

A Dual Role Collision: How Generative AI's Intertwining Productivity Support and Social Support Reshape Indie Game Developers' Creative Work

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Generative AI is increasingly embedded in creative work as both a productivity-oriented tool in workflows and a source of social and emotional support. While prior research has examined these roles separately, there is limited understanding of how their entanglement may reshape labor conditions, especially in creative industries, where productivity is often situated in social processes. In this paper, we address this gap by examining how generative AI's productivity assistance and social-support functions interact in indie game development, a creative technology community featured by precarity and community-based learning. Using 16 interviews with indie game developers, we unpack the collapse of generative AI systems' task-based assistance and social-support functions within the same creative workflow, which we term a dual role collision. We demonstrate how these collisions can potentially reshape social learning, collective evaluation, and emotional labor in the indie community, affecting developers' skill formation, career calibration, and community support. We contribute nuanced insights into how generative AI can reconfigure informal labor infrastructures that sustain creative work, raising concerns about deskilling, miscalibration, and long-term participation in creative labor markets like indie game development.

CCS Concepts: • **Human-centered computing** → **Collaborative and social computing**; **Empirical studies in collaborative and social computing**;

Additional Key Words and Phrases: Generative AI, indie game development, creative labor, labor impacts, social support, human-AI interaction

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1 Introduction

Generative artificial intelligence (AI) systems, which are trained on large-scale datasets to produce new content by reproducing learned patterns, have become increasingly integrated into contemporary work practices across various domains [17]. In many sectors, including manufacturing, healthcare, education, and creative industries, generative AI is primarily framed as a productivity technology that automates workflows, accelerates content production, and fills gaps in technical expertise [12, 13, 26, 53, 64]. In this framing, AI is positioned as a technical infrastructure that provides **informational and instrumental assistance** to improve efficiency and output. In parallel, a growing body of scholarship has begun to explore generative AI's emerging role beyond productivity,

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examining how AI systems may function as sources of **social or emotional support**. This work highlights how conversational agents and generative systems can offer reassurance, companionship, or a sense of presence, particularly in contexts marked by isolation or limited access to human support [19, 62, 67, 71]. Rather than treating AI solely as a tool, this literature positions AI as a sociotechnical actor that participates in affective and relational dimensions of human life.

Despite these parallel research trajectories, we lack a nuanced understanding of what happens when AI systems' productivity-oriented assistance and social-support functions converge within the same workflow. Indeed, existing studies often examine these roles in isolation, implicitly assuming that productivity support and social or emotional support operate in separate domains. In practice, however, people increasingly rely on generative AI tools to meet both technical and social needs through the same process. Yet, while some recent work has begun to observe that users may engage AI systems in both assistant and companion roles [54, 55], less attention has been paid to how these AI systems may be used to simultaneously provide emotional or esteem-related support while also participating in productive labor. This convergence raises critical yet understudied questions about how generative AI can potentially reshape learning, evaluation, and well-being—particularly in forms of work that are already precarious and under-institutionalized.

In this paper, we examine these questions through the context of *indie game development*, a creative technology community characterized by small teams or solo creators, limited institutional support, and high levels of economic and social precarity. Indie developers typically operate outside formal employment structures, rely on self-directed learning, and depend on community-based critique, mentorship, and peer recognition rather than standardized credentials [33, 36, 66, 79]. As a result, sustaining indie game development requires not only technical productivity but also access to social learning, emotional care, and collective evaluation infrastructures. At the same time, indie developers are increasingly adopting generative AI tools for a wide range of purposes. Prior work documents the use of large language models for brainstorming, coding, and problem-solving, as well as text-to-image models for rapid asset creation and prototyping [13, 61, 75]. Other studies suggest that developers also envision generative AI as providing reassurance, confidence, or companionship—sometimes even describing AI as a "supportive co-worker" when human peers are unavailable [45, 60, 73]. This dual uptake makes indie game development, where technical problem-solving and social learning are historically intertwined [31], a critical case for understanding how generative AI's technical and social roles may collide in contemporary creative labor.

In doing so, we conducted 16 in-depth interviews with indie game developers who have used generative AI in their game development to address the following research question:

RQ: How do indie game developers perceive the potential tensions that may arise when generative AI simultaneously provides task-based productivity assistance and forms of social support in their creative work?

It is important to note that our goal is not to position generative AI as a replacement for existing forms of human support in indie game development, but to examine how its productivity-oriented and social-support roles intertwine in practice and what consequences this may have for creative labor. We contribute to research on the labor and economic impacts of computational systems in three key ways. **First**, drawing on Cutrona and Suhr's theory of supportive behaviors [25], we empirically document how generative AI's task-based productivity assistance (e.g., informational and instrumental support) is frequently experienced alongside perceived forms of social support, including emotional, esteem, and network support, within indie developers' everyday work. **Second**, using indie game development as an example, we identify and analyze a recurring pattern we describe as AI's *dual role collision*, through which generative AI systems' productivity support and social support converge within the same workflow. We show how this collision can potentially reconfigure socially grounded learning, distort collective evaluation processes, and redistribute responsibility for well-being and career sustainability onto individual developers over time — surfacing underlying risks that differ qualitatively from those identified in prior

work examining productivity-oriented or social uses of generative AI in isolation. **Third**, based on these findings, we articulate stakeholder-oriented implications for governing and designing generative AI systems for creative communities like indie game development, emphasizing the need to protect and sustain the community-based infrastructures, such as peer learning, critique, and care, that underpin creative labor. Together, this work advances understanding of generative AI's potential to reshape not only creative workflows but also the social, evaluative, and economic conditions under which creative work is produced and sustained.

2 Related Works

2.1 Generative AI as Productivity-Oriented Labor Infrastructure

Generative AI systems have been widely adopted as **productivity-oriented tools** that provide task-based assistance to facilitate modern-day work practices and workflows in various fields, including healthcare [12, 53], manufacturing [26, 64], and education [74]. In particular, in *knowledge work and creative fields*, generative AI tools are increasingly being positioned as collaborators that generate ideas, content, or code on demand [13, 75]. For example, previous studies on human-AI co-creation in fields such as music composition [51, 72] and creative writing [28, 38] have demonstrated how generative AI systems, such as large language models and image generation models, can accelerate brainstorming, lower barriers to entry, and enable knowledge workers to produce outputs that resemble professional-quality creative work. Taken together, this literature highlights efficiency gains and creative fluency when leveraging generative AI for productivity, often emphasizing how AI fills gaps in expertise or reduces friction in creative workflows.

