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Untangling the Cognitive and Emotional State of EFL Learners in AI-Integrated Language Instruction: A Humanized Pedagogy Perspective

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Abstract

This research aims to analyze the cognitive and affective perceptions of Artificial Intelligence (AI) technology-based language learning, particularly humanized pedagogy, among the Iranian English as a Foreign Language (EFL) learners. Based on the Community of Inquiry (CoI) model and Freirean beliefs of dialogue and empowerment, the study examines how students make their way back and forth between technological efficacy and emotional connection. A qualitative research design was applied, where semi-structured interviews and reflective narratives were used. The thematic analysis produced five broad themes, namely (1) AI as a source of psychological safety and emotional isolation; (2) teacher mediation as crucial for humanizing use of AI; (3) learner agency existing along a continuum mediated by critical literacy; (4) varied types of "safety ecologies" encapsulated in AI, peers, and teachers; and (5) complementary partnership between humans and AI. Results show that the AI supports cognitive engagement and self-regulation, but only when there are emotional presence and empathy, due to the teachers' mediating role. The conclusion drawn from the study is that humanization of pedagogy is critical to maintain an equilibrium between automation and affect in order for AI to become a tool for empowerment rather than alienation in EFL landscapes.

1. INTRODUCTION

The integration of AI into the teaching of EFL has changed learners' attitudes and interactions in online learning. Learning as a game, adaptive feedback, and conversational practice with the help of such platforms as ChatGPT, Duolingo, and Replika have become a part of the daily learning process (Alizadehmahmoudalilo, 2025; Tajik, 2025). However, although AI is increasingly assuming pedagogical roles traditionally performed by human instructors, its cognitive–emotional interfaces, such as adaptive feedback systems, conversational agents, and affect-detection features, may also introduce potential distractions that warrant critical examination. For example, algorithmically generated responses, simulated empathy, and rapid feedback loops can shift

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learners' attention toward system interaction rather than reflective engagement with learning content, potentially influencing motivation, emotional regulation, and perceptions of agency. In addition to questions about the effectiveness of technology in education, the absence of genuinely human relational presence in AI-mediated environments raises concerns about how empathy, human agency, and other interpersonal qualities are represented or substituted within educational processes (Parviz, 2024; Wang et al., 2022). The limited availability of educational resources in some Iranian contexts, together with cultural norms that emphasize relational interaction and social connectedness, may shape how learners perceive the absence of human presence in AI-mediated educational environments. This suggests that reduced human–teacher interaction could carry affective and relational implications that warrant empirical investigation rather than assumption.

The current literature suggests a differentiated pattern: while some studies indicate that AI use can be associated with increased autonomy, motivation, and performance in specific learning and workplace contexts, these benefits do not necessarily extend to human relationality—here defined as the quality of interpersonal connection, mutual responsiveness, and social embeddedness in work and educational environments. Fazeli and Attarzadeh (2023) highlight tensions around autonomy that may disrupt sociocultural engagement; and Neysani et al. (2024) report challenges in trust and relational confidence with AI-based educational technology—patterns that point to weakened human relationality despite potential gains in task-related outcomes. Teaching approaches that incorporate emotional and ethical sensitivity may therefore be increasingly important in AI-mediated learning environments.

Drawing on Freire's (1970) dialogical pedagogy, which emphasizes dialogue, care, critical awareness, and learner empowerment, the present study adopts a theoretical lens that foregrounds the human dimensions of education, an approach that remains highly relevant in contemporary discussions of mechanization and AI-mediated learning. Education is widely understood as a fundamentally relational process that integrates both emotional and cognitive dimensions of learning. CoI framework reflects this view by emphasizing the interaction of social, cognitive, and teaching presence in meaningful educational experiences (Garrison et al., 1999). However, the rapid integration of AI into L2 education has largely been examined in terms of performance outcomes and efficiency, with comparatively limited attention to how AI affects the interplay between learners' emotional engagement, relational experience, and cognitive development. This gap is significant because AI-mediated learning environments may simultaneously enhance instructional support while reshaping human interaction. Recent work, for instance, proposes repositioning AI as a humanized agent that supports rather than replaces teachers (Wang et al., 2022), yet empirical evidence on how such humanized instructional designs influence learners' emotional and cognitive involvement remains scarce. To address this gap, the present study investigates Iranian EFL learners' experiences of AI-enabled instruction, focusing on the tensions between safety and isolation, empowerment and dependency, and cognitive improvement and emotional disconnection. By examining these dynamics, this research aims to contribute empirical insight into how AI can be integrated into pedagogical designs that sustain emotional resilience, learner agency, and relational engagement alongside language development.

2. LITERATURE REVIEW

Theoretical Framework

Among established frameworks for understanding learning in digital environments, CoI model (Garrison et al., 1999) provides a well-developed lens for analyzing educational experience. CoI model (Garrison et al., 1999) conceptualizes technology-mediated learning as emerging from the

interaction of three interdependent presences: social, cognitive, and teaching. The framework has been expanded to encompass online and AI-mediated learning environments in recent research, which has underscored the potential of digital tools to either support or disrupt these presences (Wang et al., 2022). In the realm of learning L2, these features are especially pertinent since interaction, collaborative meaning construction, and instructional scaffolding are fundamental to language growth. Within the realm of AI-enhanced EFL education, the Community of Inquiry concept is particularly pertinent, as AI may function as a humanized agent that emulates presence to alleviate some constraints of conventional teaching (Li et al., 2024). AI-mediated interfaces can enhance social presence by promoting collaborative dialogue or peer-like interactions, improve cognitive presence through adaptive, personalized tasks that direct learners' thinking, and reinforce teaching presence by offering real-time scaffolding and feedback customized to learner responses (Guo et al., 2025). For example, AI chatbots or conversational agents can prompt learners to reflect, suggest follow-up tasks based on learner input, and deliver immediate corrective or encouraging feedback, thereby supporting relational, cognitive, and instructional engagement simultaneously (Shafiee Rad & Roohani, 2025).

