

Co-Creating GenAI Imaginaries

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Abstract: Educational futures are often shaped by techno-utopian narratives. Moving beyond technology-pedagogy dichotomies, this paper adopts the concept of entangled pedagogy to explore how GenAI and large language models (LLMs) can reshape inclusive language education. Using a speculative and scenario-based participatory design approach, we engaged pre-service and in-service teachers in envisioning future classrooms. Through imaginative case studies and recursive scenario development, we examine how imaginaries inform practical design for postdigital learning environments. The study focuses on teachers meaning making when given concrete and pedagogical scenarios of GenAI use cases co-created by human-AI interaction. The results reveal tensions between imagination and the imaginable, hope and caution, underscoring the crucial role of the sociocultural context, as well as the importance of human mediation in GenAI-driven futures.

Keywords: Sociotechnical Imaginaries, Generative AI, Meaning Making

1. Introduction

The transformative potential of generative artificial intelligence (GenAI) in education is increasingly narrated through the lens of technological imaginaries (Jasanoff and Kim, 2015): utopian visions that promise personalized learning, greater inclusion, and unprecedented pedagogical efficiency. These discourses often emphasize the affordances of Large Language Models (LLMs) as intelligent partners in the learning process, capable of automating tasks, adapting to learners' needs, and supporting creative inquiry. However, such imaginaries frequently remain disconnected from the sociocultural and affective realities of educational practice (Qi and Chen, 2025). The day-to-day experiences of teachers—marked by emotional labor, ethical concerns, institutional pressures, and deeply held pedagogical values—are often rendered invisible in mainstream innovation narratives (Rahm, 2023). Considering these backdrops, the authors of this paper move from instrumentalist views (Bardone, Möttus and Eradze, 2024) to a postdigital perspective (Jandrić, MacKenzie and Knox, 2023) of education. Rather than treating technology as external to (and separated from) pedagogy, we embrace the concept of Entangled Pedagogy (EP) (Fawns, 2022), which understands teaching and learning as situated within sociotechnical assemblages — complex, dynamic interactions between tools, values, infrastructures, imaginaries and the cultural practices of users. In this framework, neither pedagogy nor technology can be meaningfully discussed in isolation; their effects and meanings are co-constituted within contexts.

To engage with this complexity, we turn to scenario-based and speculative methodologies (Carroll, 2000; Rahm, 2024) as epistemic tools. Scenarios allow us to externalize and iterate future possibilities, serving as boundary objects through which participants can reflect on their desires, fears, and pedagogical priorities. Speculative design creates space for imagination, enabling the articulation of futures that are not yet realized but are shaped by present conditions (Ross, 2022). These methods are especially valuable for interrogating innovation in a postdigital condition—one in which digital and non-digital, human and non-human, infrastructural and affective elements are increasingly entangled (Knox, 2019).

2. Background

Previous research demonstrated how speculative and scenario-based methods can scaffold imaginative engagement with future classrooms. The present study focuses on how in-service teachers respond to, critique, and reshape speculative designs concerning pragmatic and socio-emotional dimensions of GenAI implementation. Moreover, EP offers a productive lens to investigate how educational futures are imagined, resisted, and negotiated. It foregrounds the socio-material and affective dimensions of educational change, emphasizing that innovation is not a linear process of adoption but a recursive, relational, and often contested practice. As such, it opens space for participatory inquiry into the imaginaries that teachers and students bring into their interaction with emerging technologies—imaginaries that are informed by culture, past experiences, professional identities, and visions of desirable futures. Building on sociotechnical imaginaries (Jasanoff and Kim, 2015), educational futures (Manna and Eradze) scenario-based research (Carroll, 2000) and speculative research methodologies (Rahm, 2024), we explore how future scenarios function as epistemic artifacts: mediating between the imaginative and the imaginable, the designed and the enacted, the emotional and the institutional.

3. Research Design

The project involved two key participant groups: pre-service teachers (n=78) which participated in speculative classroom design using GenAI platforms and persona-based scenarios, and in-service teachers (n=6), that participated in a co-design session focused on negotiating the GenAI future scenarios developed by pre-service teachers in earlier phases. A three-phase iterative process was implemented:

1. Student-generated speculative designs and personas
2. Researchers scenario co-creation with ChatGPT based on student input
3. In-service teacher co-design session, followed by sentiment and thematic analysis.

