about over-reliance on AI-generated ideas. Some reported recognising recurring visual tropes or conceptual patterns across outputs, raising concerns about homogenisation. Others described discovering subtle inaccuracies or shifts in meaning when reviewing AI-generated content, particularly when outputs were not read carefully:

“When I would not read something, I discovered that it changed the meaning.” (P1)

As a result, designers emphasised the need to actively curate and reinterpret AI-generated material. GenAI was valued as an ideation amplifier that broadened conceptual space, but it remained dependent on human judgment to filter, refine, and contextualise ideas within a coherent design narrative.

4.7 Tool Limitations and Quality Issues

Despite enthusiasm for efficiency and exploration, participants reported multiple limitations that constrained the usability of GenAI outputs in professional contexts. A recurring concern related to stylistic mismatch. AI-generated visuals often failed to align with personal, organisational, or client-specific aesthetics, limiting their direct applicability. As one participant explained:

“I can’t put that in a presentation… it’s not styled the way we style things.” (P10)

Participants also highlighted issues related to accuracy, controllability, and transparency. Some described difficulties understanding why certain outputs were generated, while others noted inconsistencies across iterations. Several expressed a desire for clearer interfaces, better prompting guidance, and formal training to improve effective use:

“I know it will help me a lot if I know how to work with that.” (P13)

These limitations shaped how GenAI outputs were treated in practice. Rather than being integrated directly into deliverables, AI-generated artefacts were often used as disposable prompts or intermediate references. Analytically, these accounts indicate that current GenAI tools remain poorly aligned with the tacit, stylistic, and contextual knowledge that underpins professional design expertise.

4.8 Trust in GenAI

Trust in GenAI remained conditional and fragile, shaped by concerns over hallucination, recognisability, and ethical implications. Participants frequently described the need to verify outputs, particularly when AI-generated content appeared plausible but uncertain. As one participant noted:

“Since they have hallucinations… I cannot choose 100%.” (P16)

Others expressed scepticism regarding the recognisability of AI-generated material, suggesting that outputs were often visually or linguistically identifiable as machine-produced:

“It’s always easy to see that this is made by ChatGPT.” (P1)

In addition to technical concerns, some participants articulated broader ethical unease, including fears of dehumanisation and erosion of professional value. These concerns did not necessarily prevent AI use, but they shaped a cautious and provisional trust posture. Overall, trust was not binary but situational. Participants reported trusting GenAI only when they retained oversight and interpretive control, reinforcing the importance of human judgment in mediating AI-assisted creative work.

4.9 GenAI as a Negotiated Collaborator

Despite these limitations and concerns, participants frequently framed GenAI as a conversational or collaborative partner rather than an autonomous creator. Designers described interacting with GenAI in iterative cycles, using it to provoke ideas, suggest alternatives, or challenge assumptions. As one participant explained:

“I can work together with some GenAI tools to improve it.” (P1)

In more structured workflows, AI was used to offer prompts or reminders that encouraged reflection:

“It offers suggestions as well… have you thought of this?” (P2)

Importantly, participants emphasised that collaboration with GenAI remained asymmetric. While AI contributed suggestions, humans retained responsibility for interpretation, selection, and final decisions. Several described explicitly positioning themselves as editors or curators of AI-generated material. This framing positions GenAI as a socio-technical actor whose role is actively constructed by human practitioners. Collaboration was negotiated, contingent, and context-dependent, reflecting ongoing boundary-setting between human creativity and machine-generated support.

5 Discussion

In this section, we first interpret the findings in relation to each RQ. We then propose a conceptual model that explains GenAI as negotiated augmentation in creative work. Next, we outline implications for design theory, tool development, and education. Finally, we discuss the study’s limitations and identify directions for future work.

5.1 Interpretation of the findings

This section interprets the findings through the lens of the RQ1 - RQ6. Each subsection synthesizes the themes into higher-level insights about how GenAI is being integrated into professional design practice, focusing on ideation workflow, creative practice, comparative dynamics, input modalities, agency/authorship, and cognitive effort.

5.1.1 GenAI as a Layer of Negotiated Augmentation (RQ1)

The early findings presumably indicate that GenAI is beginning to reshape early-stage design workflows, though in uneven, contingent, and individually negotiated ways. Across both architects and experience designers, GenAI was adopted primarily to accelerate research, drafting, layout preparation, and the generation of early alternatives. Participants frequently characterised GenAI as a conversational assistant: a resource capable of rapidly generating starting points, testing variations, or articulating justifications for design moves, while still requiring substantial human judgment, interpretation, and correction.