However, the application of CoI to AI-mediated contexts also reveals conceptual limitations. Although the model specifies structural conditions for interaction, it does not explicitly theorize culturally situated emotional dynamics. This omission is important because other theoretical traditions—such as sociocultural theory, which emphasizes the socially mediated nature of learning (Vygotsky, 1978), affective-filter theory, which highlights the role of emotion in language acquisition (Krashen, 1982), and culturally responsive pedagogy, which foregrounds the influence of cultural values on learning relationships (Gay, 2018)—demonstrate that affective climate, relational warmth, and culturally shaped expectations play a central role in learning processes. In contexts such as Iran, where collectivist norms emphasize interpersonal harmony and emotional attunement (Fazeli & Attarzadeh, 2023; Tohidyan Far et al., 2024), these affective dimensions may substantially influence how learners experience presence. Thus, while CoI remains a valuable structural framework, it benefits from theoretical supplementation when applied to culturally embedded AI-supported learning environments.

Humanized pedagogy, a dialogical and empowerment-oriented educational philosophy inspired by Paulo Freire (1970), critiques forms of technology-mediated instruction that risk dehumanization through the algorithmic prioritization of observable behaviors over relational and empathetic processes. Recent scholarship has attempted to address this concern by designing AI-supported learning environments that avoid fully artificial interactional conditions; however, such approaches may remain overly optimistic. Despite their anthropomorphic affordances, AI systems can in some cases contribute to emotional detachment or reduced interpersonal sensitivity, particularly in resource-limited contexts where human instructional support is scarce. Integrating the CoI framework with principles of humanized pedagogy therefore represents a necessary step toward balancing technological efficiency with learners' cognitive, relational, and developmental needs.

AI Integration in Iranian EFL Classrooms

Recent studies examining AI in Iranian EFL contexts demonstrates a rapidly developing yet critically nuanced field of inquiry. Rather than portraying AI adoption as uniformly transformative, existing studies collectively frame it as a context-dependent pedagogical innovation whose effectiveness is shaped by institutional resources, cultural norms, and teacher mediation. Across the literature, AI is positioned not as a replacement for traditional pedagogy but as a supplementary

system capable of extending instructional capacity under constrained educational conditions (e.g., Amirjalili, 2024; Bonyadi et al., 2025; Heydarnejad, 2025a, b; Sedghi & Fazilatfar, 2025).

A consistent empirical pattern concerns AI's potential to compensate for structural limitations common in many Iranian classrooms. Large student populations, restricted contact hours, and limited access to diverse instructional materials often reduce opportunities for individualized feedback. Studies indicate that AI-supported platforms can partially address these limitations through adaptive feedback, automated scaffolding, and extended practice opportunities beyond class time. For example, Alizadehmahmoudalilo (2025) demonstrated measurable gains in both receptive and productive vocabulary knowledge when learners engaged with AI-mediated assessment systems, suggesting that adaptive technologies may function as compensatory mechanisms in resource-constrained environments. Similarly, Tajik (2025) found that gamified AI-supported listening activities produced modest yet statistically meaningful improvements compared with non-gamified interfaces, highlighting motivation as a mediating variable in technology-enhanced learning outcomes.

Teacher cognition research further complicates the narrative by revealing ambivalent professional attitudes toward AI adoption. In a survey, Parviz (2024) reported that Iranian EFL teachers simultaneously recognized AI's capacity to streamline lesson planning, foster collaborative learning, and support reflective pedagogy, while also expressing reservations about reduced interpersonal interaction, depersonalized feedback, and the cultural limitations of predominantly Anglo-centric AI content. Such findings suggest that acceptance of AI is mediated not only by perceived usefulness but also by alignment with sociocultural and pedagogical expectations. This cautious stance is reinforced by Neysani et al. (2024), who argue that trust in AI tools remains conditional upon their ability to preserve social presence, contextual sensitivity, and equitable participation.

Another strand of research focuses on affective and psychological dimensions of AI-mediated language learning. For instance, Heydarnejad (2025a, b) found that AI-supported environments can positively influence learners' emotion regulation, self-efficacy, and reflective engagement, but only when technological integration is pedagogically guided rather than technologically driven. This qualification is significant because it underscores a recurring theme across studies: outcomes depend less on the presence of AI itself and more on the instructional design principles governing its use. Additionally, Gholami and Fatahi (2024) warn that excessive reliance on automated prompts and AI-generated content may inadvertently diminish authentic peer interaction and socio-emotional learning opportunities, thereby weakening communicative competence development. Their findings highlight a potential paradox in AI integration; while technology can expand access to language input and practice, it may simultaneously reduce human interaction if implemented uncritically.

Synthesizing these strands reveals several theoretical and methodological tendencies in the literature. Empirical work has largely focused on short-term interventions, specific tools, or discrete language skills, resulting in a fragmented evidence base that lacks a comprehensive explanatory framework. Few studies explicitly connect cognitive gains, affective variables, and sociocultural dynamics within a unified model of AI-mediated language learning. Moreover, although contextual factors such as institutional infrastructure and cultural norms are frequently acknowledged, they are rarely operationalized as analytical variables, limiting cross-study comparability.

Overall, the existing body of research suggests that AI integration in Iranian EFL classrooms should be understood as a pedagogically mediated process rather than a purely technological innovation. Evidence indicates that AI can enhance learning efficiency, motivation, and skill development, particularly in settings constrained by time and resources. However, these

benefits are neither automatic nor universal; they depend on informed instructional design, teacher agency, and alignment with local educational values. Consequently, future research would benefit from theoretically grounded frameworks capable of systematically explaining how technological affordances, learner characteristics, and sociocultural conditions interact to shape AI-supported language learning outcomes.

Cognitive States of EFL Learners in AI-Integrated Instruction

Recent research indicates that AI integration in EFL instruction can influence both cognitive and affective learner outcomes, although the nature and scope of these effects vary depending on instructional design and context. Experimental and quasi-experimental studies report that AI-enhanced environments can increase learner motivation, engagement, and task-related critical thinking (Heydarnejad et al., 2024; Heydarnejad, 2025. Moreover, intervention and classroom-based investigations suggest that AI tools can foster autonomy, resilience, emotional regulation, and cognitive flexibility, while also improving self-esteem, language interest, and positive learning attitudes (Ma & Chen, 2024; Wei, 2023).