However, at the same time, a growing body of critical literature has begun to question the ethical implications of treating generative AI primarily as a productivity enhancer. Rather than viewing efficiency gains as neutral or uniformly benign, researchers have also highlighted how automation and AI-mediated assistance can lead to deskilling, over-reliance, and the gradual erosion of experimental learning, which harms, rather than enhances, human knowledge workers' capabilities [3, 48, 49, 68]. From this perspective, **generative AI functions not merely as an external tool, but as a form of embedded labor infrastructure** that reorganizes work practices and reallocates cognitive, evaluative, and affective labor between humans and systems [37, 47]. Previous works have argued that such infrastructural shifts can obscure accountability, normalize dependency, and flatten distinctions between novice and expert performance, making it more difficult for workers to assess their own readiness or identify areas for growth [4, 39, 44, 63]. Indeed, when generative AI simultaneously provides task-based productivity assistance and social-support functions, it reconfigures the **social processes and experiences** through which skills are developed, competence is assessed, and well-being is sustained, which we detail in the next section.

2.2 Generative AI and the Automation of Social and Emotional Support

Social support has long been studied as a multidimensional construct encompassing different forms of assistance that individuals receive through social relationships. Classic work conceptualizes social support as a sense of being cared for, valued, and supported through interpersonal connections, and distinguishes between multiple types of support, including informational support (e.g., advice or guidance), emotional support (e.g., expressions of care and empathy), esteem support (e.g., affirmation and encouragement), and network support (e.g., fostering a sense of belonging) [2, 22, 25, 80]. These forms of support play distinct but interrelated roles in shaping people's well-being, learning, and sustained participation in work and community contexts.

Building on these theories, existing research on Human-Computer Interaction and Human-AI Interaction has increasingly explored how computational systems, including conversational agents and generative AI, may mediate or simulate particular forms of social support [10, 18, 25]. Recent research on chatbots and conversational agents highlights how users may experience a sense of being heard or accompanied through sustained interaction,

particularly when human support is unavailable or difficult to access [20, 21, 57, 62, 71]. Other work has examined AI-mediated support at interpersonal or group levels, including the use of AI as a mediator in teamwork, conflict resolution, or online community moderation [6, 81]. Across these studies, social support is typically operationalized in terms of specific outcomes, such as perceived empathy, encouragement, or a sense of belonging, rather than as a holistic or relational process. At the same time, scholars have raised substantial ethical and societal concerns about delegating social and emotional support to AI systems. Prior work cautions that AI-mediated support may lack contextual understanding, fail to recognize distress, or respond inappropriately in sensitive situations [1, 3, 23, 30]. Additional concerns include risks related to privacy, surveillance [7, 27, 42, 46] and the loss of human autonomy [69].

However, much of this literature treats social and emotional support as a standalone function of AI systems, examined separately from productive or professional contexts. Studies often evaluate generative AI's affective outcomes, such as reduced loneliness or increased perceived support, without considering how these forms of support interact with AI's role in task completion, evaluation, or workflow acceleration. We address this gap by focusing on indie game developers as a critical case because their work is sustained through informal learning, peer-based evaluation, and community support rather than stable institutional structures.

2.3 Indie Game Development as a Novel Context to Unpack Generative AI's Simultaneously Entangled Productivity-Oriented and Social-Support Functions

Compared to the mainstream gaming industry, indie developers often lack various forms of necessary resources for their long-term endeavors, including technological resources, social capital, and financial stability [33, 78]. Therefore, building a networked community for sharing, knowing, and learning has become an important way for them to seek both productivity support and social support across geographic boundaries [31, 50]. At the same time, prior work highlights the persistent challenges indie game developers face in accessing **both productivity- and socially-oriented support**. Indie games often focus on a small number of clear design and aesthetic goals and can be developed at a much smaller scale in terms of workload and manpower [32, 36, 59]. As such, many indie game developers tend to work either solo or with small, often globally distributed teams. They often lack access to offline mentorship, peer networks, or mental health resources and have to navigate the complexities of game development largely on their own, which can hinder both their personal well-being and professional success [33, 34, 79].

To compensate, many developers turn to online platforms (e.g., live streaming, Discord, and online forums) in search of both technical assistance (e.g., programming tips) and social support, such as shared vulnerability or navigating burnout [31, 34, 40, 50, 66]. However, these online platforms still fall short of meeting indie game developers' needs, as such support may not be available in the moment, may overemphasize technical problem solving, and rarely extends to deeper emotional or esteem support [35]. As a result, indie developers must continually navigate gaps between what they need to remain productive and what they need to remain engaged and mentally well.

Against this backdrop, generative AI has emerged as a new infrastructural presence in indie game development. Prior work documents a growing adoption of generative AI for productivity-oriented tasks in indie game development, including asset creation, ideation, coding, and workflow acceleration [13, 61, 75]. These tools increasingly shape indie developers' creative processes and professional identities, while also raising concerns about replacement, dependency, and the long-term sustainability of creative labor in this unique creative community [13]. Moving beyond the use of generative AI solely as a productivity tool, a small but growing body of work has suggested that indie developers may also leverage generative AI for **emotional support**, including reassurance, encouragement, or a sense of companionship during stressful or isolating work situations [45, 60]. Some work points to forms of **esteem support**, where AI-generated feedback affirms developers' ideas, perceived

competence, and progress, which helps them feel more confident in their work [73, 75]. Finally, generative AI has even been described as providing forms of **network support** by simulating conversational presence or acting as an always-available interlocutor when human peers are unavailable, particularly in distributed or solo development contexts [60, 73].

Yet, these existing works still largely treat generative AI's productivity support and social or emotional support in the indie context as analytically separate. Only a small body of recent work has begun to observe that people sometimes engage generative AI systems in both assistant and companion roles within the same interaction. For example, Manoli et al. have identified the so-called "companion–assistant" dynamics, in which users rely on AI tools for both task-oriented assistance and relational or emotional support [54, 55]. However, this line of research primarily examines these dynamics at the level of individual human–AI relationships and still pays limited attention to how AI's such overlapping roles may reshape the broader social and labor infrastructures in which creative work takes place. In creative technology communities such as indie game development, generative AI systems' simultaneous provision of productivity assistance and social support can reshape how developers learn, evaluate creative work, and understand professional responsibility within their communities. We describe this **dual role collision** as the convergence of generative AI systems' productivity assistance and social-support roles (regardless of whether through the same or different AI systems) within the same workflow, where developers rely on AI interaction for both task completion and emotional or motivational support in their game development processes simultaneously. Historically, these roles were distributed across different members of creative communities such as peers, mentors, and collaborators. Our work thus extends prior studies to examine how AI's these simultaneous roles reshape indie game developers' creative labor over time.

3 Methods

Recruitment and Participants. The university's Institutional Review Board (IRB) approved this study. We recruited potential participants by posting recruitment messages on several popular international online forums for indie game developers, including Facebook groups (e.g., Indie Game Devs with 76.8K members), Reddit subreddits (e.g., r/indiegamedevforum with 8.3K members), and Discord servers. Our recruitment messages specified that we were looking for indie developers with experience developing games and who had used generative AI in any capacity during their game development. We did not require participants to have overtly positive or negative experiences with generative AI, as our goal was to capture a range of diverse perspectives and practices. Interested individuals completed an initial screening survey that collected basic demographic information, experience with indie game development, experience using generative AI, and their willingness to participate in an interview.

