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Framework for Enhancing Collaborative English Language Learning in Iranian Open and Distance Education: Integrating Digital Platforms and AI Tool

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ABSTRACT

Objective: This study aims to develop a practical framework for collaborative English language learning in open and distance learning (ODL) environments by integrating contemporary digital platforms and generative AI tools within the Iranian higher education context.

Methods: The framework is conceptually designed based on the principles of social constructivism and the Community of Inquiry (CoI) model. It extends a previously proposed five-phase instructional scenario originally developed for Web 2.0 technologies. The model incorporates various digital platforms—including Google Classroom, Microsoft Teams, Padlet, Flip, and Telegram communities—along with generative AI assistants such as ChatGPT and Gemini to support collaborative learning activities. The framework emphasizes structured peer interaction, AI-assisted feedback, and a combination of synchronous and asynchronous learning tasks suitable for large-scale ODL institutions.

Results: The proposed framework demonstrates several pedagogical opportunities, including increased learner engagement, improved collaborative interaction, and enhanced personalized scaffolding through AI-supported feedback. It also offers scalable solutions for large open universities such as Payame Noor University. At the same time, the study identifies potential challenges, including unstable internet connectivity, disparities in digital literacy, platform access restrictions due to filtering, and ethical concerns related to the use of generative AI.

Conclusions: The study presents a context-sensitive and adaptable framework for integrating digital platforms and AI tools into collaborative EFL instruction in Iranian ODL settings. The framework provides practical guidance for instructors and policymakers seeking to enhance the quality and effectiveness of English language teaching in open and distance education environments.

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Introduction

In recent decades, English language proficiency has become a critical requirement for Iranian students seeking academic success, global opportunities, and professional development. The rapid expansion of open and distance learning (ODL) programs, particularly at Payame Noor University, has significantly increased educational access for hundreds of thousands of learners across the country. However, this mode of education continues to face a fundamental challenge: creating meaningful collaborative learning experiences when teachers and students are separated by time and physical distance.

Earlier efforts, including the authors' previous framework based on Web 2.0 technologies, attempted to address this issue through tools such as wikis, blogs, and basic online forums. While these approaches showed promise, the technological landscape has evolved dramatically in recent years. The widespread use of smartphones, advanced digital collaborative platforms, and generative artificial intelligence (AI) tools now offers far richer possibilities for interactive and personalized language learning.

Recent studies have highlighted the potential of these technologies in EFL contexts. For example, AI-supported approaches have been shown to improve writing performance, learner engagement, and metacognitive skills. Nevertheless, the integration of such tools in Iranian open and distance education remains fragmented. Many instructors continue to use traditional methods or basic file-sharing techniques, while others experiment with new tools without a coherent pedagogical framework. This has created a clear research gap: there is limited context-sensitive research that bridges earlier Web 2.0 models with current digital platforms and AI tools while addressing the specific realities of Iranian ODL, such as internet instability, filtering restrictions, varying digital literacy levels, and cultural factors.

The present study seeks to fill this gap by developing a practical, five-phase framework for collaborative English language learning. Drawing upon social constructivist theory and the Community of Inquiry (CoI) framework, this paper integrates contemporary digital platforms (e.g., Google Classroom, Microsoft Teams, Padlet, Flip, and Telegram) with generative AI tools (e.g., ChatGPT and Gemini) to enhance interaction, feedback, and learning outcomes in Iranian distance education settings.

Specifically, the study aims to answer the following research questions:

1. How can contemporary digital collaborative platforms and AI tools enhance interaction and collaboration in English language learning within Iranian ODL environments?
2. What opportunities and challenges arise when implementing these technologies in the specific context of Iranian higher education?
3. How can a practical and adaptable framework be developed to support EFL instructors and instructional designers?

By addressing these questions, the study provides both theoretical insights and actionable recommendations for improving the quality of English language teaching in open and distance learning in Iran.

II. Literature Review

The integration of technology into language education has evolved significantly over the past two decades, moving from early Web 2.0 tools to sophisticated digital collaborative platforms and generative AI systems. This review examines the theoretical foundations, technological developments, and contextual realities that inform the present study's attempt to update an earlier collaborative learning framework for English language teaching in Iranian open and distance education.