Crucially, GenAI does not displace existing workflows. Instead, it functions as an additional layer that designers activate strategically at particular moments in the process. Some participants used GenAI at the very outset of ideation to explore a problem space linguistically, articulate constraints, or surface directions, while others preferred to sketch first and introduce GenAI later for refinement or validation. These strategies did not align neatly with disciplinary boundaries. Architects and experience designers exhibited similar degrees of variation, shaped more by personal preference, familiarity with tools, and tolerance for ambiguity than by professional background.

At the same time, GenAI introduced a new burden of quality assurance. Designers consistently emphasised the need to verify outputs to ensure factual correctness, contextual relevance, and stylistic coherence with organisational norms. As a result, GenAI transforms workflows less by automating decisions than by expanding the number of early branches that can be explored, while simultaneously increasing the demand for oversight. Conceptually, this positions GenAI not as a tool embedded within workflows, but as a negotiable augmentation layer that designers activate, suspend, or bypass depending on epistemic confidence and task ambiguity. In this sense, GenAI supports divergence while reinforcing the central role of human interpretation and corrective judgment.

5.1.2 Creativity Without Authorship Transfer (RQ2)

Participants widely perceived GenAI as expanding ideation bandwidth, enabling them to generate more ideas, explore alternative directions, and examine multiple framings within shorter timeframes. This observation aligns with prior work suggesting that large language models can increase divergent thinking (Hubert et al., 2024), but to what extent in a factual productive way it remains unknown. The think-aloud sessions further demonstrated that participants using GenAI often developed multiple conceptual trajectories in the time that non-AI workflows were devoted to refining a single direction.

However, this expansion did not translate into a perception of GenAI as a source of creativity in its own right. Across both disciplines, designers framed GenAI as valuable for producing raw material, strengthening arguments, or accelerating technical tasks such as compliance checks or drafting rationales, but not as capable of replacing the conceptual, aesthetic, or interpretive judgment associated with creative authorship. Many participants drew a clear distinction between idea enrichment, where GenAI was seen as effective, and creative authorship, which they regarded as fundamentally human.

A recurring constraint shaping this distinction was transparency. Participants expressed difficulty understanding the provenance of AI-generated outputs and how particular ideas were derived. In addition, outputs frequently failed to align with personal or organisational visual language, limiting their applicability in downstream activities such as presentations or client-facing work. Taken together, these findings suggest that GenAI currently enhances ideation efficiency and breadth more than it transforms the underlying nature of creative reasoning. This distinction is theoretically significant, as it challenges narratives that equate increased generative capacity with creative agency, instead reinforcing the role of human sensemaking as the locus of creativity.

5.1.3 Professional Legitimacy and Client-Facing Risk (RQ3)

Despite differences in professional traditions and representational practices, architects and experience designers reported remarkably similar patterns of GenAI use. Both groups relied on GenAI for early ideation, drafting, summarising information, and validating decisions, and expressed comparable mixtures of perceived benefit, scepticism, and caution.

The most salient divergence between the two groups concerned client disclosure. Experience designers were generally more comfortable acknowledging GenAI use, often framing it as part of an efficient, contemporary design process. Architects, by contrast, frequently expressed concern that revealing AI involvement could undermine perceived rigor, weaken professional credibility, or introduce liability risks, particularly in contexts where trust, expertise, and accountability are central.

Importantly, professional experience appeared to mediate these dynamics more strongly than discipline. Designers with greater experience demonstrated more confidence in judging when AI suggestions were appropriate, flawed, or misleading, supported by stronger internal models of credible design reasoning. Less experienced participants reported greater uncertainty in evaluating outputs and determining when AI should be trusted or challenged. These findings suggest that disciplinary comparisons alone may be insufficient, and that expertise and accountability structures play a critical role in shaping how GenAI is integrated into professional practice. From an organisational perspective, this highlights professional maturity as a key mediator in human-AI collaboration.

5.1.4 Modality Shifts Without Cognitive Replacement (RQ4)

Participants did not treat GenAI as a replacement for drawing or modelling, but as a parallel channel for early ideation. Across both disciplines, designers moved fluidly between sketching and prompting, using

language to articulate problems, generate keywords, or explore initial directions, while relying on sketches to stabilise ideas and reason spatially. Architects, in particular, maintained a strong attachment to tactile sketching as an extension of thinking, whereas experience designers blended text-based prompting and sketching more fluidly.