The student-generated speculative classroom designs from Phase 1 served as foundational inputs for the scenario generation process in Phase 2. Researchers first systematically analyzed (as reported in Manna and Eradze, 2025) the student submissions to extract key themes, recurring values, envisioned classroom dynamics, and types of AI interactions imagined by the pre-service teachers. These insights were then reformulated using a prompt with custom ChatGPT to co-create pedagogically meaningful, narrative-driven outputs, emphasizing both pedagogical intent and stylistic tone. The resulting AI-generated scenarios aimed to extend the students' ideas while translating them into coherent and imaginable narrative forms. However, as discussed later, the outputs tended to standardize or neutralize speculative richness, revealing limitations in GenAI's capacity to maintain the complexity of human-designed imaginaries.

Phase 2 was conducted by a single researcher, who is one of the authors of this study, which acted as a mediator between the imaginative outputs from pre-service teachers and the AI-based scenario generation process aiming at concretizing the narrative-driven actionable scenarios. Drawing on the personas and speculative classroom designs from Phase 1, the researcher created prompts for custom chatGPT aiming to preserve the tone, goals, and educational values implicit in the student contributions. It must be acknowledged that her positionality as a researcher embedded in critical, postdigital education studies, inevitably shaped the interpretation of these inputs, introducing both reflexivity and bias in how the scenarios were curated.

Through all the phases, the data were collected through scenario texts, transcribed discussions, researcher notes, and audio recordings. Analysis employed narrative inquiry (Clandinin and Connelly, 2000), thematic coding (Saldaña, 2021) and sentiment analysis in R.

4. Data Analysis and Discussion

4.1 Imaginaries in Conflict: Findings From the First and Second Iteration

The contrast between students' and teachers' imaginaries revealed distinct orientations toward GenAI-mediated educational futures. Students envisioned post-institutional, nature-connected classrooms featuring shrinking furniture, AI-assisted sensory tools, and immersive ecological environments. These visions were playful, utopian, and largely unbound by infrastructural or policy constraints, positioning technology as a fluid enabler of embodied, experiential learning. In contrast, teachers perceived these scenarios as emotionally detached, pedagogically unfeasible, and potentially dystopian. Their primary concerns included the erosion of human connection, the difficulty of managing fragmented and hyper-individualized AI interactions, and the risk of amplifying educational inequalities. Moreover, the scenarios generated by ChatGPT—though seeded with imaginative prompts—tended to reproduce normative, tech-deterministic frameworks, underscoring the limitations of using GenAI as a co-designer. Rather than extending speculative complexity, the AI reinforced familiar tropes, revealing its tendency to default to dominant sociotechnical scripts and to struggle with speculative complexity (Ross, 2022; Dron, 2023). An example of a student-generated scenario is an “edible learning garden” where plants respond to children's questions through embedded GenAI interfaces, blending nature, language learning, and multisensory feedback. In contrast, the AI-generated version translated this into a more conventional outdoor classroom equipped with holographic displays and a biometric attendance system, sanitized of ecological metaphor and affective layering. This illustrates how imaginative play was flattened in AI output, reflecting normative narratives despite speculative input.

4.2 Fear of the Imaginable: Findings From the Third Iteration and co-design Activity

The third iteration of the study where the human-AI co-created narratives were presented to teachers, four interrelated thematic concerns surfaced that reflect what we term the *fear of the imaginable* and which are: The role of the teacher in an AI-driven classroom; Potential impacts on student learning and development;

Classroom design and organization; The role of technology in education. First, participants expressed their anxiety about the shifting role of the teacher in AI-mediated classrooms. While acknowledging the potential for educators to act as facilitators rather than mere content deliverers, they underscored the irreplaceable value of teacher empathy and emotional presence—qualities perceived as irreducible to algorithmic functions. Second, there were significant concerns regarding the impact of technology on student learning and development. Teachers worried about the erosion of personalized support and the widening of existing inequalities, particularly for students requiring differentiated attention. They emphasized the need for a sustained human-technology balance to safeguard holistic educational development. Third, reflections on classroom design revealed interest in flexible, needs-responsive spaces over traditional layouts, though infrastructural constraints were seen as major obstacles to implementation.