Theoretical Foundations

Social constructivism, particularly Vygotsky's emphasis on the Zone of Proximal Development and collaborative knowledge construction, provides the primary theoretical lens for this study. Learning is viewed not as an individual cognitive process but as a socially mediated activity in which interaction plays a central role. The Community of Inquiry (CoI) framework (Garrison et al., 2000) further operationalizes this idea in online environments by highlighting three interdependent elements: social presence (building relationships and trust), cognitive presence (constructing meaning through reflection and discourse), and teaching presence (designing and facilitating learning experiences). Recent scholarship has explored how AI can augment rather than replace these presences, supporting shared metacognition and personalized scaffolding while preserving human agency.

From Web 2.0 to Digital Collaborative Platforms

Early Web 2.0 technologies — such as wikis, blogs, and basic social networking tools — demonstrated potential for overcoming the isolation inherent in distance learning. The authors'

previous work proposed a five-phase scenario for teaching past tense grammar that leveraged these tools for peer interaction, asynchronous feedback, and dynamic content release. However, today's digital collaborative platforms offer far greater affordances. Tools like Google Classroom, Microsoft Teams, Padlet, Flip, and Telegram-based learning communities enable seamless synchronous and asynchronous interaction, real-time co-creation of content, and multimodal communication (text, voice, video). These platforms support the kind of rich interaction that was difficult to achieve with earlier technologies, fostering the social and cognitive presence emphasized in the CoI framework.

The Rise of AI in EFL Learning

The emergence of generative AI tools, particularly large language models like ChatGPT and Gemini, has introduced new possibilities for personalized and collaborative language learning. Studies show that AI can provide immediate, individualized feedback on writing, support idea generation, facilitate speaking practice through chatbots, and even act as a scaffold in collaborative tasks. In EFL contexts, AI-mediated collaborative writing has been found to improve proficiency, motivation, and metacognitive awareness more effectively than traditional face-to-face methods in some settings. Iranian researchers have documented both the promise and the double-edged nature of these tools: while they enhance accessibility and personalization, concerns about over-reliance, academic integrity, and reduced peer interaction remain prominent.

Furthermore, recent empirical studies have demonstrated the effectiveness of generative AI in facilitating collaborative writing tasks. For example, AI-mediated peer collaboration has been found to significantly improve grammatical accuracy, lexical richness, and learner motivation in EFL settings (Zou et al., 2023; Kohnke et al., 2023). In the Iranian context, scholars have emphasized the need for culturally responsive integration of AI tools to overcome local barriers (Rahimi & Fathi, 2024).

Technology-Enhanced Learning in Iranian ODL Context

In Iran, open and distance learning — especially through institutions like Payame Noor University — serves a large and geographically dispersed student population. While technology offers solutions to access challenges, implementation faces persistent barriers: inconsistent internet infrastructure, filtering restrictions, varying digital literacy levels among students and instructors, data privacy issues, and cultural attitudes toward technology. Recent studies of Iranian EFL

teachers reveal low to moderate readiness for AI integration, often due to insufficient training, infrastructural limitations, and uncertainty about pedagogical value. Students, on the other hand, show greater willingness to use AI tools but frequently do so without adequate guidance, leading to both innovative practices and ethical concerns.

Despite these challenges, there is growing evidence that thoughtfully integrated digital collaborative platforms and AI tools can enhance interaction and learning outcomes in Iranian EFL contexts. What remains underdeveloped, however, is a coherent, context-sensitive framework that bridges the earlier Web 2.0 approaches with current technologies while addressing Iran-specific realities.

The present study contributes to filling this gap by proposing a five-phase instructional framework that integrates contemporary digital collaborative platforms and generative AI tools with the original scenario. Grounded in social constructivist principles and the Community of Inquiry (CoI) framework, the following sections present this model and discuss its practical implications for Iranian open and distance education.

Material and Methods

This study employs a design-based research (DBR) approach combined with a conceptual update of an existing instructional framework. Design-based research is particularly suitable for technology-enhanced learning studies because it focuses on developing and iteratively refining practical interventions in real-world educational contexts while contributing to theoretical understanding (Reeves et al., 2005; Anderson & Shattuck, 2012).

Research Design

The present work builds upon and significantly extends the authors' earlier five-phase instructional scenario for teaching English grammar (past tense) in open and distance learning environments. The original framework, which relied primarily on Web 2.0 technologies, has been revisited and refined through a systematic process consisting of three main stages.

Literature Synthesis and Needs Analysis

A comprehensive review of recent literature (2020–2026) on digital collaborative learning, generative AI in EFL, and technology integration in Iranian higher education was conducted. Particular attention was paid to context-specific challenges in Iranian ODL, including

infrastructural limitations, filtering issues, and digital literacy gaps. This stage helped identify affordances and limitations of both older and newer technologies.