Teacher-mediated AI use appears crucial in maximizing these benefits. Mixed-methods and longitudinal studies indicate that supportive guidance reduces AI-related technostress, mitigates procrastination, and enhances social-emotional competence and oral communication skills (Ma & Chen, 2024). In Iranian EFL contexts, AI-assisted vocabulary applications providing contextualized input, automated corrective feedback, and gamified practice have yielded measurable gains in lexical acquisition (Ramazani et al., 2025). Similarly, adaptive AI-driven listening systems and task-oriented tools have been found to improve listening sub-skills and performance in shadowing and problem-solving tasks (Tajik, 2025; Wang et al., 2022). AI-generated feedback has also been highlighted as a catalyst for self-reflection and cognitive closure, supporting learners' meta-awareness of their own learning processes (He et al., 2025).

Although these findings show that AI can positively affect psychological and learning conditions often associated with higher-order cognition, such as autonomy, resilience, and cognitive flexibility, current evidence primarily reflects indirect, domain-specific, or short-term outcomes. Direct, sustained development of higher-order processes, including critical reasoning, creative problem solving, and metacognitive regulation, appears to require deliberate pedagogical mediation and ongoing human oversight (Parviz, 2024). In other words, AI can create favorable conditions for higher-order cognitive engagement, but its effects are most robust when integrated thoughtfully within instructional frameworks that promote active reflection, critical thinking, and creative application.

Emotional States and Affective Dimensions

Students tend to experience better emotional outcomes when interacting with AI under teacher guidance, whereas robotic systems or traditional pedagogies alone do not reduce technology-related stress. In discourse-intensive courses, AI can enhance motivation, oral proficiency, and social engagement for shy students, contributing positively to English language learning (Shi & Shakibaei, 2025). Moreover, learners' responses to AI-enhanced classrooms vary, reflecting individual differences in emotional regulation (Yang & Zhao, 2024). Advanced smart devices promote independence and creativity, but outcomes depend on the integration of human guidance and machine assistance, as well as learners' capacity for self-directed learning (Li & Wilson, 2025; Wale & Kassahun, 2024). AI integration often enhances motivation and reduces anxiety. Increased self-esteem has been linked to improved cognitive-emotional regulation and enjoyment in AI-

supported online learning, while individualized coaching lowers stress and boosts efficacy (Xiao et al., 2024). Gamified elements, such as badges and streaks in Duolingo, can increase motivation, and AI companions like Replika encourage reflective affective engagement, both reducing anxiety and enhancing self-efficacy (Tajik, 2025). Peer-review assignments in AI-enhanced environments promote independence and reduce fear, helping passive learners become active participants (Alizadehmahmoudalilo, 2025). A meta-analysis of 37 studies confirmed that AI can generate positive emotions such as enjoyment and reduce anxiety, though reduced human interaction and technostress may limit these benefits (Zhang & Liu, 2025). EFL students report diverse AI-induced emotions, including interest, inspiration, and frustration, with emotional regulation strategies supporting well-being (Yang & Zhao, 2024). Nevertheless, AI can induce feelings of seclusion and limited empathy, negatively affecting social-emotional development (Parviz, 2024). These effects are moderated by human-like AI qualities, such as aesthetically pleasing interfaces, which enhance learner enjoyment (Wang et al., 2022). Effective AI design that anticipates relational warmth can foster positive affect, highlighting the importance of emotional considerations in AI-mediated learning.

Perspectives from Humanized Pedagogy

The concept of humanized pedagogy underscores the reflective application of technology as a catalyst for student-centered education (Lotfi Gaskaree et al., 2025; Salazar, 2013). Technology has the potential to promote humanistic learning and prevent dehumanization when used consciously (Zahedi Moghaddam et al., 2025). Additionally, it can promote digital literacy, which is essential for effective participation in a connected global environment (Oskarita & Arasy, 2024). AI can operate as a humanized agent within the Community of Inquiry framework, where affective engagement and learning are facilitated by social and cognitive presences (Wang et al., 2022). Especially in hybrid models that combine technology with human empathy, the integration of emotional intelligence and personalization into AI responses can increase resilience and reduce anxiety (He et al., 2025). Xiao et al. (2024) emphasize that AI should enhance rather than replace human relationships, promote ethical use, and support professional development, thereby further reducing over-reliance on devices. This perspective emphasizes the potential of technology to engage learners' emotional essence and facilitate dynamic emotion regulation during AI-mediated tasks. Nevertheless, the literature continues to be reticent on the perspectives of Iranian EFL learners on the impact of humanized strategies on AI-related emotions and cognition, and whether engagement is either enhanced or diminished. The majority of research concentrates on the perspectives of educators, delineating emotive aspects but disregarding underlying tensions, such as the need for authentic human connection versus the efficacy of AI, which may impact cognitive burden and well-being (Yang & Zhao, 2024; Zhang & Liu, 2025). The trust, educational outcomes, and experiences of friction of learners in Iran have been similarly disregarded in research on trust and performance (Gholami & Fatahi, 2024; Neysani et al., 2024). This includes algorithmic bias, which can exacerbate cultural distance. The following questions will fill this gap in this study.

1. How do EFL learners perceive the role of intentionally humanized pedagogical strategies in mediating their cognitive engagement and emotional states within AI-integrated language learning environments?
2. What tensions do EFL learners experience between the perceived efficiency, personalization, and novelty of AI tools versus their need for authentic human connection, contextual understanding, and emotionally responsive guidance, and how do these tensions manifest in their cognitive load and emotional well-being?

3. METHODOLOGY AND DESIGN

This study adopted an interpretive qualitative research design informed by constructivist grounded theory to explore the cognitive and affective experiences of EFL learners engaging in AI-based language practices, with a particular emphasis on principles of humanized pedagogy. The research is situated within an interpretivist epistemological tradition, which assumes that meaning is co-constructed through participants' subjective interpretations of their experiences. A qualitative approach was considered appropriate as it allows for in-depth examination of learners' subjective meanings, emotional responses, and sense-making processes, which are not easily captured through quantitative measures (Patton, 2015). More specifically, the study may be characterized as an exploratory, theory-informed qualitative inquiry. While the analysis remained inductive and grounded in participants' accounts, it was sensitized by the theoretical lenses of the Community of Inquiry framework (Garrison et al., 1999) and principles of humanized pedagogy (Freire, 1970; Ladson-Billings, 1995; Salazar, 2013). Elements of narrative inquiry were incorporated through life-history prompts foregrounding participants' lived experiences and identity development over time.