Finally, while participants recognized the affordances of technology—such as real-time feedback and personalization—they consistently warned against over-reliance. They argued for a critical pedagogical stance in which technology serves to augment rather than replace human interaction, with teachers positioned as active mediators of the educational experience. Together, these themes reflect a cautious, context-aware approach to GenAI integration—one that values technological affordances while defending the relational core of teaching and learning. Thematic coding followed an iterative process using NVivo and Saldaña’s two-cycle coding approach. Initial descriptive codes (e.g., “loss of empathy,” “tech overload,” “flexibility”) were later clustered into broader categories reflecting both affective and pedagogical concerns. Notably, the theme “role of the teacher” intersected heavily with both emotional labor and control over AI-mediated environments, indicating a central axis of negotiation. These overlaps suggest that tensions between relationality and automation permeated multiple thematic domains.

4.3 A Bad or a Good Feeling Towards the Future? Overall Sentiment Analysis

The sentiment analysis of the co-design discussion offered a nuanced emotional landscape, highlighting the ambivalent yet generally constructive attitudes of teachers toward GenAI integration. Positive sentiment emerged as the most dominant category (score = 20), suggesting that, despite expressed concerns, participants approached the future of GenAI entangled pedagogy with an overall optimistic and open mindset. Figure 1 shows a dominance of positive and trust-related sentiments, with lower but notable scores for negative emotion, fear, and anticipation.

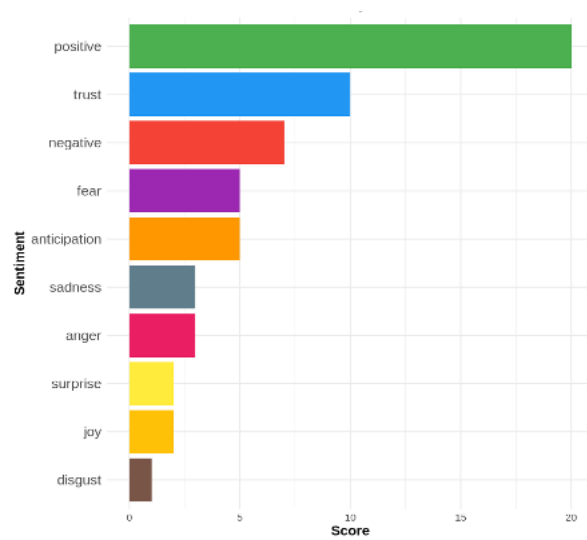


Figure 1: Sentiment Distribution of Teacher Responses to AI Integration Scenarios

Trust followed closely (score = 10), reflecting the emphasis placed on preserving foundational relational dynamics—particularly the teacher-student bond—within technologically mediated learning environments. Fear and anticipation were equally represented (scores = 5), indicating a dual orientation toward risk and possibility: while apprehensions about dehumanization and systemic inequities were present, so too was a forward-looking curiosity about educational transformation. Negative sentiment (score = 7) was evident but did not overshadow the discussion, reinforcing the notion that critiques were framed more as cautious engagement than rejection. Notably, expressions of joy and surprise were minimal (scores = 2), pointing to the pragmatism of the participants, who remained grounded in operational and ethical considerations rather than emotional

enthusiasm. The overall sentiment score (7.2) confirms a measured but hopeful stance, aligning with the broader thematic findings that underscore a desire for balanced, human-centered innovation in the postdigital classroom.

To deepen our understanding of the emotional dynamics surrounding GenAI integration, we visualized the distribution of positive vs. negative emotional categories (Figure 2). This comparison reveals a prevalence of constructive affect, with positive and trust scores outweighing all other sentiments. Nonetheless, the presence of fear, anticipation, and negative sentiment highlights a nuanced, ambivalent discourse: while participants remained hopeful, they were equally attuned to the ethical, relational, and infrastructural risks of implementing AI in educational contexts. The balance between expectation and caution—evident in the proximity of anticipation and fear—is indicative of what we describe as a postdigital realism: an approach that resists both techno-optimism and fatalism, favoring instead a grounded negotiation of sociotechnical futures. This polarity of affect, mapped across categories, reinforces the findings of the narrative analysis: teachers are not resisting technology wholesale, but rather engaging with it through a deeply relational and context-sensitive lens.