Framework Redesign

The original five-phase scenario was re-examined phase by phase. Each phase was updated by:

- Replacing or supplementing outdated Web 2.0 tools with contemporary digital collaborative platforms (e.g., Google Classroom, Microsoft Teams, Padlet, Flip).
- Integrating generative AI tools (e.g., ChatGPT, Gemini) strategically for scaffolding, feedback, and content support.
- Maintaining the core pedagogical principles of social constructivism and the Community of Inquiry framework.
- Ensuring cultural and contextual sensitivity to Iranian EFL learners in distance education settings.

Expert Validation and Refinement

The revised framework was reviewed by three experienced EFL instructors and one instructional designer familiar with Payame Noor University's ODL environment. Their feedback was incorporated to improve practicality, clarity, and alignment with real classroom constraints. This iterative process helped balance technological innovation with pedagogical soundness and feasibility.

Ethical Considerations

Although this study is primarily conceptual and design-oriented, ethical issues related to AI use were carefully considered, including academic integrity, data privacy, transparency in AI-generated content, and equitable access for students with varying levels of technological resources. Recommendations for responsible AI integration are provided in the discussion section.

This methodology allows for the development of a practical, context-aware framework that can be implemented, tested, and further refined by EFL practitioners in Iranian open and distance education.

Results

Five-Phase Instructional Scenario

The five-phase instructional scenario builds upon the authors' previous Web 2.0-based framework by systematically integrating contemporary digital collaborative platforms and generative AI tools. Designed specifically for teaching English past tense grammar through collaborative storytelling and historical narratives in open and distance learning (ODL) environments, this updated model aims to foster meaningful interaction, peer negotiation of meaning, and personalized learning. By combining synchronous and asynchronous tools with strategic AI support, the framework enhances all three presences of the Community of Inquiry (CoI) while remaining sensitive to the Iranian higher education context, including bandwidth limitations, internet filtering, and varying digital literacy levels among learners.

Table 1. Comparison of the original web 2.0 framework and the updated AI- Enhanced framework

Aspect	Original web 2.0 Framework	Updated Ai- Enhanced Framework	Key improvements
Primary Tools	Wikis, blogs, basic forums	Google classroom Microsoft Teams, Padlet, Flip, Telegram	Richer multimodal interaction
AI Integration	None	Strategic use of Chat GPT, Gemini for scaffolding, feedback, and ideas generation	Personalized and immediate support
Feedback Mechanism	Peer feedback only	Combined peer + AI Automated feedback	Faster, more detailed, and stable

The following presents the detailed five phases of the updated model:

Phase 1: Orientation and Idea Generation (Asynchronous – Activation of Prior Knowledge)

Objectives: To activate learners' prior knowledge of past tense structures, reduce writing anxiety, and generate ideas collaboratively.

Duration: One week

Tools: Google Classroom or Microsoft Teams for task distribution; Padlet for collaborative brainstorming.

Activities: The instructor posts an engaging prompt (e.g., "Describe an important historical event in Iran or a memorable personal experience from the past year"). Students individually contribute keywords, short sentences, voice notes, or images to a shared Padlet wall and comment on at least two of their classmates' posts.

AI Integration: Learners use Gemini or ChatGPT with structured prompts to generate sample sentences in the past tense and receive immediate grammar feedback.

Roles: The teacher monitors participation and offers general guidance; AI functions as a personal scaffold.

This phase establishes strong cognitive presence from the outset.

Phase 2: Collaborative Drafting (Synchronous and Asynchronous – Co-construction of Knowledge)

Objectives: To practice various past tense forms (simple, continuous, and perfect) in authentic, meaningful contexts through peer negotiation.

Duration: One to two weeks

Tools: Microsoft Teams (shared documents and breakout rooms); Telegram groups for informal discussion.

Activities: Students work in groups of 4–5 to co-author a short story (200–300 words) based on ideas generated in Phase 1. They negotiate meaning, discuss verb forms, and divide writing responsibilities.

AI Integration: Groups consult ChatGPT or Gemini as a collaborative writing assistant to suggest sentence structures, vocabulary options, or expansions, while being explicitly instructed to critically evaluate and modify all AI-generated content.

Roles: The teacher provides model texts and intervenes when necessary. AI serves as an additional “more knowledgeable other” in line with Vygotsky’s Zone of Proximal Development.

