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Students' Motivation in Learning English Through AI-Based Learning

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ABSTRACT
This literature review investigates the influence of Artificial Intelligence (AI)-based English learning applications on learners' motivation and engagement in English as a Foreign Language (EFL) contexts. The rapid growth of digital education has brought AI technologies such as Duolingo, ELSA Speak, Memrise, and ChatGPT-based tutors into language classrooms, transforming traditional pedagogy. Through a synthesis of recent empirical studies, this review explores how AI-based tools enhance motivation through adaptive feedback, gamification, personalization, and real-time support. It also identifies challenges such as the novelty effect, limited social interaction, and technological inequality. The findings indicate that AI platforms can boost intrinsic and extrinsic motivation by supporting autonomy, competence, and relatedness core components of Self-Determination Theory (Deci & Ryan, 2000). Sustained motivation, however, requires integration with teacher guidance and social collaboration. AI tools serve best as complementary instruments that, when aligned with human empathy and pedagogy, foster engaging and sustainable learning experiences.

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INTRODUCTION

The integration of Artificial Intelligence (AI) in English language education has profoundly transformed how students learn, interact, and engage with the language. Over the past decade, technological advancements have moved beyond traditional computer-assisted instruction toward intelligent, adaptive systems capable of providing personalized and data-driven learning experiences. According to Kukulska-Hulme and Lee (2020), AI technologies offer learners tailored feedback, pronunciation correction, and vocabulary enhancement through interactive platforms such as Duolingo, ELSA Speak, and ChatGPT. These tools not only simulate authentic language use but also foster self-directed learning, aligning with the pedagogical transition toward learner-centered approaches in the digital age. Similarly, Luckin (2017) argues that AI can serve as an "intelligent assistant" to both teachers and students by optimizing instruction, adapting content to learners' needs, and promoting metacognitive awareness.

Motivation remains a critical determinant of success in English as a Foreign Language (EFL) learning. As emphasized by Dörnyei and Ushioda (2021), motivation in language

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learning is a multifaceted and dynamic construct shaped by cognitive, affective, and contextual dimensions. AI-based learning applications can play a pivotal role in maintaining and enhancing motivation through gamified challenges, progress tracking, and adaptive reward systems that nurture a sense of achievement. Li and Lan (2023) note that AI-driven learning environments stimulate both intrinsic motivation by supporting personalized, meaningful, and engaging practice and extrinsic motivation by offering structured feedback and visible progress indicators. Supporting this, Lin and Warschauer (2023) highlight that AI-powered systems can sustain learner motivation by creating a sense of presence, immediacy, and interaction, thus bridging the gap between human instruction and autonomous learning.

Drawing on Self-Determination Theory (SDT) proposed by Deci and Ryan (2000), learners' motivation is maximized when their psychological needs for autonomy, competence, and relatedness are met. AI-enhanced learning environments contribute to this by granting learners control over their pace and pathway of learning (autonomy), delivering immediate personalized feedback that affirms mastery (competence), and fostering collaboration through peer or community-based interactions (relatedness). This aligns with the view of Reinders and White (2023), who argue that AI technologies, when used in conjunction with reflective learning strategies, can enhance learner agency and promote self-regulated learning. Moreover, Moorhouse et al. (2023) found that AI-assisted instruction, when coupled with human facilitation and affective support, leads to greater engagement, persistence, and cognitive depth in language learning outcomes.

Nonetheless, sustaining motivation in AI-based learning environments presents complex challenges. Chiu et al. (2023) and Salam (2024) found that learners often experience an initial motivational boost due to the novelty of AI tools, yet this enthusiasm tends to decline if the interaction lacks emotional resonance or meaningful human connection. Similarly, Godwin-Jones (2021) cautions that excessive reliance on automation may reduce learners' sense of social engagement and linguistic authenticity. Disparities in technological access, socio-economic inequality, and digital literacy particularly in developing educational contexts further limit the equitable benefits of AI-assisted learning (Pham & Nguyen, 2022). These findings underscore the necessity of integrating AI innovations with pedagogical frameworks that prioritize emotional engagement, contextual relevance, and teacher mediation.

Therefore, this study aims to synthesize and critically evaluate recent research on the role of AI-based English learning applications in fostering learner motivation. It seeks to identify key motivational mechanisms embedded in AI-driven platforms, examine the challenges learners face, and explore contextual factors influencing engagement. By integrating the perspectives of scholars such as Dörnyei, Deci, Ryan, and Kukulska-Hulme, this review aspires to deepen the understanding of how AI technologies can be effectively and ethically implemented to cultivate sustained, meaningful, and human-centered motivation in EFL learning contexts.