Linguistic interaction expanded how participants framed problems. Several described listing constraints, posing structured “who, what, why, how” questions, or exploring precedents through text before shifting into visual work. However, multimodal AI outputs rarely aligned with personal or organisational aesthetic standards, limiting their usefulness in decision-making. Participants frequently reported the need to manually alter visuals, correct mock-ups, or re-interpret AI-generated imagery using familiar software tools.

Taken together, these practices suggest that GenAI introduces an additional ideational pathway rather than replacing existing cognitive modalities. Visual and tactile reasoning remain central to design cognition. Prompting temporarily broadens exploration, but stabilisation, judgment, and commitment continue to depend on embodied, spatial, and experiential forms of reasoning.

5.1.5 Epistemic Ambiguity and Authorship Negotiation (RQ5)

Agency and authorship emerged as the most sensitive and emotionally charged dimensions of GenAI-mediated design. Participants repeatedly emphasised that initiating a project with AI-generated content threatened their sense of ownership, whereas introducing AI later in the workflow preserved creative identity. This pattern appeared consistently across disciplines and experience levels.

Client expectations further shaped perceptions of agency. Some architects deliberately concealed their use of GenAI to protect the legitimacy of their proposals, reflecting the continued association between professional identity, craftsmanship, and original authorship. Experience designers, by contrast, were more comfortable acknowledging AI involvement, potentially reflecting different norms around transparency and tool use in digital product contexts.

Style alignment played a critical role in these negotiations. When GenAI failed to reflect a designer’s aesthetic language, misalignment weakened both authorship and trust. Participants expressed a strong desire for style-adaptive or personalised systems capable of learning and reproducing their distinctive approaches. Collectively, these findings reveal how GenAI introduces forms of epistemic ambiguity, requiring designers to continually negotiate whether an idea is “theirs,” how AI contributions should be credited, and how ownership is maintained within hybrid workflows.

5.1.6 Cognitive Redistribution Rather Than Efficiency Gains (RQ6)

Although GenAI clearly accelerates aspects of early ideation, it does not reduce total cognitive effort. Instead, it redistributes effort across tasks. Participants consistently described lower effort associated

with generating options, visualising directions, or composing early drafts, alongside higher effort devoted to prompting, evaluating, curating, and validating outputs.

This redistribution produced a new form of cognitive load centred on meta-thinking and oversight. Designers reported repeatedly assessing correctness, stylistic alignment, feasibility, and constraint compliance. Additional challenges arose from unfamiliar interfaces, inconsistent outputs, and the need for iterative re-prompting to achieve usable results.

As a result, participants did not consistently report reductions in overall project time. In some cases, verification overhead mitigated time saved during generation, particularly when outputs were flawed or stylistically incompatible. These findings suggest that GenAI reshapes, rather than reduces, the temporal and cognitive landscape of design work.

Methodologically, the study demonstrates the value of combining think-aloud protocols, artefact analysis, and retrospective interviews to examine AI-mediated creative practice. This triangulated approach captures both in-situ decision-making and post-hoc sensemaking, revealing tensions around authorship and trust that would likely remain invisible in survey-based or log-only studies.

5.2 Conceptual Mechanism Model of Negotiated GenAI Augmentation

To integrate these findings across six RQs, we propose a conceptual model that characterises GenAI use in creative practice as a form of negotiated augmentation, as illustrated in Fig. 4. The model synthesises how contextual conditions shape designers' human-AI practices and how these practices, in turn, produce distinct cognitive and professional consequences.

The top layer of the model represents a set of contextual and situational triggers that condition designers' willingness to engage with GenAI. These include task ambiguity, time pressure, tool familiarity, perceived client risk, and stylistic constraints. Across both architecture and experience design, participants described drawing on GenAI more readily when problems were ill-defined, when rapid exploration was needed, or when they felt confident in their ability to evaluate and correct outputs. Conversely, concerns about client perception, professional legitimacy, or misalignment with established visual language often constrained or delayed AI use.