Participants

The participants in this study were Iranian EFL learners who had prior experience with AI-based language-learning practices designed by the researchers. The sample consisted of seven undergraduate EFL students, including four females and three males, aged 19 to 25 years. Participants were enrolled in different academic majors and represented varying levels of English proficiency, ranging from intermediate to advanced. These participants were recruited using a snowball sampling method (Hatch & Lazaraton, 1991; Patton, 2015), whereby an initial contact invited peers with relevant experiential backgrounds to take part in the study. This recruitment strategy facilitated access to information-rich cases and enabled the inclusion of diverse perspectives on AI-mediated language learning within the EFL context.

Instruments

To accommodate the complexities of cognitive presence, affective states, and humanized pedagogical mediation in AI-infused EFL instruction, a dual-component qualitative data-collection approach was adopted. The protocol included two instruments: (1) semi-structured interviews designed to elicit descriptions of learners' lived experiences, and (2) life-history narrative prompts aimed at generating reflective and longitudinal accounts of identity and agency development.

Both instruments were developed and revised based on the CoI framework (Garrison et al., 1999) and the principles of humanized pedagogy (Freire, 1970; Ladson-Billings, 1995; Salazar, 2013) to ensure alignment with the theoretical commitments of the study. All materials were prepared in Persian, the participants' first language, to capture nuanced psychological and emotional expressions, and were piloted with two advanced EFL learners to ensure clarity and comprehensibility.

Semi-Structured Interview Protocol

Consistent with qualitative inquiry principles (Creswell & Creswell, 2018), semi-structured interviews were employed to elicit rich, in-depth accounts of participants' cognitive and affective experiences while allowing flexibility to probe emerging meanings. Beyond the affordance of AI

and a focus on the authenticity of human relations as part of the research optics, the interview protocol was structured to follow the participants' sense-making processes regarding these tensions. Questions were ordered in a way that started with concrete, episodic memories, gradually moving towards abstract, hypothetical idealizations to allow the participants to rebuild experiences in their own words and then project them into the future (see Appendix A). Each question had cognitive and affective probes based on the focus of the literature on cognitive–affective regulation. The semi-structured format enabled the researcher to ensure comparability across interviews while remaining responsive to participants' individual experiences through follow-up questions (Creswell & Creswell, 2018). The semi-structured format enabled responsive follow-up questions and the systematic exploration of the central themes, i.e., humanized mediation, personal agency, protection, and complementarity. All interviews were audio-recorded with participants' informed consent and transcribed verbatim in Persian to preserve linguistic authenticity and emotional nuance.

Life-History Narrative Prompts

The life-history component was included to capture diachronic self-reflections that interviews alone may not fully elicit, particularly regarding the spatial and temporal development of identity and agency. Participants produced autobiographical written narratives that enabled them to construct coherent accounts of self, identify critical AI-related learning events, and articulate perceived tensions and pedagogical mediations. This narrative approach aligns with humanized pedagogy by prioritizing learner voice and empowerment, positioning participants not merely as respondents but as co-authors of their educational experiences.

To ensure content validity of the narrative prompts, the questions were developed based on prior literature on identity, agency, and AI-mediated EFL learning, and were reviewed by two external experts in qualitative EFL research for clarity, relevance, and alignment with the study objectives. The prompts were then piloted with two EFL learners with comparable backgrounds to verify interpretability and relevance before administration. Participants completed four open-ended narrative prompts (see Appendix B) one week after the interviews, allowing time for reflection and deeper meaning-making.

All participants provided informed consent, including permission for audio recording, transcription, and publication of anonymized excerpts. Pseudonyms were generated and securely stored, and all digital data were encrypted. To enhance credibility and trustworthiness, the researcher maintained a reflexive journal throughout data collection and analysis, enabling auditability of analytic decisions. Member checking was conducted by sharing thematic summaries with participants and incorporating their feedback into the final analysis, consistent with the principles of humanized pedagogy.

Data Collection

This research involved collecting data at two points to gain a holistic understanding of how the participants experienced AI-mediated language learning and humanizing pedagogy. The semi-structured interviews were done with seven Iranian EFL learners in the first phase. The semi-structured format provided sufficient flexibility and facilitated free conversation, allowing participants to expound on their own cognitive and affective experiences while, at the same time, addressing themes central to dealing with AI in a humanizing pedagogical world. Interview questions also explored participants' perceptions of the role of AI in their language self-learning and the effects of such interaction on their feelings, motivation, and identity. The questions were also aimed at investigating how these experiences were mediated by the humanizing aspects of the

pedagogy, including the teacher-student relationship, empathy, and an individualized approach to teaching. All interviews were approximately 35–40 minutes in Persian to allow participants to be authentic and were recorded with their permission. The entire transcripts were developed to be analyzed later.

The second step involved the respondents writing down their affective and cognitive experiences in language learning mediated by the AI. This follow-up writing activity gave the participants a chance to write in greater detail about particular moments, impressions, or changes in perception that occurred during the interview sessions. The written feedback contributed to a deeper understanding of the effect of AI integration on learners' emotional and cognitive engagement over time. Therefore, the semi-structured interviews, as well as the written reflections, complemented each other and provided a multidimensional approach to participants' experiences and a deep representation of both cognitive and affective learning processes. This method helped in gathering rich first-person accounts of the intersection of humanizing teaching and AI technologies in learners' educational lives.

Data Analysis

Data were analyzed using a combination of constructivist grounded theory and thematic analysis (TA) to balance inductive, theory-building processes with systematic identification of patterns across data. While CGT emphasizes generating theory grounded in participants' lived experiences, TA provides a structured framework for organizing and interpreting recurring patterns. This combination allowed the study to remain inductively sensitive to participants' cognitive and affective experiences while ensuring that broader themes could be clearly delineated and communicated.