This phase significantly strengthens both social and cognitive presence.

Phase 3: Peer and AI Feedback (Asynchronous – Formative Assessment and Reflection)

Objectives: To develop critical feedback skills and enhance grammatical accuracy and overall text quality.

Duration: One week

Tools: Microsoft Teams or Google Classroom for submission and feedback; Flip for video comments.

Activities: Groups exchange drafts and provide structured peer feedback using a detailed rubric focusing on tense accuracy, coherence, vocabulary, and narrative flow. Students also record brief video feedback (1–2 minutes) via Flip.

AI Integration: Each group submits its draft to ChatGPT or Gemini (using a custom feedback prompt) to obtain automated, detailed comments on grammar, tense consistency, and suggested improvements. Learners then compare AI feedback with peer comments.

Roles: The teacher oversees the process and provides expert feedback to selected groups as needed. This phase reinforces teaching presence while developing learners' evaluative judgment.

Phase 4: Revision and Multimodal Enhancement (Synchronous and Asynchronous – Refinement and Creativity)

Objectives: To improve linguistic accuracy, pronunciation, and digital storytelling skills.

Duration: One week

Tools: Microsoft Teams for collaborative editing; Flip or Telegram for sharing audio/video recordings.

Activities: Groups revise their stories based on feedback and create a multimodal narrated version (2–3 minutes) in which each member reads a portion of the story, paying careful attention to correct past tense pronunciation and intonation. Simple supporting visuals may be added.

AI Integration: Students use AI voice tools (e.g., Gemini) for pronunciation practice and feedback prior to final recording.

Roles: The teacher offers final guidance on language accuracy and presentation quality.

This phase promotes learner autonomy and integrates writing, speaking, and listening skills.

Phase 5: Reflection, Sharing, and Evaluation (Asynchronous – Metacognitive Closure)

Objectives: To promote metacognitive awareness, consolidate learning, and evaluate the overall learning experience.

Duration: 3–5 days

Tools: Microsoft Teams discussion forum or Padlet for written reflections; Telegram for informal sharing.

Activities: Students write individual reflections (150–250 words) addressing (a) what they learned about past tense usage, (b) challenges encountered and strategies employed, (c) the benefits and limitations of AI tools, (d) the role of peer collaboration, and (e) suggestions for improvement. Groups then present their final stories during a virtual class session, and students provide constructive comments on at least two other groups' projects.

AI Integration: Students may optionally use AI to help organize their reflections or generate self-assessment questions, provided they clearly acknowledge AI assistance.

Roles: The teacher evaluates both the final product and the reflective process.

This final phase reinforces all three CoI presences and yields valuable data for the continuous refinement of the framework.

Table 2. Summary of Tool Integration and CoI Presences in the Five-Phase Model

phase	Primary focus	Main Tools	AI role	CoI Presence Supported
1	Idea Generation	Padlet, Google Classroom	Idea expansion & grammar support	Cognitive
2	Collaborative Drafting	Microsoft Teams, Telegram	Drafting assistant	Social + Cognitive
3	Feedback & Revision	Teams, Flip	Automated feedback	Teaching + Cognitive

Discussion

This study proposes a framework that builds upon an earlier Web 2.0-based collaborative learning framework for English language teaching in Iranian open and distance education by integrating contemporary digital collaborative platforms and generative AI tools. This section discusses the findings in direct relation to the research questions, examines theoretical implications, and highlights practical considerations.

Enhancing Interaction and Collaboration through Digital Platforms and AI Tools (RQ1)

Contemporary digital tools significantly enhance interaction in ODL environments. The revised five-phase scenario demonstrates that platforms such as Microsoft Teams and Padlet facilitate real-time co-construction of stories and peer feedback, while AI tools like ChatGPT and Gemini provide immediate scaffolding and personalized corrective feedback on grammar and vocabulary. This aligns with and extends the Community of Inquiry (CoI) framework. Recent studies confirm that AI can strengthen all three presences in CoI — social, cognitive, and teaching — when used thoughtfully (Stenbom et al., 2026). For instance, AI-generated prompts and feedback help maintain cognitive presence in asynchronous phases, while video-based tools like Flip support social presence.

In the Iranian context, the updated framework successfully addresses the historical limitations of distance education noted by Hülsmann (2003), such as time and social delays, by enabling dynamic, multi-modal interaction. Empirical evidence from Iranian EFL studies supports this: AI-

assisted collaborative writing has been shown to improve learners' grammatical accuracy and motivation (Tafazoli, 2024; Yuan, 2025).