The middle layer outlines negotiated human-AI practices that operationalise GenAI integration. Sequencing captures decisions about when AI enters the workflow, often delayed until after human-led framing to preserve ownership. Boundary-setting reflects what participants explicitly kept "human" (e.g., intent, value judgments, aesthetic direction). Oversight practices include verification, correction, and selective uptake of outputs, reflecting low baseline trust and the need for quality control. Disclosure management describes how designers regulated whether and how AI involvement is communicated to clients or collaborators.

The bottom layer summarises emergent consequences of negotiation. First, negotiated use supports expanded divergence by increasing the number of early alternatives explored. Second, effort becomes redistributed rather than reduced: less work in generation, more work in prompting, evaluating, and validating. Third, professional legitimacy becomes contingent, shaped by disclosure norms, client expectations, and perceived appropriateness of AI involvement. Finally, many participants aimed for creativity without authorship transfer, maintaining ownership by positioning GenAI as an assistive collaborator rather than an originator.

5.3 Implications for Design Theory, Tool Development, and Education

Together, these insights show that GenAI reshapes creative work not through automation, but through negotiated redistribution of agency, cognitive effort, and professional responsibility across human-machine assemblages.

From the perspective of design theory, the findings suggest that early-stage design is increasingly hybrid: human and machine contributions are tightly interwoven but not interchangeable. Designers described GenAI as expanding ideational breadth while simultaneously demanding heightened curation, evaluation, and critical framing. This repositions designers less as sole originators and more as directors of computational exploration, responsible for steering, filtering, and contextualising AI output. The sensitivity surrounding authorship, particularly the perception that initiating work with AI compromises ownership, suggests that creative identity remains closely tied to the timing and manner of AI involvement. Theories of creative practice that emphasise singular authorship or craftsmanship may therefore need to accommodate more distributed and negotiated models of agency.

Implications for tool development emerge directly from practical breakdowns. While participants valued acceleration and exploratory capacity, they were consistently challenged by stylistic mismatch, opaque reasoning, and cognitive burden associated with prompt refinement. This points to the need for systems that support design-specific interaction: tools capable of learning aesthetic language, interfaces that make AI reasoning and limitations legible, and multimodal workflows that allow seamless movement between sketching, text, and visual reference. Efficiency alone is insufficient for sustained adoption; designers require systems that preserve creative control while delegating computational exploration.

The findings also have clear implications for education and professional training. Experience shaped participants' ability to evaluate outputs, identify errors, and determine appropriate moments for AI involvement. Design education should therefore integrate prompt literacy, critical evaluation of AI outputs, and ethical reasoning around transparency and authorship into core curricula. Preparing designers to navigate client expectations and emerging norms of hybrid authorship will be essential for maintaining professional accountability as AI becomes embedded in everyday practice.

From an inclusive and ethical perspective, these findings reinforce the importance of AI systems aligned with IDEAS principles, ensuring that innovation enhances rather than obscures human agency,

accountability, and diversity of creative expression (Zallio et al., 2025). More broadly, the study contributes to innovation scholarship by showing that GenAI reshapes innovation through negotiated processes of generation, evaluation, and legitimisation, consistent with sociotechnical accounts that foreground human judgment, organisational norms, and ethical responsibility (Verganti et al., 2020; Zallio et al., 2025; Chong et al., 2025; Tu, X., & De Castro e Silva, 2025).

5.4 Limitations and Future Works

This study offers an early qualitative snapshot of how GenAI is being integrated into architectural and experience design workflows. While it illuminates key transformations in creativity, authorship, and cognitive engagement, several limitations warrant consideration.

First, the study focused on a small, purposively sampled cohort of early- to mid-career professionals. Although this enabled depth and diversity of reflection and achieved thematic saturation, the sample is not statistically representative. Perspectives of senior practitioners, educators, and multidisciplinary teams remain underexplored. Future research should extend participation across roles and career stages to examine how institutional context and experience shape GenAI adoption.

Second, data collection occurred remotely within time-bounded sessions. While this supported ecological validity by allowing participants to work within familiar environments, it limited observation of longer iterative cycles characteristic of real projects. Longitudinal or ethnographic studies could capture how habits, trust, and authorship evolve through sustained use.

Third, the study relied on self-reported reflections and think-aloud protocols rather than behavioural metrics. Perceived efficiency, cognitive effort, and creativity therefore reflect subjective assessment. Mixed-method approaches combining qualitative insight with interaction logs, eye-tracking, or workflow analytics could deepen understanding of cognitive and temporal dynamics.