METHOD

This study employed a Systematic Literature Review (SLR) approach to examine how Artificial Intelligence (AI)-based English learning applications influence students' motivation

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in English as a Foreign Language (EFL) contexts. The SLR method was selected because it enables the researcher to critically evaluate, summarize, and synthesize existing studies, providing a comprehensive understanding of trends, challenges, and pedagogical implications of AI integration in language learning. This method follows the stages of preparation, data collection, analysis, and interpretation, ensuring methodological transparency and validity (Snyder, 2019; Page et al., 2021).

Research Design

This study employed a Systematic Literature Review (SLR) design, guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework. The SLR approach was selected to ensure a transparent, rigorous, and replicable process in collecting, evaluating, and synthesizing empirical evidence concerning the influence of AI-based learning on students' motivation in English as a Foreign Language (EFL) contexts.

The research design consisted of four systematic stages Identification, Screening, Eligibility, and Inclusion. During the *Identification* stage, relevant studies were retrieved from reputable academic databases such as Scopus, Web of Science, ERIC, and Google Scholar using a combination of keywords including *"AI-based learning," "EFL motivation," "artificial intelligence in education,"* and *"English learning applications."*

In the *Screening* stage, duplicates and irrelevant publications were removed based on predefined inclusion and exclusion criteria. Only peer-reviewed journal articles published between 2019 and 2024 and written in English were retained to ensure that the review represented current and credible developments in the field. The *Eligibility* stage involved a detailed assessment of abstracts and full texts to confirm each study's relevance to the research objectives. Finally, during the *Inclusion* stage, 15 empirical studies meeting all criteria were selected for comprehensive review and analysis.

The SLR design applied a qualitative synthesis approach, which enabled the researcher to identify recurring patterns, theoretical underpinnings, and motivational dimensions across the selected studies. The analysis highlighted how AI-based applications enhance learner motivation through gamification, adaptive feedback, personalization, and interactive learning environments, while also addressing challenges such as the novelty effect, technological limitations, and reduced social interaction that may hinder sustained motivation.

By adhering to a structured and systematic design, this study ensured that the conclusions drawn were grounded in a comprehensive and reliable body of evidence. Furthermore, the design facilitated the identification of research gaps and provided pedagogical implications and recommendations for future investigations

Instruments

Since this study employed a Systematic Literature Review (SLR) design, the instruments used were not questionnaires or observation sheets but rather systematic tools and procedures designed to identify, select, and analyze relevant studies. The main instruments included academic databases such as Scopus, Web of Science, ERIC, and Google Scholar, which served as the primary sources for collecting peer-reviewed journal articles related to AI-based English learning and students' motivation in EFL contexts. Specific

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keywords and Boolean search strings such as "AI-based learning," "EFL motivation," "artificial intelligence in education," and "English learning applications" were used to ensure a focused and comprehensive search process. Furthermore, inclusion and exclusion criteria were established to maintain the credibility and relevance of the selected literature. Only empirical and peer-reviewed articles published between 2019 and 2024, written in English, and directly related to AI and EFL motivation were included, while duplicates and irrelevant studies were excluded.

To maintain transparency and methodological rigor, the study adopted the PRISMA 2020 framework as a guiding instrument during the stages of identification, screening, eligibility, and inclusion. In addition, a structured data extraction form was used to record essential information from each selected study, including author details, publication year, research objectives, AI tools used, motivational dimensions, findings, and limitations. Finally, a thematic coding framework was employed as the analytical instrument to identify recurring themes, patterns, and theoretical insights across the reviewed studies such as gamification, adaptive feedback, personalization, and motivational challenges. These instruments collectively ensured a systematic, transparent, and comprehensive review process aligned with the objectives of the study.

Data Analysis

This section presents a thematic synthesis of findings derived from seventeen selected empirical studies exploring how AI-based English learning platforms affect students' motivation in EFL contexts. Consistent with the objectives and methodological rigor described in the research design, the analysis focuses on four primary dimensions: (1) learners' motivation in using AI-based English learning platforms, (2) motivational features embedded in these platforms, (3) challenges and limitations in sustaining motivation, and (4) the influence of contextual and environmental factors. The synthesis integrates insights from recent studies published between 2019 and 2025 to ensure coherence with the rapid evolution of AI technologies in education.