We contacted all individuals who expressed interest and obtained informed consent before participation. Eligibility criteria included English proficiency, self-identification as a part-time or full-time indie game developer, and prior use of generative AI in game development. Participants self-identified as *full-time* if indie game development was their primary occupation, and as *part-time* or *hobbyist* if they held other full-time employment. In total, we interviewed 16 participants with varying levels of experience with using generative AI in indie game development from April to July 2024. Table 1 in Appendix summarizes the participants' demographics and their various experiences with indie game development and generative AI.

Interviews. We did not collect names or identifiable information to protect the participants' privacy. Interviews were conducted via voice chat on Discord, Zoom, or Google Meet based on participants' preferences. Interview questions were crafted using dialogic techniques designed to encourage participants to engage deeply with their responses [76]. Interviews began with questions about basic demographic information, participants' experiences with indie game development, and the reasons they chose to become indie game developers, to orient the conversation toward the potential role of generative AI in their game development practices. Next, the interview

moved to participants' experiences with using generative AI tools in game development (e.g., *"Have you used generative AI in your own game development in any way? If yes, what was that AI and how have you used it?"*) and the impacts of using these generative AI tools on both their game development process and game content (e.g., *"Are there any noticeable changes to your game development process or content in any way before and after you use generative AI?"*). To particularly examine the interaction between AI's productivity-oriented and socially oriented forms of support, participants were asked how they experienced different kinds of assistance from generative AI (e.g., *"How, if at all, have you received technical help or assistance from using generative AI in your game development? How about non-technical help or assistance, such as emotional support?"*). Participants were further invited to reflect on perceived risks, limitations, and long-term implications of relying on generative AI for these forms of support (e.g., *"Do you feel using generative AI for social support would be beneficial or risky for indie game developers? Why or why not?"*). Interviews lasted 55 minutes on average, and participants received a \$20 digital Amazon gift card upon completion.

Data Analysis. All interviews were audio-recorded and transcribed for further analysis. We conducted a reflexive thematic analysis (TA) following Braun and Clarke's approach [14, 15] to perform an in-depth qualitative analysis of the interview data. This qualitative approach aligns with our goal of offering a rich, empirically grounded account of how indie game developers make sense of generative AI's simultaneous productivity assistance and social-support functions in their creative practices. Consistent with reflexive TA, our analytic process was inductive and interpretive rather than confirmatory, and did not aim for inter-rater reliability [56]. Instead, we treated theme development as an iterative process of sense-making through which recurring patterns, tensions, and contradictions in participants' accounts were constructed and refined [14, 15]. The first author began by **familiarizing themselves with the data** through repeated readings of the transcripts, attending closely to participants' language, examples, and meaning-making around their experiences using generative AI in indie game development. We then conducted **iterative, line-by-line coding**, focusing on how developers described AI's role in supporting creative work, learning, evaluation, and well-being, and on how they articulated perceived risks or trade-offs associated with these uses. Through collaborative discussion, codes were **compared, revised, and grouped** to reflect broader patterns in how participants understood the interaction between AI's productivity-oriented assistance and social or emotional forms of support in their creative practices. We then **constructed themes that captured shared concerns and tensions** in participants' accounts to address our RQ. Throughout the analysis, we repeatedly returned to the transcripts to examine coherence, considered divergent cases, and ensured that each theme reflected a meaningful pattern of shared understandings across participants. Figure 1 in Appendix describes the detailed data collection and analysis process.

4 Findings

Collectively, our participants describe a set of interconnected tensions arising from the integration of generative AI into indie game development. These tensions do not stem from generative AI systems' productivity-oriented or social-support functions in isolation, but from their **entanglement within the same workflow**. Across interviews, indie developers articulate that the collapse of AI's simultaneously interwoven task-based assistance and social-support functions (regardless of whether through the same or different AI systems) may continue to reshape how their creative labor in game development is learned, evaluated, and sustained over time. Our findings especially highlight three recurring forms of such **dual role collision** through which generative AI can shape social learning, professional calibration, and the collective and social infrastructures essential to indie developers' creative work.

4.1 Collision Between Generative AI's Task-Based Assistance and the Central Role of Social Learning in Indie Game Development

4.1.1 Collision between AI's technical productivity support and social learning. In the absence of formal training pipelines, stable long-term teams, and institutional membership, indie game developers often build skills through iterative failure, peer critique, and collaborative reflection. However, for solo developers or those working in small, distributed teams, access to such learning-oriented and task-based support is often limited or uneven. Within this context, participants frequently described generative AI as providing effective task-based productivity support, particularly for implementing technical features and resolving workflow bottlenecks in everyday development work. For example, P2 explains,

"If I need to do something in Unreal Engine or program we use called Maya or Blender, if I need to make something that types an asset from this place to that place, and do it in this certain way, I just say, 'Hey, can you do this?' And it's like, 'Certainly.' And it gives you the whole thing." (P2)

However, participants also emphasize that when such immediate solutions are delivered within the same workflow that shapes learning and reflection, tensions emerge with the social-learning practices that underpin indie game development. Developers thus describe this as a collision that emerges when generative AI simultaneously performs task-based productivity assistance and learning-adjacent social functions within the same interaction. Specifically, when generative AI provides immediate solutions, ideas, or assets, it displaces the social-learning processes through which indie developers continue to foster and improve their creative skills, which are critical to indie game development. This collision is most pronounced during early-stage brainstorming and conceptualizing game ideas, where learning typically occurs through exploration, trial-and-error, and group discussion. P7 and P9 speculate,

"It's got a lot of stuff that's trained on that it can pull from. But a human has a continuous existence. There's feedback. If they try something and it fails, they know that it fails. ChatGPT is going to forget that it failed. It does forget that it failed." (P7)

"I think that people engaging with this while thinking that they're being creative and mastering some skill or concept may harm themselves in thinking that they're truly being creative and having things to say when they're not anymore." (P9)

By contrasting humans who can remember and learn from failures with AI that "*forget[s] that it failed*," P7 shows how generative AI disrupts the feedback loops through which indie game developers' creative skills develop. P9 worries that indie developers may believe they are "*mastering some skill*" when they are not, highlighting how merely completing game development tasks can be mistaken for actual learning in game design and development. Together, these accounts suggest that when generative AI accelerates idea generation while implicitly signaling progress, it displaces the trial-and-error and reflection central to skill formation in indie game developers' creative labor.