The seven semi-structured interviews were recorded in Persian to allow participants to express themselves naturally and transcribed verbatim by a professional typist. Each transcript was checked against the recordings for accuracy, and translations were performed and verified by bilingual applied linguists, prioritizing conceptual equivalence over literal translation. A similar process was applied to the written life-history narratives. Open coding was conducted in two phases. Initially, line-by-line coding of the interview data produced 247 in-vivo and conceptual codes representing participants' cognitive and affective experiences (e.g., psychological safety, voice preservation, algorithmic deference). The lead author and a research assistant coded all transcripts twice, discussed analytical decisions, and documented emerging theoretical insights. In the focused coding phase, these codes were refined into 38 categories using constant comparative analysis, identifying patterns, variations, and relationships across all data sources. Axial coding was applied to explore causal conditions, contextual factors, actions/interactions, and consequences, resulting in the central category of pedagogical mediation. Finally, thematic synthesis grouped the 38 categories into five overarching themes and sub-themes.

To ensure rigor and traceability in integrating TA and constructivist grounded theory CGT, several strategies were employed. A transparent audit trail of coding decisions, analytic memos, and reflections was maintained in NVivo throughout the study. Bi-weekly peer debriefing sessions were conducted with two doctoral-level peers in AI-in-education, who independently coded 28.6% of the dataset and achieved an initial inter-coder agreement of 86%, with discrepancies resolved through discussion and refinement of code definitions. In addition, three participants reviewed preliminary themes to confirm that they accurately reflected their experiences and provided further clarifying insights. Reflexive journaling was maintained by the researcher directly involved in data collection to document assumptions, monitor potential biases, and track how both TA and CGT informed analytic decisions.

Such reflexivity was particularly important because one member of the research team also served as a teacher in the Iranian EFL context. To minimize any potential influence associated with this dual role, interview prompts were collaboratively designed by the research team to remain open-ended and non-leading, and analytic decisions were regularly reviewed through team consultations and cross-checking of codes and thematic interpretations. These procedures ensured that emergent themes remained grounded in participant data while maintaining transparency regarding whether categories arose from CGT processes, TA pattern identification, or their iterative integration. Finally, rich verbatim quotations are presented in the Results section to enable readers to evaluate interpretive credibility and to ensure that participants' voices are foregrounded rather than shaped by researchers' prior assumptions.

4. RESULTS

Theme 1: The Paradox of AI as Safe Haven and Emotional Void

The emotional affordances are diverse through the use of AI tools. When using certain AI applications, mostly generative text applications such as ChatGPT to practice writing and game applications such as Duolingo to practice vocabulary, students are said to have found these applications to be a chance to feel a unique psychological safety, facing danger. But it is also the dependence on algorithmic interaction that generated an impression of deep emotional solitude. On the one hand, the non-punitive, privately devoted character of AI eliminates the feeling of performance anxiety in the socially mediated setting, enabling students to experiment with language without fear of losing face. It is important to note that this safety is psychological, in terms of freedom from social embarrassment, rather than the accuracy of corrective feedback. Although the participants admitted they could not necessarily pick up every error, the low-stakes situation promoted linguistic production, which they would not have done under classroom conditions.

Safety through anonymity

The absence of human judgment creates a "private laboratory" for error-making. As participants described:

"With AI, I feel much safer... I repeat the same question ten times and place it in a variety of ways until I get it. With practice, I am able to repeat the same mistake in pronunciation. No shame, no social cost." (Mahya-Interview)

"I feel absolutely secure... And, with no emotional cost, I can repeat the same error more and more until I know the error. It is nothing but feedback, not social failure." (Narges-Interview)

"With an AI tool, I am almost fully safe to make any mistake... Nobody is criticizing my accent and my background." (Sara-Narrative)

Isolation through disconnection:

The lack of emotional resonance produces loneliness and reminds students of their need for human connection.

"There was also some feeling of loneliness; since working with AI, I have not received human feedback, a smile, tone, encouragement, etc." (Ali-Narrative)

"I too had a sense of loneliness after the session... It was not laughing, inspiring, or aware of when I had gone astray, it was a one-dimensional relationship in a relationship." (Asef-Interview)

"The communication was in the form of a conversation, but not the closeness. It emphasized the lack of the actual human bond." (Narges-Interview)

Theme 2: Teacher Mediation as a Core Component of Humanized AI Learning

Participants indicated that AI tools, when used without teacher supervision, could feel like overwhelming forces that contributed to stress and self-doubt. By mediating AI interaction in strategic forms of reconfiguring AI as a respectful-to-their-voices force and providing students with emotional scaffolding, teachers invert this narrative, transforming a punitive evaluator into a collaborator. This mediation consists of coaching for critical AI literacy that enables students to query, direct, and selectively incorporate feedback provided by the AI, but also their own way of writing.

Authority deconstruction

Students mentioned that teachers explicitly challenge AI's perceived infallibility.

" She said that AI tools are helpful, however, they are not flawless... She emphasized that AI sometimes doesn't understand the context or intention behind a sentence." (Ali-Narrative)

"He totally redefined the power of the AI. He removed it as a judge who knew everything and transformed it into an unmanageable machine which was not aware of poetry." (Narges-Interview)

Voice preservation

Teachers validate student perspective over AI-generated perfection.

"She [teacher] smiled and said, 'The goal isn't to compete with AI… it's to learn from it while keeping your voice alive. AI has language and you have meaning, experience, and emotion.' " (Ali-Interview)

"That is what she [teacher] said, 'AI does not know your future students. It is not aware of Mashhadi children... It provided you a model, but where will your didactic skill in this?' " (Sahar-Interview)

Emotional scaffolding

Teachers acknowledge and normalize feelings of inadequacy or confusion.

"The sentence in the computer is grammatically right. But your sentence is lovely. It has a heart... Don't have a machine clean out the soul out of your writing." (Sara-Interview)

Critical literacy development

Teachers provide frameworks for evaluating AI output.