Finally, although variation in familiarity with GenAI tools was observed, this factor was not systematically analysed. Future work, currently ongoing through quantitative studies, could examine how expertise, prompt literacy, and prior exposure shape strategies and perceptions of agency. The think-aloud protocol may have heightened reflexivity around authorship and control; however, this is consistent with the study’s interpretivist aims.

6. Conclusions

This study offers an early, empirically grounded account of how architects and experience designers are integrating GenAI into everyday creative practice, revealing not a shift toward automation but the emergence of negotiated, hybrid forms of work. Across both disciplines, GenAI was not adopted as a substitute for design expertise or creative authorship. Instead, it was selectively positioned as a flexible assistant that accelerates research, supports routine and justificatory tasks, and expands early-stage ideation, while responsibility for conceptual framing, aesthetic judgment, and client-facing decision-making remains firmly human-led.

A central finding is that GenAI enters creative workflows through active negotiation rather than uniform adoption. Designers deliberately sequence AI involvement, often excluding it from the earliest moments of ideation to protect authorship, and introducing it later to enrich, validate, or diversify ideas. These sequencing decisions were not discipline-specific but reflected individual comfort with ambiguity, tool familiarity, and perceived professional risk. Importantly, the study shows that creativity is not transferred to AI even as ideation bandwidth expands. GenAI increases the number of conceptual branches explored, but designers consistently positioned themselves as curators and directors of computational exploration, retaining ownership through judgment, selection, and contextualisation.

The analysis also reveals a systematic redistribution of cognitive effort rather than overall efficiency gains. While GenAI reduces effort associated with generating options or drafting early material, it introduces new demands for prompting, verification, correction, and sense-checking. Designers described heightened vigilance and meta-cognitive oversight, particularly in relation to factual accuracy, stylistic alignment, and feasibility. As a result, time savings were uneven and often offset by verification overhead. These finding challenges productivity-driven narratives of GenAI by showing that its primary effect is to reconfigure where and how cognitive work occurs, rather than to reduce it.

Another distinctive contribution concerns professional legitimacy and authorship under conditions of epistemic ambiguity. Participants reported that beginning a project with AI-generated content threatened their sense of ownership, whereas introducing AI later preserved creative identity. Disclosure practices further revealed discipline-adjacent but expertise-mediated differences: experience designers were generally more comfortable acknowledging AI use, while architects often concealed it to protect perceived rigor and liability. Notably, professional experience proved more influential than disciplinary affiliation. More experienced designers demonstrated stronger internal models for evaluating AI output and managing its risks, suggesting that expertise mediates trust, agency, and legitimacy in hybrid human-AI practice.

The study further highlights the importance of modality and embodiment in creative work. Designers did not replace sketching or spatial reasoning with text-based prompting; instead, they used language to broaden exploration and articulate constraints before returning to visual and tactile practices to stabilise decisions. Multimodal AI outputs were rarely trusted in their original form, reinforcing the continued centrality of embodied, experiential cognition in design thinking.

Taken together, these findings suggest a reconceptualisation of creative practice in which innovation emerges through negotiated augmentation rather than automation. Designers preserve creative identity not by rejecting AI, but by orchestrating its involvement through timing, boundary-setting, oversight, and disclosure. Creativity, in this configuration, lies less in producing ideas ex nihilo and more in directing, filtering, and legitimising computationally generated possibilities.

These insights carry important implications. For design theory, they challenge models that equate creativity with idea origination or tool substitution, pointing instead toward distributed yet asymmetric forms of agency in which human judgment remains central. For tool development, the findings

underscore the need for systems that support style adaptation, make generative processes more legible, and integrate smoothly with existing design ecosystems, reducing cognitive burden rather than merely accelerating output. For education and professional training, the results highlight the urgency of cultivating prompt literacy, critical evaluation skills, and ethical reasoning around authorship and disclosure, particularly as less experienced practitioners appear more vulnerable to misjudging AI output.

The study is necessarily limited by its small, purposive sample, time-bounded remote tasks, and reliance on self-reported experience and think-aloud protocols. While these methods enabled deep insight into situated creative reasoning, future research should follow projects longitudinally, incorporate behavioural and interaction log data, and examine how norms of agency, trust, and authorship evolve as generative systems become more deeply embedded in professional practice.

By grounding debates on AI, creativity, and innovation in the lived experience of creative professionals, this study complements system-centric and performance-oriented AI research with a practice-based account of how technological change is enacted, resisted, and reshaped in context. In doing so, it advances understanding of the human-technology nexus at a moment when generative systems are not simply transforming how work is done, but redefining how authorship, legitimacy, and innovation are negotiated.