4.1.2 Collision between AI's artistic productivity support and social learning. This collision further extends beyond technical problem-solving into artistic and conceptual decision-making - the core of indie game developers' efforts to innovate game design and development, where learning is often deeply social and interpretive. Participants note that generative AI can produce visually compelling assets while simultaneously short-circuiting the collective reasoning that gives those assets meaning in game design. P5 shares an example in the context of game art direction:

"Mid-Journey is very good at making an attractive picture, but it's really bad at being like, why should the bracers on this suit of armor have that motif? That's like a layer of art direction that's so complicated of why does Legolas look this way?"

Here, the collision manifests as a separation between aesthetic output and creative reasoning when developing an indie game that aligns with the developers' artistic visions. While generative AI fulfills a productivity role by

generating usable visuals for a potential game, it does not participate in the social-learning processes through which artistic intent is debated, justified, and refined in the game development process. Therefore, participants caution that when AI's dual roles are collapsed, indie game developers may produce games that appear complete but lack conceptual grounding and meaningful design concepts. For indie developers whose creative labor is closely tied to authorship and originality of their games, this collision poses a threat to both individual skill development and the collective practices that sustain indie game development as a creative community.

4.2 Collision Between Generative AI's Emotional and Network Support and the Collaborative Nature of Indie Game Development

4.2.1 Collision between AI's perceived emotional and network support and authentic human connections. Although indie game development is often praised for its collaborative nature and supportive community culture, many indie developers, particularly solo developers or small teams operating outside formal organizational structures, constantly face challenges of isolation, irregular income, and emotional strain. Within this context, **emotional** (e.g., expressions of care and empathy) [24] and **network support** (e.g., fostering a sense of belonging) [24] through authentic human connections play a critical role in sustaining indie game developers' creative labor by helping them cope with uncertainty, maintain motivation, and remain connected to the broader indie community.

Some participants explicitly mention how generative AI could be perceived as offering emotional or network support, particularly through its availability and attentiveness. P13, for example, highlights,

"AI does not have personal gains in a project, so it only cares about you when you're talking to it. I was just saying that AI does not have to care about itself, that's why it's more empathetic towards you."

Here, P13 frames AI's lack of self-interest as a source of perceived empathy, positioning AI as a listener that is fully oriented toward the developer in the moment. This perception helps explain why some indie developers view generative AI as emotionally supportive, especially when human peers are unavailable or difficult to reach.

However, participants also express concerns that this affordance can become a source of tension when emotional reassurance is delivered through an AI system embedded in productivity-oriented workflows. While AI-mediated emotional interaction may alleviate some developers' loneliness in the moment, it does so in a way that becomes entangled with increased reliance on solo, AI-supported workflows in game development, which directly opposes the collaborative nature of indie game development. P9 and P16 speculate,

"It would not be a helpful thing if it causes them [indie developers] to never really grow beyond whatever pain they're encountering. And if their pain is, particularly what happens to a lot of people, be lonely. AI may help them reduce the chances of being lonely. But it's just this one-on-one conversation instead of a larger group of friends to interact with." (P9)

"If I want to share, I usually find a real person to talk to. I'm not very willing to talk to a machine, because I know the other side is a machine. And I know that what it gives me are all things calculated by programs, so I would feel that this support doesn't motivate me at all." (P16)

P9 acknowledges that generative AI can offer companionship in the moment and reduce indie game developers' "chances of being lonely." However, he points out the fundamental issue that one-on-one developer-AI conversations cannot substitute for the collective, reciprocal support from authentic human connections within a real indie community built upon shared values and artistic visions. Likewise, P16 resists the potential direction of treating AI as a confidant, framing its outputs as "calculated by programs" rather than authentic care. Together, these accounts suggest that when emotional support is embedded within AI systems in a productivity-oriented workflow (e.g., for completing game development tasks), it becomes decontextualized, mitigating loneliness in the moment while displacing the communal social and emotional connections necessary for sustaining indie developers' creative work.

4.2.2 Collision between AI's perceived emotional and network support and profound, lived interpersonal experience. Indeed, even for indie developers who have frequently used generative AI for emotional and network support and appreciated such support, they express their concerns about its perceived shallowness and lack of personalization, an inevitable outcome of the AI's training on aggregated data rather than lived, interpersonal experiences:

"So when it comes to my personal situation, I don't trust the AI to make a decision on what is best for me. It's more just like, here's the information and then that's it. There's an important aspect of human connection in order to work out your problems and know that the other person has some level of empathy for you." (P12)

"I think I just didn't have any expectations for an AI to be as empathizing and as humans. I didn't think it will think deeply to really match with my situation, because it's just a gathering of all sorts of situations online." (P15)

By describing AI responses as *"here's the information and then that's it,"* P12 frames AI-mediated emotional support for indie developers as informational rather than relational, emphasizing the absence of *"human connection"* needed to work through personal challenges in their game development practices. Similarly, P15 characterizes AI as *"a gathering of all sorts of situations online,"* highlighting its inability to *"really match with my situation."* Together, these developers suggest that when emotional reassurance is delivered through an AI system oriented toward task completion, such support becomes detached from lived experience, which ultimately disconnects indie game developers from shared community relationships that are crucial for helping them cope with burnout and uncertainty.

4.3 Collision Between Generative AI's Esteem Support and the Collective Evaluation Process in Indie Game Development

4.3.1 Collision between AI's perceived esteem support and the informal, community-based critique and feedback mechanisms. In indie game development, a developer's career progression depends not only on producing creative and innovative games but also on how their games are evaluated by peers, audiences, and the broader indie community as a collective process. These interactions become part of the **collective evaluation process**, which is the informal, community-based critique and feedback mechanisms through which indie developers assess work, learn community norms, and gauge professional standing [31, 50]. Indeed, participants emphasize that community-wide critique plays a crucial role in helping them interpret feedback, calibrate audiences' and peers' expectations, and understand their position within the broader creative ecosystem. Some developers thus describe how generative AI could be perceived as offering a form of **esteem support** (e.g., affirmation and encouragement) [25] by helping them communicate more effectively or present themselves more professionally. For example, P9 envisions how generative AI can assist with interpersonal communication in ways that feel affirming and confidence-building:

"I'm trying not to be a jerk, but I'm inadvertently being a jerk just because I don't have the right words. And the AI can find the right words for them. So, that can be helpful. Kind of a Grammarly for communication to assure what you are doing is right."

Here, P9 frames AI as a tool that helps align his intentions with socially acceptable expression, reducing miscommunication risk and providing reassurance that he is *"doing it right."* This use of AI can function as esteem support for indie game developers by smoothing social interactions and reinforcing a sense of competence when engaging with other developers in collaborative or evaluative settings. Developers' participation in community feedback also supports what we call **career calibration**, which is the ongoing process through which indie developers collectively learn to assess and adjust their professional behaviors, expectations, and self-presentation in relation to field-specific professional development norms. This calibration often occurs through iterative feedback from peers, mentors, collaborators, and industry communities. In this sense, by relying on generative AI to polish communication, developers may partially bypass these community interactions in the collective evaluation process. AI-assisted communication may provide reassurance about their behavior without requiring

engagement in the feedback processes through which professional expectations are typically learned. As such, it may contribute to a form of **career miscalibration**, where developers appear aligned with professional norms without fully participating in the collective processes that normally shape those norms.