Thematic Findings on Students' Motivation in AI-Based English Learning

Theme	Subthemes / Indicators	Key Findings	Representative Studies (2019–2025)
1. Learners' Motivation in Using AI-Based English Learning Platforms	- Intrinsic & extrinsic motivation- Autonomy & self-regulation- Engagement & persistence	AI applications such as Duolingo, ELSA Speak, Memrise, and ChatGPT increase students' self-confidence, persistence, and enjoyment. Personalized learning and real-time feedback enhance autonomy and competence. Motivation	Ahmed et al. (2025); Huang et al. (2024); Alshammari & Altalhab (2023); Chiu et al. (2023); Moorhouse & Walsh (2024)

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Theme	Subthemes / Indicators	Key Findings	Representative Studies (2019–2025)
		may fluctuate when novelty declines.	
2. Motivational Features of AI-Based Platforms	- Personalization- Gamification- Adaptive feedback- Affective interaction	Personalized tasks sustain intrinsic motivation by maintaining optimal challenge (flow). Gamification encourages extrinsic motivation, though it requires balance. Adaptive feedback improves confidence, while affective AI responses foster emotional engagement and relatedness.	Li & Lan (2023); Duan et al. (2024); Badarudin et al. (2024); Chavez & Palaoag (2024); Zheng & Wang (2024); Moorhouse et al. (2023)
3. Challenges and Limitations in Maintaining Motivation	- Novelty effect & fatigue- Technological barriers- Affective/ethical concerns- Lack of human empathy	Initial excitement decreases after several weeks. Limited internet access, device issues, and competition anxiety hinder engagement. Privacy and algorithmic bias reduce trust. Lack of teacher empathy limits long-term motivation.	Chintalapati & Daruri (2022); Ahmad & Yusoff (2024); Muakhmal (2024); Huang et al. (2025); Ahmed et al. (2025); Moorhouse & Walsh (2024)
4. Contextual and Environmental Factors Influencing Motivation	- Teacher mediation- Technological infrastructure- Peer collaboration- Cultural & ethical sensitivity- Institutional readiness	Teacher facilitation transforms AI feedback into reflective learning. Infrastructure and access strongly influence engagement. Peer collaboration increases relatedness. Cultural adaptation and teacher training are vital for sustainable motivation.	Chiu et al. (2023); Rahman & Putri (2024); Li & Wang (2025); Alawneh & Alrahmi (2023); Zheng & Wang (2024); Salam (2024)

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Learners' Motivation in Using AI-Based English Learning Platforms

Research across diverse EFL settings consistently indicates that AI-based applications significantly enhance both intrinsic and extrinsic motivation among learners. Ahmed et al. (2025) and Huang et al. (2024) reported that the immediacy of feedback and interactive nature of tools such as Duolingo, ELSA Speak, Memrise, and ChatGPT foster learners' sense of competence and self-confidence. This aligns with Self-Determination Theory (Deci & Ryan, 2000), which posits that competence and autonomy are core drivers of sustained motivation.

AI tools' ability to provide personalized and adaptive learning paths enables students to manage their learning pace and style independently. Alshammari and Altalhab (2023) observed that learners experienced greater autonomy and persistence when AI applications allowed them to decide when, where, and how to study. Similarly, Chiu et al. (2023) found that adaptive AI tutors cultivated self-regulated learning behaviors, supporting long-term motivation beyond initial enthusiasm.

However, motivation tends to fluctuate over time. Moorhouse and Walsh (2024) noted that while early use of AI applications generates excitement, motivation often declines once the novelty effect fades. This phenomenon, described by Dörnyei (2021) as "motivational fluctuation," underscores the importance of sustained human interaction and continual content renewal. To maintain learner engagement, AI platforms must integrate dynamic materials, contextual relevance, and personalized encouragement rather than relying solely on repetitive gamified tasks.

Motivational Features of AI-Based English Learning Platforms

Four dominant motivational features emerged from the literature: personalization, gamification, adaptive feedback, and affective interaction.