Declarations

Competing interests

The authors declare that the authors have no competing interests as defined by Nature Portfolio, or other interests that might be perceived to influence the results and/or discussion reported in this paper.

Ethical approval

The study received ethical approval from the **University of Cambridge, Department of Architecture Ethics Committee** on **1st July 2025** (Approval ID: **AHA/PG/ST24100042)**. All procedures involving human participants were conducted within the scope of the approved protocol and in accordance with University of Cambridge Research Ethics Framework, as set out in the *AHA Research Ethics and Governance Policy*, which is aligned with widely recognised standards for ethical research conduct including *Declaration of Helsinki*, and applicable UK data protection regulations (*UK GDPR* and *Data Protection Act 2018).*

Informed consent

Consent was obtained electronically from all 20 participants via signed consent forms immediately before each scheduled study session, between July and October 2025. All consent procedures were

conducted under the University of Cambridge ethical governance framework and in compliance with UK data protection regulations. The consent covers the purpose and procedures of the research, including data collection, recording, anonymisation, and publication of de-identified data. Participants were informed that participation was voluntary and that they could withdraw at any time without consequence. No identifying personal information is included in this publication. The study did not involve minors or vulnerable populations.

Author Contribution

Xinyi Tu and Matteo Zallio conceived and designed the study. Xinyi Tu, Mariana Teresa da Silva, Tarika Kumar, and Matteo Zallio conducted data collection (moderated study sessions). Mariana Teresa da Silva and Tarika Kumar led the formal qualitative analysis, with Xinyi Tu and Matteo Zallio providing interpretive input. Tarika Kumar designed the figures and visualizations. Xinyi Tu led manuscript writing and drafted the initial manuscript. Mariana Teresa da Silva and Tarika Kumar contributed to the Methods and Results (Sections 3–4) and supported interpretation in the Discussion (Section 5). Matteo Zallio secured funding, provided overall supervision and project administration, reviewed and edited the manuscript. All authors approved the final manuscript.

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Data Availability

The data generated and analysed in this study consist of session recordings, transcripts, survey responses, moderator notes, and design artefacts collected from professional participants. For the purpose of peer review and editorial assessment, a structured and anonymised data package has been provided to the journal. This package includes anonymised participant-level folders (P1–P20) containing session transcripts, moderator notes, and artefacts where available, as well as analytical documentation including the codebook, NVivo export files, cross-case comparison tables, and supporting analytic materials. All materials have been anonymised in accordance with the approved ethics protocol and GDPR requirements. Due to the qualitative nature of the dataset and the inclusion of professional contextual information that may indirectly identify participants, the full dataset is not publicly deposited in an open repository. Anonymised excerpts supporting the findings are included within the article and its appendices. Further access to anonymised materials may be considered upon reasonable request and subject to ethical and data protection considerations.

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Figures

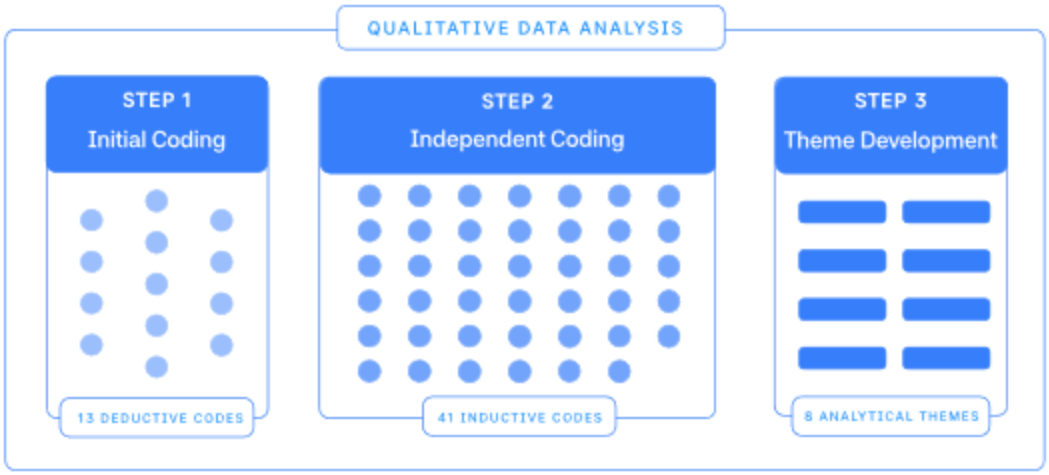

Figure 1

Qualitative data analysis workflow. Step 1: Initial Coding. Step 2: Independent Coding. Step 3: Theme Development.