However, participants also raise concerns that when generative AI both assists creative game design and development and affirms the value of their work in some ways, the boundary between production and evaluation becomes blurred. Several developers note that AI-mediated esteem support does not carry the same social weight as in a collective evaluation process. Rather than situating critique within the shared histories, aesthetic values, and informal norms of indie communities, AI feedback is often experienced as detached from the social relationships and community contexts through which creative work is meaningfully evaluated. P2 and P11 speculate,

"But if I say, 'Can you tell me how you feel about this artwork?' And it could give you a wrong answer because there's plenty of people that don't have... they give you critique and it's not what you need to hear, in one ear and out the other kind of thing. So, if people can't do it, I don't think robots can just yet." (P2)

"AI is different from independent individuals, the views it puts forward are often too... like a yes-man." (P11)

By describing AI feedback as potentially "*a wrong answer*" and comparing it to a "*yes-man*," P2 and P11 highlight how AI-mediated esteem support for indie developers fails to function as a credible evaluator [16, 70, 77]. For them, these snippets point not to a lack of learning, but to a lack of signal: AI-mediated affirmation without social accountability does not help indie developers understand how their games will be perceived by others in their community based on shared values and artistic aspirations. In indie communities, these signals typically emerge through collective evaluation processes, where peers, collaborators, and audiences critique creative work and help developers interpret how their games align with shared aesthetic values and community expectations. When such validation accompanies AI-generated output, developers may receive encouragement without actionable insights into how their work aligns with the indie-specific expectations of originality, coherence of vision, or resonance with community norms, thus weakening the collective processes through which creative quality and professional readiness can be assessed.

4.3.2 Collision between AI's perceived esteem support and accurate self-assessment of competence and creative potential. Additionally, participants emphasize that this collision between generative AI's esteem support and the collective evaluation process in indie game development could further obscure authorship and complicate how indie developers assess their own readiness to advance. As P6 cautions, reliance on AI can lead to "*just relying completely on the AI's skills*," making it difficult to disentangle one's own contributions from those of the AI system. In this context, AI's esteem support does not boost developers' confidence but creates an illusion of their own creative skills and potential.

These concerns are most pronounced for early-career indie developers navigating entry into the gaming industry. P3 speculates,

"I feel like because AI can access the workflow of already experienced game professionals, it could make it much harder for novices to even come into the game industry because people would expect that much higher from them and that may scare them or make them less confident in what they can do. Just because now AI exists and it can do everything that a junior game designer or researcher can do." (P3)

By noting that AI can "*do everything that a junior game designer or researcher can do*," P3 points to a breakdown in how entry-level competence is evaluated in indie game development. In a field where early-career developers typically signal readiness through small-scale projects, game jams, and community feedback rather than formal credentials, collapsing productivity assistance and esteem support into a single system decouples visible output from human experience and learning. Participants warn that this misalignment can narrow viable entry pathways, making it "*much harder for novices to even come into the game industry*" and reshape how creative careers are judged and accessed in indie communities. Across these examples, the collision between generative AI's

productive assistance and its provision of esteem support within the same workflow may reshape how developers participate in collective evaluation processes in the long run, which have historically helped indie developers learn community norms and calibrate professional expectations.

5 Discussion

By analyzing the experiences of indie game developers, our findings reveal how generative AI systems do not merely serve as neutral productivity aids or standalone social technologies, but increasingly occupy multiple, overlapping roles within creative labor such as indie game development. In this section, we further reflect on how the convergence of generative AI's task-based assistance and social support has the potential to reshape this creative technology community by reconfiguring the indie community's creative labor infrastructure and social dynamics (5.1). Built upon these reflections, we also articulate broader implications for the governance of generative AI in creative work through the lens of indie game development (5.2).

5.1 The Potential of Reshaping Creative Technology Communities Through Generative AI's Dual Role Collision

Prior research has cautioned that automation can erode skill development, obscure accountability, and flatten distinctions between novice and expert labor when AI systems prioritize output over process [48, 49, 68]. Our findings further extend this literature by showing how these dynamics are intensified when generative AI has the potential to not only produce work and complete tasks but also participate in learning, evaluation, and emotional regulation. These tensions arise specifically because generative AI consolidates productivity assistance and social-support functions within the same workflow, allowing developers to rely on AI systems (regardless of whether through the same or different AI systems) for technical problem solving and social reassurance simultaneously. In this sense, our analysis attends to both observable changes in developers' current workflows and the anticipatory concerns practitioners express about the evolving role of generative AI in their future work practices. As shown in prior work on speculative and critical design, engaging with imagined technological futures is especially valuable for surfacing underlying values, anxieties, and socio-technical tensions surrounding emerging technologies that might otherwise remain implicit [11, 29, 52]. Therefore, building on these perspectives, our study identifies two emerging mechanisms through which generative AI can potentially reshape creative technology communities such as indie game development: (1) eroding indie developers' creative labor by introducing subtle shifts in how their creative progress is interpreted by the broader community and how game developers' competence is calibrated over time (5.1.1); and (2) eroding indie developers' collective social infrastructures by reshaping how community-wide social support is valued and distributed (5.1.2).

5.1.1 Generative AI's Potential to Erode Indie Developers' Creative Labor by Reshaping the Underlying Processes to Sustain, Interpret, and Evaluate Such Labor. According to our participants, the potential erosion of their creative labor does not manifest as a sudden loss of agency, authorship, or creative intent in their game development. Instead, **it unfolds gradually by introducing subtle shifts in how the broader community interprets their creative progress and how game developers' competence is socially calibrated over time.** Indeed, when generative AI accelerates task completion and simultaneously offers reassurance, validation, or guidance within the same workflow, the underlying social processes that supplement individual learning, such as critique, disagreement, and shared failure, become less prominent. This gradual shift could blur the distinction between doing the work and learning the work, a fine line that is central to sustainable creative labor in indie game development. In creative fields like indie game development, learning is not only about acquiring technical skills but about developing judgment, artistic taste, and the ability to situate one's work within a broader cultural and professional landscape [34, 36, 50]. When generative AI supplies both solutions and affirmation, developers may

progress through projects without encountering the friction that prompts reflection or recalibration. Over time, this can make it more difficult for workers to assess their own readiness or identify areas for growth.