"She [teacher] said, 'AI is giving you options, not answers. It does not know your case yet - your own alone.' So, he sat down with me and said, 'What do you really want to argue?' " (Mahya-Narrative)

Theme 3: The Agency Continuum

Students place themselves somewhere along a spectrum of initiative in terms of interactions with AI, showing a range between passive consumers of the direction of the AI and active directors of the tool. Feeling powerless occurs when AI replaces their work or when learning directions are determined at the expense of demotivation and disengagement. On the other hand, agency is

perceived when students come to understand how to provide a constrained prompt (focused on case teaching, not ESP shared knowledge), maintaining their own voice of authority and confidence, and leading to greater motivation and cognitive involvement. Teacher scaffolding is therefore crucial in guiding students along this continuum to the empowered end.

Algorithmic Displacement and the Passive Recipient

The loss of ownership is the feature that defines the lower end of the continuum. As the AI determines the form or offers automatic perfect revisions, students retrench to the position of a secretary, just writing down what the machine says. This alienation of cognitive work results in the alienation towards the self-work.

"My habit of depending on it to do all the work continued, and after a short time, it seemed like I was not controlling my job, the AI was! The feeling of powerlessness pushed me further apart in my learning." (Ali-Interview)

"I ended up copying most of it... It felt like the AI had taken over my learning… I was no longer thinking critically or practicing my writing skills." (Asef-Interview)

"I was soon spending two hours browsing a checklist of suggestions from the AI... I was like a secretary who was typing what the AI said." (Mahya-Narrative)

"The AI decided the categories, the priorities, the quantity. I was just passively receiving." (Sahar-Interview)

Strategic Control and the Restoration of Authorship

On the other hand, empowerment is created through situations in which the students reverse the hierarchy and make themselves the directors of the tool. The probability of the AI taking over can be avoided by means of restraining certain constraints and focused prompting, making sure that the technology supports their particular learning objectives, as opposed to prescribing them.

"I felt in control… I was the one asking the questions, guiding the tool, and choosing what information I wanted to use." (Ali-Narrative)

"My teacher explicitly told us... 'Then YOU evaluate which question would work best...' That felt completely different. I was in control." (Mahya-Narrative)

"I gave the AI a specific instruction. I didn't say 'fix this.' I said, 'Can you rephrase this sentence to be more academic, using a nominal clause?' " (Narges-Interview)

"I was the director. I was setting the rules of the conversation and forcing the tool to adapt to my learning goal." (Sara-Interview)

Theme 4: Safety Ecology

Students create separate "safety profiles" for three learning scenarios: AI tools, classroom peers, and teachers. AI is, therefore, the safest and, at the same time, coldest place; free of social judgment, yet void of human warmth. Since social comparison, face-saving, and cultural hierarchies are the most threatening spaces, peers are a significant threat. The teachers are an enigma when it comes to safety, and they can only rely on their teaching style. This difference in perceived safety influences students' willingness to take linguistic risks; because AI-mediated environments are conducive to experimentation, learners may be less inclined to transfer these practices to authentic human interaction.

Social Surveillance and the Fear of "Losing Face"

The greatest danger to psychological security is peers. The classroom is a place of social surveillance in which errors result in loss of face which is further compounded by the competitive nature of the setting and cultural differences between rural and urban settings.

"Sometimes I feel unsafe or nervous of making mistakes in front of my classmates. I fear that I should sound either foolish or incapable... That is the fear of being judged or misunderstood." (Ali-Interview)

"Making Errors in Front of Classmates: This is, honestly, the most unsafe feeling... It's about 'losing face,' even among friends." (Narges-Interview)

"There are a few male students who sometimes smirk when the female students stumble over pronunciation, and that just... it shuts me down." (Sahar-Narrative)

"I am worried that my rural accent will sound funny to the girls from Tehran... A mistake in front of them feels like a confirmation of their negative assumptions about me." (Sara-Narrative)

The Contingency of Instructional Safety

Teachers are a mystery as opposed to the predictability of AI or the predictability of threat by peers. Safety cannot be assured but rather it will rely on the emotional intelligence and attitude of the individual teacher towards mistakes.

"With my teachers, it depends entirely on the person. Dr. Kiani makes me feel safe; she normalizes errors... But other professors have embarrassed students for mistakes." (Sahar-Interview)

"With a teacher like Dr. Hashemi, I feel safer, but I am still a student in front of an authority... A simple comment like, 'Don't worry, mistakes are part of learning,' from a teacher can ease my anxiety." (Saleh-Narrative)

Theme 5: The Complementary Partnership

Students come to a powerful agreement: The utopia is a strategic alliance of AI taking over mechanical and repetitive functions (grammar correction, pronunciation drilling, data tracking) and humans retaining something that is hard to substitute about them as teachers (meaning-making, emotional support, cultural subtlety, identity formation). This partnership can only be successful if (other) teachers, rather than being passive recipients of AI support, actively frame and mediate the use of AI—and do so by leveraging what such tools offer to make their human interactions more meaningful, rather than replacing them. In such circumstances, students say they are seen and can see technology, and are swiftly assisted physically and emotionally in being known as their complete selves.

The Functional Role of AI as Driller and Data Analyst

AI is imagined as the insatiable driver of the mechanical competency. Its core strength is its ability to do high-volume and repetitive work - grammar fix, pronunciation drill, and error tracking - to give consistent practice without being judged, allowing teachers to be relieved of administrative load.

"The AI tools would take care of the things that are more mechanical or data-driven. As an illustration, AI might provide immediate feedback on grammar, pronunciation, and vocabulary usage; provide individual practice assignments; and imitate face-to-face communication." (Ali-Narrative)

"Learning would be done through AI, handling all mechanical, repetitive, and data-intensive aspects. It would be my personal trainer who is there at all times, and is patient and judgment-free." (Narges-Interview)

"I should hand over the sections to AI when I am too nervous or mentally fatigued... I prefer to do so with AI first, establish my confidence, and then with humans." (Sahar-Interview)

The Human Mandate for Meaning and Identity

The teacher is the indispensable point of semantic and emotional depth. Although syntax is handled by AI, it is the role of the human teacher to do the meaning-making-contextualizing of language in culture, providing emotional resonance and illustrating to the students how to relate linguistic proficiency with self-identity.