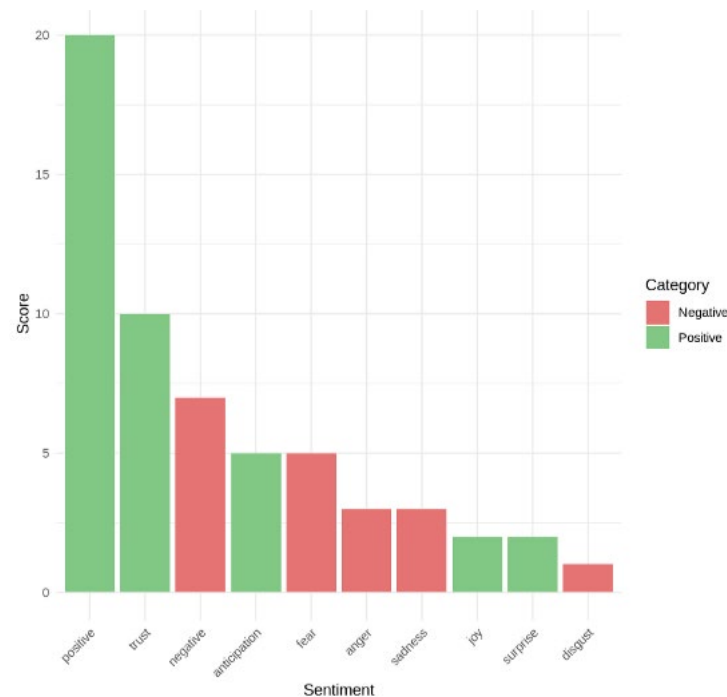


Figure 2: Comparison of Positive vs. Negative Emotional Categories in Teacher Responses

5. Conclusions

This study highlights the critical role of negotiation and contextual interpretation in shaping how GenAI is imagined and evaluated within educational settings. The participatory co-design process revealed a clear disjunction between speculative student visions—fluid and technologically optimistic—and the grounded, experience-informed perspectives of in-service teachers. While students embraced GenAI as a catalyst for reimagining space and interaction, teachers brought these imaginaries into conversation with the realities of classroom orchestration, ethical responsibilities, and the relational fabric of pedagogy. In this negotiation, GenAI emerged not only as a tool but as a socio-cultural mirror — a site where hopes for personalization and innovation coexist with anxieties about surveillance and emotional detachment. Teachers’ responses underscored the need for a form of postdigital orchestration (Dron, 2023) in which technology is embedded meaningfully within the pedagogical, social, and institutional rhythms of practice.

In line with other studies (Qi and Chen, 2025), our findings stress that AI integration in education cannot be divorced from its sociocultural and institutional context. Teachers do not engage with GenAI in a vacuum; they do so as embedded actors within specific national education systems, linguistic communities, institutional structures, and pedagogical traditions. This is particularly relevant in language education, where identity, affect, and sociocultural nuance play central roles. By attending to these embedded contexts, we aim to understand not only what AI can do in education, but what it is allowed, resisted, or re-imagined doing by those at the front lines of practice. The findings obtained so far, carry institutional implications for teacher professional

development and AI policy. Teacher fears were not rooted in technological resistance per se, but in unresolved tensions between automation and care, efficiency and equity. Embedding GenAI in educational systems must therefore go beyond functionality, attending to teachers lived experiences and ethical commitments. From the perspective of entangled pedagogy, the co-design process reveals that futures cannot be designed without those who will inhabit them, highlighting the need for participatory governance in educational AI design.

Ethical Declaration

Ethical clearance was not needed, and informed consent forms were acquired from the participants.

AI Declaration

“Julius AI” was implemented as a support platform for the analysis conducted by the researchers.

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