The consequences of this potential erosion are particularly pronounced in indie game development, where creative labor has long depended on informal infrastructures rather than institutionalized training programs or standardized career ladders [33, 34, 79]. In these contexts, learning is inseparable from social interaction, and evaluation is inseparable from community membership. Based on our findings, feedback from peers, exposure to others' failures, and participation in shared creative cultures serve as critical mechanisms for developing skills and negotiating careers. By absorbing multiple roles previously distributed across peers, mentors, and collaborators, generative AI may potentially reconfigure indie game developers' creative labor into a more individualized practice, where responsibility for growth, evaluation, and resilience is increasingly borne by the developer alone.

Taken together, generative AI's potential to erode creative labor in indie game development reflects a transformation in how creative work can be sustained, evaluated, and valued in the indie community over time. By foregrounding this dual role collision, our findings highlight how generative AI can subtly weaken the social foundations of creative labor in the indie community without explicit replacement or coercion, raising critical questions about fairness, accountability, and long-term sustainability in AI-mediated creative work.

5.1.2 Generative AI's Potential to Erode Indie Developers' Collective Social Infrastructures by Reshaping How Community-Wide Social Support Is Valued and Distributed. Beyond creative labor *per se*, our findings also complicate emerging narratives around AI-mediated support by showing that when social support is delivered through AI in a productivity-oriented workflow, it has potential to erode indie developers' collective social infrastructures by subtly substituting forms of community-wide social support for sustaining creative labor, such as emotional resilience, professional calibration, and coping with uncertainty. This substitution has significant implications for how social support is valued and distributed in creative technology communities, such as indie game development. Social support theories emphasize that emotional, esteem, and network support derive their meaning from reciprocity, shared context, and social embeddedness [2, 22, 25, 80]. In the indie community, practices such as emotional care, mentorship, and peer critiques are sustained through informal, collectively enacted forms of labor that shape norms of participation, learning, and professional legitimacy [5, 8, 9, 41]. When these functions are absorbed into AI systems, they become less visible as labor and more easily framed as personal resources available on demand. This invisibility risks normalizing isolation by presenting individualized coping as sufficient, while obscuring the erosion of communal support structures that make long-term participation in creative work possible.

Moreover, AI-mediated social support may reshape how vulnerability and uncertainty are managed. As shown in our findings, when indie developers turn to generative AI for reassurance or guidance, moments of doubt that might otherwise prompt supportive conversations, collective problem-solving, or shared reflections are instead resolved privately. While this may reduce friction in the moment, it also reduces opportunities for relational repair, mutual recognition, and the development of shared norms around struggles and failures that indie developers often face. Over time, **such shifts may weaken the social bonds that sustain the indie community, even as individual productivity appears to increase.** As generative AI systems are increasingly positioned as helpers, companions, or supportive collaborators in our everyday work practices [13, 57, 62, 71, 75], similar patterns of substituted collective social infrastructures may emerge across various creative domains beyond indie game development. By framing AI-mediated social support as a potential way to restructure embedded social dynamics, this work contributes to discussions on how automation reshapes not only tasks and outputs, but also the social relations that underpin fair, accountable, and sustainable creative work in the future.

5.2 Design and Policy Interventions: Governing Generative AI's Dual Role in Creative Labor

As discussed above, our findings suggest that consolidating generative AI's productivity assistance and social-support functions within the same workflow may introduce new risks to both the creative and social foundations of indie game development. Addressing these risks requires intervention from multiple stakeholders who shape how generative AI can be designed, deployed, and interpreted within creative labor ecosystems. From a FAcCT perspective, these interventions are not merely design choices but governance decisions that influence how responsibility, authority, and care are distributed between individuals, communities, and institutions. In particular, from a speculative and critical design perspective [11, 29, 52], participants' concerns about generative AI's potential to reshape community learning, mentorship, and professional development over time highlight the importance of attending not only to present-day practices but also to the possible trajectories of emerging AI-mediated work arrangements. In this sense, developers' anticipatory concerns provide an important lens for considering how governance and design decisions made today may shape the future organization of creative labor. Using indie game development as a valuable case, below we identify three stakeholder groups whose decisions substantially influence these outcomes, and outline implications that can also be extended to broader creative communities (see also Table 2 in Appendix).

5.2.1 Generative AI Developers and Platform Providers. Developers of generative AI tools and platforms play a central role in shaping how creative workers interpret, evaluate, and rely on AI systems. Our findings show that indie developers can conflate AI-generated output and AI-provided reassurance with professional competence and readiness, particularly when such systems deliver fluent outputs alongside affirming or evaluative language. This dynamic is especially pronounced for early-career and solo indie developers, who often lack stable access to mentors, peer critique, or institutional feedback and therefore rely heavily on AI-mediated signals to assess their progress. Over time, this can contribute to skill miscalibration, over-reliance, and reduced engagement with socially grounded learning processes.

To mitigate these risks, AI tool developers should clearly define functional role boundaries, particularly between generative output, informational assistance, and social or esteem-oriented responses. For example, systems used for asset creation or coding could avoid embedding affirming or evaluative language (e.g., "this looks professional") alongside generated outputs, or clearly label such responses as non-evaluative. These AI tools may also include contextual disclosures that clarify AI feedback does not substitute for peer review, playtesting, or professional critique, particularly important in indie contexts, where informal signals of quality often directly shape access to opportunities.

Beyond interface-level design choices, platform governance and positioning decisions also matter. When AI systems are framed as "co-creators," "mentors," or "supportive collaborators," they may implicitly claim authority over both production and evaluation, blurring the distinction between productivity assistance and social evaluations. Tool providers should therefore resist branding, onboarding narratives, and interaction patterns that anthropomorphize AI as a trusted judge or confidant in creative work [43]. Instead, they could emphasize AI's limited, task-scoped role and foreground the continued importance of human feedback and community engagement.

5.2.2 Creative Technology Workers and Communities. Indie game development is largely sustained through collective social infrastructures, including peer critique, mentorship, and shared learning in forums, Discord servers, game jams, community events, and informal online and offline networks. These infrastructures perform essential forms of creative and emotional labor, compensating for the absence of formal training programs and stable employment. Our findings indicate that when generative AI absorbs both productivity-oriented and social-support functions, developers may engage less with these communal practices, weakening socially mediated learning and collective care. This has implications for FAcCT research on collective governance, as it shows how

AI adoption can quietly erode community-based institutions that historically distribute learning, evaluation, and support in equitable and participatory ways.

Therefore, in addition to merely focusing on designing and developing appropriate AI tools, creative technology workers and communities, such as game jam organizers, indie-focused platforms, and online community moderators, should demonstrate more agency to proactively shape how generative AI can be integrated into indie development practices. Rather than treating AI adoption as an individual choice, stakeholders should actively reinforce the value of human-centered critique, mentorship, and collective learning in AI-mediated contexts [65]. For example, game jams and indie events could encourage participants to document their development process, reflect on design decisions, or engage in structured peer feedback sessions, rather than evaluating projects solely based on the outcome. Such practices can help preserve learning-oriented norms and counteract the tendency for AI-assisted outputs to dominate the evaluation process. At a structural level, facilitated peer review sessions, mentorship pairings, or rotating critique groups can lower the social cost of seeking feedback, particularly for newcomers and marginalized developers, for whom community access is a primary pathway into creative work. Ensuring that AI complements rather than erodes these infrastructures is essential for the long-term viability of indie game development as a collective creative practice.