Opportunities and Challenges in the Iranian Higher Education Context (RQ2)

Opportunities include greater scalability for large institutions like Payame Noor University, personalized learning pathways, and increased learner autonomy. Generative AI particularly helps overcome resource limitations by providing instant feedback at scale — a critical advantage in ODL systems with high student-teacher ratios.

Challenges, however, remain substantial. Inconsistent internet access, filtering restrictions, and varying digital literacy levels can widen the digital divide. Concerns about academic integrity, over-reliance on AI, and reduced deep peer interaction were also evident in the expert validation phase. These findings are consistent with recent Iranian research showing moderate teacher readiness and significant infrastructural barriers (Ghiasvand, 2024; Parviz, 2024). Cultural factors, such as preference for teacher-centered approaches, may further slow adoption.

Developing a Practical and Adaptable Framework (RQ3)

The redesigned five-phase model offers a practical, context-sensitive solution. By blending synchronous/asynchronous tools with strategic AI support, the framework maintains pedagogical soundness while increasing feasibility. Expert feedback confirmed its adaptability for real ODL classrooms. This addresses the gap identified in the literature regarding the lack of localized frameworks for Iranian EFL distance education.

Theoretical Implications

This study strongly supports social constructivism and the Community of Inquiry framework rather than rejecting them. The evidence shows that technology does not replace social interaction but can mediate and amplify it when properly designed. Vygotsky's Zone of Proximal Development is particularly well-supported: AI acts as a more capable peer or tutor, providing scaffolding that enables learners to perform beyond their current independent level. However, the theory is extended — human agency and peer collaboration must remain central to prevent the risk of “de-socialized” learning through excessive AI dependence. Thus, we accept the core tenets of these theories while advocating for a hybrid human-AI collaborative model.

These findings are consistent with recent work on the integration of AI into the Community of Inquiry framework, which suggests that AI can effectively support teaching and cognitive presence

while requiring careful design to maintain social presence (Bozkurt et al., 2024). This study extends such theoretical perspectives by offering a practical, context-specific application in Iranian ODL.

Limitations and Future Directions

As a design-based study, this research is primarily conceptual and would benefit from empirical implementation and quasi-experimental testing.

Future studies should measure learning outcomes quantitatively and explore long-term effects on learner autonomy and critical thinking.

In conclusion, the integration of digital collaborative platforms and AI tools holds considerable promise for transforming English language learning in Iranian ODL, provided that contextual challenges are proactively addressed. The updated framework offers a viable path forward for instructors and policymakers seeking to improve the quality of distance education.

Conclusion

This study revisited and substantially extended an earlier framework for collaborative English language learning in open and distance education by integrating contemporary digital collaborative platforms and generative AI tools. The proposed five-phase instructional scenario for teaching past tense grammar demonstrates how tools such as Microsoft Teams, Padlet, Flip, Telegram communities, and AI assistants (e.g., ChatGPT and Gemini) can meaningfully enhance interaction, feedback, and learner engagement in Iranian ODL contexts.

The findings affirm that thoughtful integration of these technologies can effectively address longstanding challenges of distance learning — particularly the separation of teachers and learners in time and space — while offering new opportunities for personalization and scalability. At the same time, the study highlights critical challenges specific to the Iranian higher education landscape, including infrastructural limitations, digital divides, filtering restrictions, and ethical concerns surrounding AI use. These insights underscore the necessity of context-sensitive approaches rather than direct adoption of Western models.

Theoretically, the study supports and extends social constructivism and the Community of Inquiry (CoI) framework. Technology, when properly designed, does not diminish social interaction but can amplify it by providing additional layers of scaffolding and presence. However, maintaining

human agency and genuine peer collaboration remains essential to avoid the pitfalls of over-reliance on AI.

Practically, the proposed framework offers EFL instructors and instructional designers in institutions such as Payame Noor University a flexible and adaptable model for implementing technology-enhanced collaborative learning. It is hoped that this work will encourage further empirical research, teacher training programs, and policy initiatives aimed at responsible integration of digital tools and AI in Iranian English language education.

Ultimately, while technological advancements alone cannot solve all challenges of open and distance learning, they provide powerful affordances that — when combined with sound pedagogy and contextual awareness — can significantly improve the quality and accessibility of English language learning in Iran.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by the ethics committee of Payame Noor University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection, and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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