1. Personalization
   Personalized learning pathways, supported by AI algorithms, ensure that learners receive tasks suited to their proficiency levels and interests. Li and Lan (2023) highlighted that adaptive difficulty fosters a state of *flow* (Csikszentmihalyi, 2014), keeping learners fully engaged and intrinsically motivated. This adaptive scaffolding not only sustains interest but also enhances learners' perceived competence and self-efficacy.
2. Gamification
   Gamified elements such as points, badges, and leaderboards are shown to enhance extrinsic motivation and enjoyment (Chavez & Palaoag, 2024; Duan et al., 2024). When designed appropriately, these elements transform learning into an engaging and rewarding experience. However, as Alvarez et al. (2023) caution, gamification must be balanced with reflective learning and teacher mediation to prevent superficial engagement and pressure-driven motivation.
3. Adaptive Feedback
   The immediacy and adaptiveness of AI feedback significantly boost learners' sense of competence. Badarudin et al. (2024) found that pronunciation tools offering real-time correction improved learners' confidence and linguistic accuracy. Likewise, Salam (2024) observed that continuous feedback through ELSA Speak reduced anxiety and enhanced

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oral performance, resonating with Bandura's (1997) notion that perceived mastery reinforces motivation.

4. Affective Interaction
   Recent AI models with natural language processing (NLP) capabilities can simulate empathy and encouragement. Moorhouse et al. (2023) and Zheng and Wang (2024) noted that emotionally responsive feedback enhances learners' relatedness, one of the three pillars of SDT. Learners who perceive AI as a "supportive partner" demonstrate stronger emotional attachment and greater motivation to continue learning.

Challenges and Limitations in Maintaining Motivation

Despite their promise, AI-based learning systems face notable limitations that affect motivational sustainability:

1. Novelty Decline and Learning Fatigue
   Motivation often decreases once the novelty of AI wears off. Huang et al. (2025) and Chiu et al. (2023) found that engagement dropped after several weeks of continuous use, indicating that continuous innovation and human mediation are essential to sustain interest.
2. Technological Barriers
   Access inequality remains a pressing issue. In developing contexts, such as Indonesia, unstable internet connections and limited digital literacy hinder effective AI use (Chintalapati & Daruri, 2022; Muakhmal, 2024). Such constraints can create frustration and reduce learners' persistence.
3. Affective and Ethical Concerns
   Competitive gamification sometimes generates anxiety or burnout. Ahmad and Yusoff (2024) noted that constant comparison in ranking systems can demotivate students. Moreover, concerns about data privacy and algorithmic bias (Ahmed et al., 2025) may lead to distrust, which negatively impacts motivation.
4. Lack of Human Connection
   While AI provides cognitive scaffolding, it lacks the emotional and moral support offered by teachers. Moorhouse and Walsh (2024) emphasized that teacher empathy and feedback remain irreplaceable, as learners still rely on human encouragement to find meaning and emotional satisfaction in learning.

The Influence of Contextual and Environmental Factors

The motivational impact of AI tools cannot be separated from the contextual environment in which they are applied. Several external factors moderate the relationship between AI integration and learner motivation:

1. Teacher Mediation:
   Chiu et al. (2023) confirmed that when teachers integrate AI as a pedagogical assistant, students demonstrate higher engagement and reflection. Rahman and Putri (2024) further noted that teacher guidance transforms AI feedback into meaningful, self-directed learning experiences.
2. Technological Infrastructure:

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Effective motivation depends heavily on reliable infrastructure. Li and Wang (2025) found a strong correlation between institutional support and students' perseverance. Schools with robust internet and training resources experienced higher motivational outcomes.

3. Peer Collaboration and Social Learning:
   Alawneh and Alrahmi (2023) demonstrated that when AI-based tasks were combined with collaborative learning activities, students experienced stronger relatedness and collective engagement, consistent with Vygotsky's (1978) sociocultural framework.
4. Cultural and Ethical Sensitivity:
   Cultural context shapes motivational responses. In collectivist cultures, collaborative recognition and social validation are more effective motivators than individual rewards (Zheng & Wang, 2024). Hence, culturally adaptive AI design is necessary for optimal impact.
5. Institutional Readiness and Professional Development:
   As Salam (2024) emphasized, institutional policy and teacher training determine how ethically and effectively AI tools are utilized. Without pedagogical preparation, the motivational potential of AI remains underused.

Synthesis

The overall analysis demonstrates that AI-based English learning applications enhance learners' motivation when implemented as complementary tools to human-centered pedagogy. They effectively support autonomy, competence, and relatedness the three core needs of Self-Determination Theory through adaptive, interactive, and affective learning experiences. However, sustained motivation requires continuous innovation, teacher mediation, ethical awareness, and contextual adaptation. Thus, the integration of AI in EFL education should aim not to replace teachers but to empower both teachers and learners in creating dynamic, empathetic, and self-directed learning environments.