5.2.3 Policymakers, Funding Providers, and Institutions Supporting Creative Labor. Finally, policymakers, funding providers, and institutions that support creative labor play a crucial role in shaping the broader conditions under which generative AI should be promoted, adopted, and integrated in creative communities. In indie game development and other creative communities, these actors influence which kinds of work are funded, how success is evaluated, and where responsibility for learning and well-being lies. For example, our findings show that when generative AI provides both productivity assistance and emotional reassurance, responsibility for skill development, evaluation, and emotional sustainability could be shifted to be a burden solely on individual developers. This shift risks obscuring broader structural issues that hinder sustainable creative work, such as labor precarity, isolation, and limited access to mentorship — issues that have long shaped creative work but may become less visible as AI-mediated support fills immediate gaps.

Therefore, institutions that fund or promote creative work should treat generative AI not only as a productivity technology but as a sociotechnical system that can reshape labor conditions and social infrastructures in creative communities. In this sense, funding programs and agencies should prioritize projects that include explicit mentorship components or community-building activities for creative workers, to counterbalance the individualizing tendencies of AI-mediated workflows. For example, grant applications for AI-supported creativity may require applicants to articulate how learning, feedback, and collaboration will be supported beyond the use of AI assistance alone. Such criteria would help ensure that AI adoption does not come at the expense of collective skill development and professional growth. Further, policymakers may also need to establish clearer guidelines for transparency and accountability around AI-assisted creative work, particularly in publicly funded, exhibited, and evaluated creative contexts. Such disclosure standards regarding AI use in creative production could help prevent inflated expectations of individual competence and protect early-career creators from being evaluated against standards implicitly shaped by automation [43, 58].

Taken together, our findings suggest that responsibility for creative workers' well-being should not be quietly offloaded onto AI systems framed as emotional companions or substitutes for community care. While AI-mediated reassurance may alleviate stress or loneliness in the moment, it does not address the underlying conditions that contribute to burnout, isolation, and insecurity in creative labor markets. In this sense, policymakers, funders, and organizations are responsible for ensuring that generative AI augments rather than replaces the social infrastructures that sustain creative work. Recognizing emotional support, learning, and evaluation as shared institutional responsibilities is essential for maintaining the diversity, resilience, and sustainability of creative communities, such as indie game development, in the presence of generative AI.

5.3 Limitations and Future Work

This work has a few limitations. First, although our participants demonstrate diverse experiences with indie game development and generative AI, they are predominantly located in the USA and 12 out of 16 identify as men. Given that indie game development is a global movement, our findings may not reflect how indie developers across different regions and underrepresented groups may perceive generative AI's dual role in productivity and social support. Future work should aim to recruit a more diverse sample to understand the unique perspectives of women developers and indie game developers from traditionally less represented regions in game development (e.g., countries where indie game development is still nascent). Additionally, future research could examine whether similar tensions emerge in other creative technology domains, such as digital art, animation, or music, to better understand how generative AI reshapes creative labor across different creative industries.

6 Conclusion

Social and productivity support are foundational to sustaining participation, learning, and well-being in creative technology communities such as indie game development. In this work, we use indie game development as a critical case to examine how generative AI is increasingly perceived as addressing both the productivity and social needs of indie developers, yet simultaneously leading to a collision of such dual roles. We demonstrate how the collision between AI's task-based assistance and the central role of social learning in indie game development, between AI's emotional and network support and the collaborative nature of the indie community, and between AI's esteem support and the collective evaluation process in indie game development has the potential to reshape this creative community. Rather than treating these evolving tensions as design shortcomings to be optimized away, we argue that they reflect deeper questions about how generative AI is positioned within creative ecosystems. We therefore emphasize the urgent need for future AI developers, creative communities, policymakers, and organizations that govern AI innovation and adoption to make AI's role boundaries legible, preserve community-based learning and evaluation infrastructures, and recognize emotional and evaluative support as collective social responsibilities rather than individual burdens. As generative AI may continue to reshape creative industries beyond game development, this work contributes to ongoing debates about the labor and economic impacts of AI by highlighting how the entanglement of productivity and social support can potentially reconfigure creative practices. Attending to these dynamics is essential for ensuring that future generative AI systems support not only efficiency and output, but also the sustainability, equity, and well-being of creative communities over time.

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Generative AI Disclosure

Generative AI tools were used in a limited capacity to assist with grammar correction, sentence restructuring, and stylistic refinement of the manuscript. All aspects of research design, participant recruitment, data collection, qualitative analysis, interpretation of findings, theoretical framing, and contribution development were conducted exclusively by the human authors.

Ethics Statement

This study was reviewed and approved by the authors' Institutional Review Board (IRB). All participants were provided with the informed consent prior to participation and were informed of the study's purpose, procedures, and their right to withdraw at any time without penalty. Interviews were conducted with care to minimize

potential discomfort, and participants were not asked to disclose any personally identifying information. Interview data were anonymized during transcription and analysis, and all data were stored securely and accessed only by the research team. Participants received a \$20 digital gift card as compensation for their time.

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P#	Gender	Age	Ethnicity	Country	Experience in Indie Game Development	Indie Genres	Game	AI Tools Used in Game Development	Part/Full-Time Developer
P1	Man	29	Asian	USA	6 years	2D	top-down, Platformer	ChatGPT, Claude, Stable Diffusion, Scenario.com	Part-time
P2	Man	28	Indian	USA	5+ years	Action,	Adventure	ChatGPT, ComfyUI, Dall-E, Midjourney	Full-time
P3	Woman	23	N/A	USA	1 year	Visual	novel, Post-apocalyptic	Midjourney, ChatGPT	Part-time
P4	Man	20	White	USA	2 years	Simulation		ChatGPT, Dalle-E 2	Part-time
P5	N/A	37	N/A	USA	15+ years	Strategy		GPT-4	Full-time
P6	Man	18	White/Latino	USA	8 years	2D	challenge based	ChatGPT, Gemini	Part-time
P7	Man	32	White	USA	20 years	Puzzle		ChatGPT, Midjourney, Dall-E	Part-time
P8	N/A	32	N/A	USA	5 years	Puzzle		ChatGPT, Copilot	Part-time
P9	Man	38	White	USA	20 years	Alt control games,	Art games	ChatGPT, Dall-E	Part-time
P10	Man	23	N/A	Nigeria	1 year	Platformer		ChatGPT	Part-time
P11	Man	23	Asian	China	4 years	Tower	Defense, ARPG	ChatGPT, Feishu tools	Part-time
P12	Man	31	White	USA	10 years	2D	platformers	Copilot, Gemini	Part-time
P13	Woman	23	Indian	USA	2 years	Narrative		ChatGPT	Part-time
P14	Man	20	White	USA	4 years	Platformer,	Rhythm game, VR	ChatGPT, Dalle-E	Part-time
P15	Woman	25	Asian	USA	2 years	Interactive	story-telling	ChatGPT, Copilot	Part-time
P16	Man	24	Asian	China	10 years	Strategy		ChatGPT, Stable Diffusion	Part-time