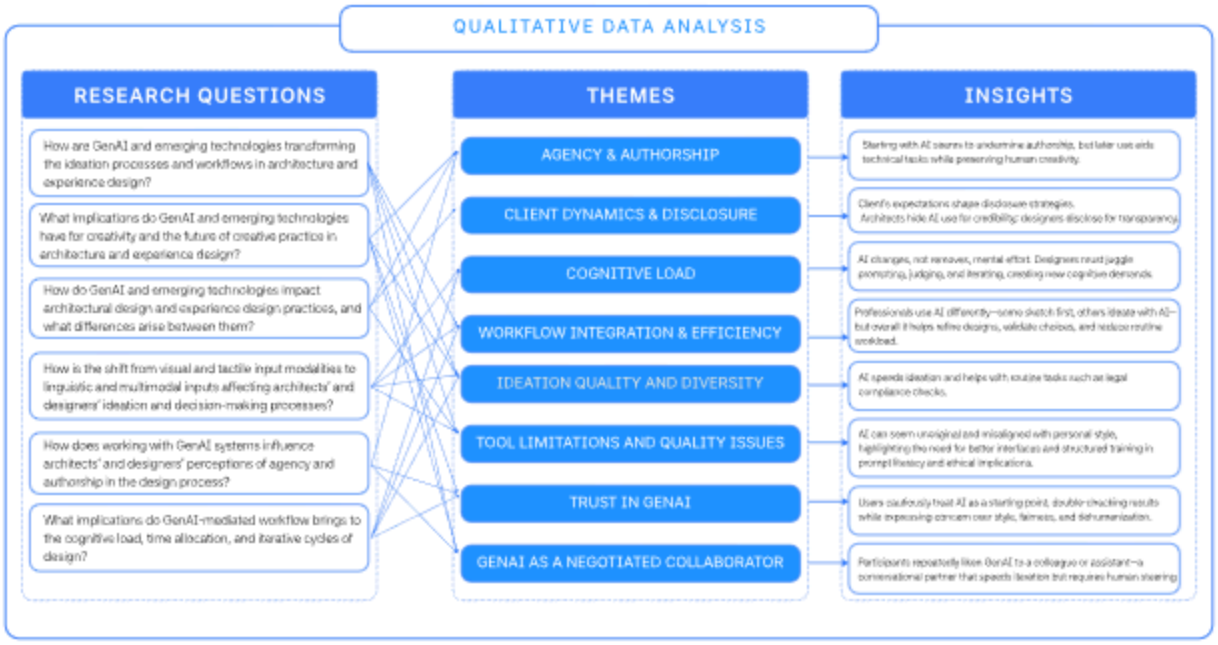

Figure 2

Mapping of RQs, qualitative themes, and corresponding insights.