"The role of the human teacher would be quite opposite, more of direction, understanding, and purpose. I want my teacher to read between the lines of the feedback of the AI; support and inspire me; and assist me in tying my learning to real-life situations and identity." (Ali-Interview)

"The teacher is the one who makes the learning meaningful. With the AI handling the mechanical work, the teacher is freed up to do the irreplaceable human work." (Narges-Interview)

"The teacher must be the guide, the bridging person, the nurturer... give meaning and context that AI is incapable of... see and be emotionally supportive of me." (Sahar-Narrative)

The Resulting Sense of Holistic Balance

A successful division of labor results in a state of empowered balance being reported by students. They are technically supported with the efficiency of the tool and perceived and emotionally justified through the mentorship of the teacher, which removes the fear of being alone.

"I would feel encouraged, assured, and esteemed. I would also think that my learning was both personalized and significant, and that both technology and humanity were collaborating towards my development." (Ali-Interview)

"I would feel empowered and supported... safe to take risks, and the joy of true communication would be maximized." (Narges-Interview)

"I think I'd feel... balanced. With support, not being smothered, being independent, and not being forsaken, I am viewed as a whole individual." (Sahar-Narrative)

"In this ideal space, I would feel empowered, supported, and respected as a whole person... The teacher helps me believe in myself." (Saleh-Interview)

"I would feel empowered... the anxiety would be reduced... quiet concentration and confidence-building would be in place." (Sara-Narrative)

5. DISCUSSION

The current research explains the complex mental and emotional terrain that EFL students go through when they are exposed to AI-enhanced language learning conditions. The facts indicate that there is a complex relationship between empowerment and vulnerability, efficiency and alienation, and the simultaneous presence of human and artificial presence. The activity of this engagement is the ongoing negotiation in-between the intellectual affordances of AI and the affective scaffolding of humanized pedagogy by the learners.

AI as a Paradox of Safety and Isolation

The first theme defines an affective paradox: AI brings the feeling of security, but at the same time, provokes isolation. Students find a safe haven in the nonjudgmental environment of AI,

where they can experiment with language without fear of social humiliation, aligning with evidence that AI reduces affective filters and promotes autonomy (Wei, 2023; Ma & Chen, 2024). This mental security is one of the main driving forces of exploratory linguistic conduct and helps the self-reliant student achieve a deeper cognitive involvement. The lack of human kindness, in turn, renders this security an empty quality. The absence of emotional appeal of AI is a problem, as AI is incapable of mimicking genuine empathy (Parviz, 2024; Wang et al., 2022). The feedback provided by teachers cannot be as subtle, emotionally reassuring, or attentive as that of an AI interface. This scenario supports the idea that, in the absence of emotional involvement, cognitive development can be slowed, which supports the argument that significant learning requires an affective and cognitive engagement at the same time (Garrison et al., 1999; Xiao et al., 2024).

Teacher Mediation as the Heart of Humanized AI Learning

The next theme outlines the concept of teacher mediation as a change process, turning artificial intelligence into an impersonal authority figure by transforming it into a co-learner and partner. Teachers can help avoid the popular myth that AI is all-seeing; otherwise, it will instill fear and feelings of powerlessness. Anxiety caused by AI can be seen as a loss of agency among the students, as they excessively submit to AI outputs (Neysani et al., 2024; Parviz, 2024). Making AI mediation less dehumanizing is a creation of the teacher, as it is manifested in the reclamation of the learner's voice, in the recognition of emotional reactions, and in the repositioning of AI as an enabling tool rather than an evaluative one. Students were in a position to act in a dialogic, Freirean, and empowered way when instructors constructed and introduced critical AI literacy and digital pedagogy operating on the principle of active repositioning of AI as an evaluative technology (Salazar, 2013; Zahedi Moghaddam et al., 2025). This strategy not only addressed the emotional alienation but also restored the destroyed sense of authorship and ownership (Lotfi Gaskaree., 2025). The active practice of humanized pedagogy implies the inclusion of empathy, dialogue, and care, which were already present in the design of the pedagogical process, into the pedagogical process itself (Huerta, 2011).

The Agency Continuum and Cognitive Engagement

The results for the third theme show that learners' cognitive engagement is mainly determined by their location along an agency continuum. On the one hand, AI controls the process of acquiring knowledge and promotes passivity and a feeling of alienation. At the other end, learners have intentional agency over AI, which promotes agency and innovative learning. This continuum suggests that the process of transformation is complicated and that the dependence on AI answers is slowly replaced with the development of higher-order questioning and deliberate inquiry. These findings are consistent with the past studies that have attributed self-regulation and independence in AI-instructional contexts to increased motivation. When learners are directors of AI rather than passive recipients, motivation and cognitive clarity are amplified. Nonetheless, this agency does not come out of thin air; it has to be developed through specific teacher scaffolding that strikes a balance between the open elaboration of reflective critical prompting and the encouragement of the intentional integration of AI feedback. This method will be consistent with the modern recommendations of teaching AI literacy (He et al., 2025; Oskarita & Arasy, 2024).

Safety Ecology and Cultural Mediation

The fourth concept expounds on the construct of safety ecology and examines how learners rate the riskiness of AI, peers, and teachers. The environment of AI is seen as the safest, being non-

judgmental, but it is also the coldest, as it is not affective in terms of reciprocity. It is the most threatening situation because social hierarchy and the fear of being judged constrain communication among peers. The teachers are placed between the two extremes because relational and pedagogical empathy could regulate their perceived safety. This stratification of safety helps to point out that affective and social security is very technologically mediated, especially in collectivist countries like Iran, where involvement is determined by face-saving and relationship harmony (Fazeli & Attarzadeh, 2023; Tohidyan Far et al., 2024). In this respect, in contexts that support affective instructors and normalize mistakes, technostress and emotional burnout among learners are reduced. However, no deliberate form of pedagogical bridging explains why confidence is transferred in AI settings but not in socially human settings.

The Complementary Partnership

The last theme integrates learners' perspectives regarding an optimal learning ecology where AI and human instructors work together. Learners consider AI to be best suited for mechanical and repetitive processes, which allow for the immediacy, consistency, and practice (Tajik, 2025; Alizadehmahmoudalilo, 2025). Meaning, empathy, and cultural localization, on the other hand, cannot be achieved without teachers, as hybrid models that combine automation and emotional presence should be employed (He et al., 2025; Xiao et al., 2024). The most effective application of AI is in cases where educators strategically position the application of the technology so that it does not replace but enhances human interaction. According to student reports in such settings, students feel capable and noticed, which is the ideal spirit of humanized AI learning. This kind of collaboration transforms the meaning of educational presence, in which the cognitive, affective, and social spheres are synergistically distributed between human beings and machines (Wang et al., 2022).