Table 1. Participants’ demographics & indie game development/generative AI experiences. *N/A means that the participant did not provide that information.*

A Appendix

A.1 Participant Demographics

Table 1 summarizes the demographic characteristics, indie game development backgrounds, and generative AI usage of the 16 interview participants. Participants varied in age, years of experience in indie game development, genres of games developed, and the types of generative AI tools used in their workflows. The sample includes developers with diverse experience levels, employment arrangements (part-time and full-time), and approaches to indie game creation. All demographic information was self-reported; fields marked as N/A indicate that participants chose not to disclose that information.

A.2 Overview of Data Collection and Analysis

Figure 1 provides an overview of the study’s data collection and analysis process. We first recruited indie game developers with experience using generative AI and collected background information through a pre-interview survey and informed consent. We then conducted semi-structured interviews focused on participants’ experiences with generative AI in indie game development. Interview recordings were transcribed and analyzed using a

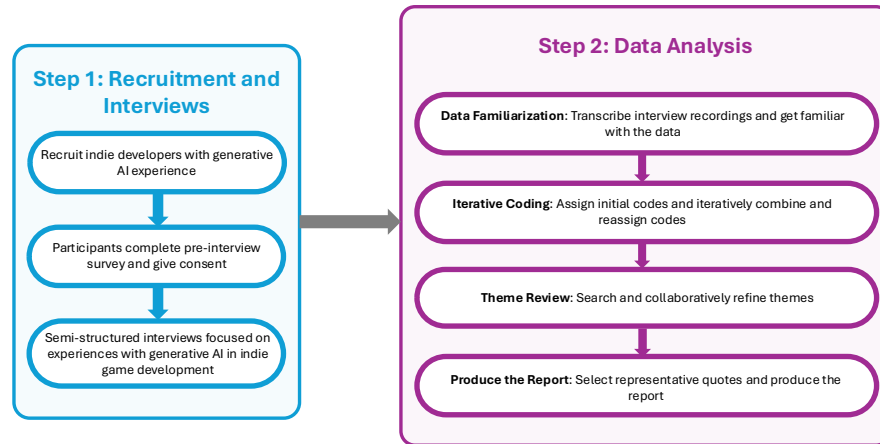


Fig. 1. Overview of the data collection and analysis process in this study

reflexive thematic analysis process, including data familiarization, iterative coding, collaborative theme refinement, and selection of representative quotes to construct the final findings.

A.3 Interpreting the Recommendations Table Through a Sociotechnical Lens

Table 2 is grounded in a sociotechnical understanding of generative AI, in which AI systems and social practices are mutually constitutive rather than analytically separable. From this perspective, generative AI does not merely act as a neutral tool introduced into an otherwise stable creative ecosystem; instead, it operates as an actor within a broader sociotechnical system that reshapes how learning, evaluation, and care are organized in creative labor.

As our findings demonstrate, the meanings and consequences of generative AI's productivity and social-support functions emerge through ongoing interactions among AI systems, developers, communities, and institutions. Accordingly, the recommendations in Table 2 are articulated across multiple stakeholders to reflect how responsibility for safety, fairness, and sustainability is distributed across this system. By treating generative AI as embedded within, and co-produced by, existing labor infrastructures and community norms, these recommendations aim to support safer and more accountable forms of AI integration that preserve collective learning, evaluation, and social support rather than displacing them.

Stakeholder	Empirically Observed Risk	Design / Governance Recommendations	Intended Impact on Creative Labor
Generative AI Developers & Platform Providers	Conflation of task completion with learning, competence, and professional readiness due to AI simultaneously producing outputs and offering validation.	<ul style="list-style-type: none"> • Separate production assistance from evaluative or esteem-oriented language. • Avoid anthropomorphic framing (e.g., "mentor," "judge," "co-creator"). • Add contextual disclosures clarifying that AI feedback is not peer review. 	Reduces skill miscalibration and over-reliance; preserves the distinction between producing work and learning work.
Generative AI Developers & Platform Providers	Displacement of socially grounded learning (trial-and-error, critique, shared failure) through immediate solution delivery.	<ul style="list-style-type: none"> • Surface uncertainty, trade-offs, and alternative approaches. • Prompt users to reflect on rationales rather than accept default solutions. • Limit "one-shot" optimized answers in exploratory or ideation contexts. 	Supports reflective learning and judgment formation rather than short-term efficiency alone.
Creative Workers and Communities (e.g., Indie Game Communities, Game Jams, Forums)	Individualization of creative work and emotional coping as AI substitutes for community interaction.	<ul style="list-style-type: none"> • Reinforce structured peer feedback and critique rituals. • Encourage reflective documentation of design decisions and failures. • Lower barriers to seeking human feedback for newcomers. 	Preserves community-based learning, care, and collective sensemaking as shared infrastructures.
Creative Workers and Communities (e.g., Indie Game Communities, Game Jams, Forums)	Weakening of collective evaluation as AI-generated outputs blur authorship and developmental stages.	<ul style="list-style-type: none"> • Evaluate projects on process, learning, and iteration—not output polish alone. • Normalize transparent disclosure of AI use without penalization. • Emphasize developmental trajectories over finished artifacts. 	Maintains fair, legible pathways into creative careers, especially for early-career creators.
Policymakers & Funding Bodies	Offloading responsibility for learning, evaluation, and emotional sustainability onto individual creators via AI-mediated "support."	<ul style="list-style-type: none"> • Require funded projects to include mentorship or peer-learning components. • Treat learning and care as institutional, not individual, responsibilities. • Evaluate AI-supported creativity within broader labor conditions. 	Counters structural precarity and prevents AI from masking missing support infrastructures.
Policymakers & Institutions	Inflation of competence expectations as AI-generated work becomes a hidden benchmark.	<ul style="list-style-type: none"> • Establish disclosure standards for AI-assisted creative work. • Protect early-career creators from automated performance baselines. • Clarify accountability in publicly funded or evaluated contexts. 	Promotes equity, accountability, and sustainable access to creative labor markets.

Table 2. Stakeholder-oriented recommendations for governing generative AI's dual role in productivity support and social support within creative technology communities.