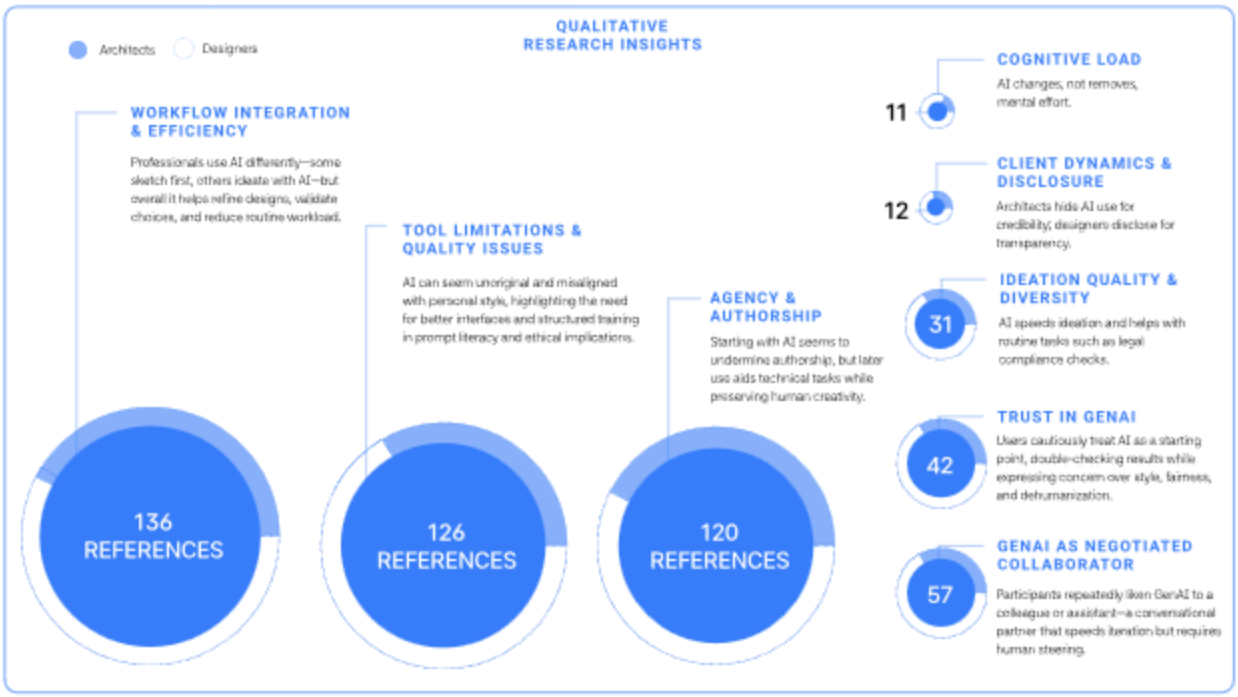

Figure 3

Diagram showing the relative prominence of each qualitative theme.

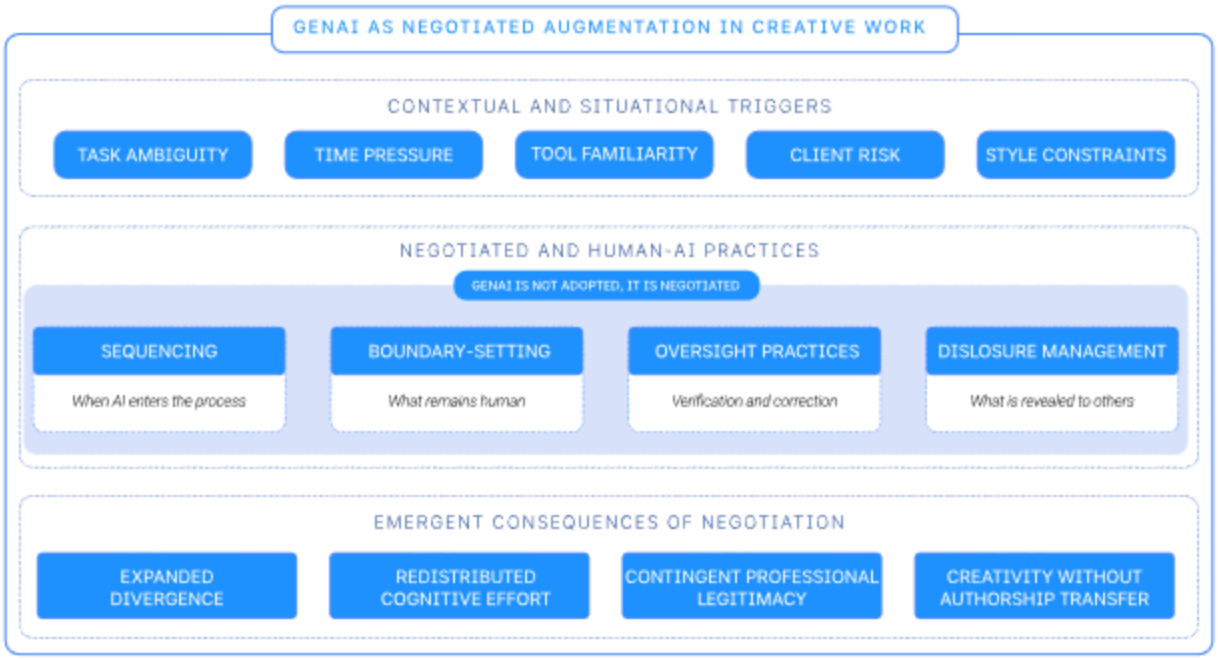

Figure 4

A conceptual model. GenAI as negotiated augmentation in creative work.

Supplementary Files

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