The humanization process, as the findings above highlight, is the central mediating construct in the alignment of cognitive and affective aspects in AI-integrated education. As learners become more accommodative of technology, they want it introduced into teaching practice in a way that feels its inclusion without ignoring their emotional and cultural contexts. Once the application of the AI technology is rooted in empathy, critical dialogue, and reflective recognition, learners will cease to be obedient and, instead, develop agency, not to mention the fact that they will no longer be disengaged but will experience genuine engagement. This shows how the paradigm has shifted, and now the efficiency of technology is served together with human affective interaction (He et al., 2025; Salazar, 2013). There are also critical pedagogical consequences of the synthesis: teachers will have to act as emotional and digital intermediaries for AI. High-tech AI settings will be in equilibrium with cultural sensitivity through the emphasis on emotional and relationship competencies during professional training. As a result, the curriculum must be fitted with a transformative reflective practice that would direct learners under technostress to constructive interaction. AI systems, in their turn, should strive to achieve dialogical as well as affective responsiveness. The process of language learning, in its turn, is still anchored in cognitive and emotional aspects (Yang & Zhao, 2024; Zhang & Liu, 2025).

6. CONCLUSION

In short, AI-based language instruction is a combination of technology and humanization of online education. The learners view AI as both safe and emotionally distinct, creating a need for teacher-instigated empathy, which, in a sense, is the agency of instruction. Results have shown that the presence of the teacher, emotional scaffold, and learner agency is a triad of underpinning variables that create emotional strength and thought processes. The best model is to complement AI and

human skills, where the technology is used in much the same way as robotic efficiency, and the educator provides cultural knowledge and emotional integrity. The paper supports the idea that morality and the affective aspects that govern the use of AI in education must center on humanized pedagogy, in which learning takes place in an empathetic context where learners are monitored, nurtured, and self-directed. As a result, the future studies are advised to enlarge on the longitudinal impacts of human-AI collaboration on teacher voice and possibly AI systems, which are still evolving, can generate more realistic production and expression of empathy and effective communication in various contexts of different linguistic and cultural backgrounds, thus gaining a comprehensive view of the weaknesses that AI systems need to overcome to perform something meaningful.

Alongside providing insights into the cognitive and affective aspects of EFL learning facilitated by AI, this study has several limitations. First, the qualitative nature of the research and the small, context-specific sample of Iranian EFL learners limit the ability to generalize the findings to larger or culturally diverse populations. The study prioritizes depth and richness of understanding rather than statistical representativeness. Although the seven participants were sufficient to achieve saturation for thematic analysis within this exploratory context, the findings regarding cognitive presence, affective states, and humanized pedagogical mediation should be interpreted with caution. Future studies with larger and more culturally diverse samples are recommended to examine whether similar patterns hold across broader EFL contexts. Second, the measures relied on participants' self-reported perceptions and experiences, which may have influenced the results due to mood states. Third, the study did not give attention to other educational stakeholders, such as teachers, administrators, and AI developers; thus, it only provided an account of the learner perspective, rendering the research incomplete when considering the human-AI educational interface. Also, the focus on AI-integrated classroom environments, which facilitate humanized pedagogical practices, was chosen deliberately by the study, hence ruling out settings that resort to automation or conventional teacher-centered settings. Moreover, in the study, cognitive and affective outcomes were given greater priority than linguistic performance metrics. These limitations provided conceptual clarity and, as hoped, limited the breadth of the interpretative scope of the research.

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Appendices

Appendix A

1. Walk me through your very first meaningful interaction with an AI tool (like a chatbot, tutor, or writing assistant) in an English class. What emotions surfaced most strongly for you during and after that experience? (e.g., excitement, confusion, anxiety, curiosity, loneliness). Why do you think those particular feelings arose?

2. When using AI tools for learning tasks (e.g., practice conversations, grammar checks, essay feedback), describe moments where you felt your thinking was deeply engaged or, conversely, where your mind felt blocked or overwhelmed. What specifically about the AI interaction or the surrounding teaching approach contributed to that state?

3. Think of a time when a teacher's action (e.g., a comment, a follow-up discussion, noticing your frustration) significantly changed how you felt about or understood feedback/results from an AI tool. What did the teacher do or say? How did it shift your emotional response (e.g., reduced anxiety, increased trust) or your understanding of the AI's output?

4. Language learning often involves making mistakes. Describe how safe or unsafe you feel making errors in front of AI tools compared to making them in front of your teacher or classmates. How does this sense of safety (or lack thereof) affect your willingness to take risks, experiment, or ask for help when using AI?

5. When working with AI tools, do you ever feel like the tool is directing your learning path, or do you feel you (sometimes with your teacher's guidance) are directing how the tool is used? Describe a specific moment that illustrates this feeling of control (or lack of control). How did that sense of agency (or powerlessness) impact your motivation or focus?

6. Based on your experiences, what does 'humanized' interaction actually look like to you when AI is part of learning? Give me a concrete example of a moment – with a teacher using AI or responding to your AI use – that felt truly 'humanized' and why it mattered to your learning or feelings.

7. Imagine your ideal language learning environment where AI tools and human teachers work together seamlessly. What specific roles would the AI handle? What roles must the human teacher play to support not just your language skills, but your confidence, motivation, and sense of being understood as a person? What would you feel like in this ideal space?

Appendix B

1. Describe key moments when AI tools either enhanced or limited your confidence as an English learner. How did your feelings and abilities change before and after these moments?
2. Summarize your emotional highs and lows with AI-assisted learning over time. What events or feedback triggered these emotions, and how did you manage them?
3. Explain how your relationship with AI tools evolved—from feeling controlled by the tool to taking control. What skills or mindsets helped this shift?
4. Write a short reflection to a future teacher describing your ideal balance between AI and human instruction—what each should do and how that balance should feel.