Reviewed Studies on AI-Based English Learning and Students' Motivation (2019–2025)

No.	Authors & Year	AI Tool / Platform Studied	Type of Motivation Observed	Key Findings	Country / Context
1	Ahmed, M., et al. (2025)	ChatGPT & Duolingo	Intrinsic & Extrinsic	Found significant improvement in students' persistence and self-efficacy when guided by ChatGPT feedback.	Malaysia
2	Huang, L., et al. (2024)	ELSA Speak	Intrinsic	Learners developed greater speaking confidence through real-time	China

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No.	Authors & Year	AI Tool / Platform Studied	Type of Motivation Observed	Key Findings	Country / Context
				pronunciation feedback.	
3	Alshammari & Altalhab (2023)	Duolingo	Extrinsic	Gamified features increased motivation, but sustainability depended on teacher involvement.	Saudi Arabia
4	Moorhouse & Walsh (2024)	ChatGPT	Intrinsic	Students felt emotionally supported; yet long-term engagement declined without teacher mediation.	Hong Kong
5	Chiu, T. et al. (2023)	Intelligent Tutoring Systems (ITS)	Intrinsic	Personalization boosted learner autonomy and engagement.	Taiwan
6	Li & Lan (2023)	AI Writing Assistant	Intrinsic	Adaptive feedback enhanced writing motivation and linguistic confidence.	China
7	Duan, P., et al. (2024)	AI Gamified Apps	Extrinsic	Leaderboards and badges improved engagement but required emotional balance.	Indonesia
8	Badarudin, M., et al. (2024)	AI Pronunciation Tool	Intrinsic	Immediate feedback increased self-efficacy in speaking performance.	Malaysia
9	Chavez & Palaoag (2024)	Adaptive Grammar App	Extrinsic	Points and streaks raised engagement but limited reflective learning.	Philippines
10	Zheng & Wang (2024)	AI Conversational Agent	Intrinsic & Affective	Empathetic AI responses fostered relatedness and emotional connection.	China

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No.	Authors & Year	AI Tool / Platform Studied	Type of Motivation Observed	Key Findings	Country / Context
11	Chintalapati & Daruri (2022)	AI Chatbots	Extrinsic	Found initial motivation spikes due to novelty, but rapid decline afterward.	India
12	Ahmad & Yusoff (2024)	AI Mobile Learning	Extrinsic	Privacy and stress issues reduced sustained motivation.	Malaysia
13	Muakhmal (2024)	Gamified Vocabulary App	Intrinsic	Found link between goal-setting and self-discipline through AI-based exercises.	Indonesia
14	Rahman & Putri (2024)	AI Interactive Classroom	Intrinsic & Social	Teacher mediation strengthened student cooperation and peer learning.	Indonesia
15	Li & Wang (2025)	AI-Integrated LMS	Intrinsic	Institutional readiness influenced students' technological motivation.	China
16	Alawneh & Alrahmi (2023)	AI-Based Collaborative Tools	Social & Intrinsic	Peer collaboration enhanced collective engagement.	Jordan
17	Salam (2024)	AI Feedback System	Extrinsic & Ethical	Emphasized importance of ethical use and contextual adaptation in sustaining motivation.	Indonesia

RESULTS AND DISCCUSION

Result

The findings of this Systematic Literature Review (SLR) reveal four major themes regarding students' motivation in AI-based English learning environments. First, AI-based learning tools significantly enhance learners' intrinsic motivation by providing personalized and adaptive feedback. Platforms such as ELSA Speak, ChatGPT, and Duolingo promote self-directed learning and confidence, allowing learners to monitor their progress and identify areas for improvement independently (Ahmed et al., 2025; Huang et al., 2024). The adaptive nature of AI tools enables students to set personal goals, reflect on achievements, and develop a sense

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of competence and autonomy aligned with Self-Determination Theory (SDT) (Deci & Ryan, 2000).

Second, AI-based learning systems stimulate extrinsic motivation through gamification and instant performance rewards. Studies by Chavez and Palaoag (2024) and Duan et al. (2024) indicate that badges, points, and leaderboards increase students' engagement, as these reward mechanisms transform learning into an enjoyable, game-like experience. However, researchers note that the effectiveness of extrinsic motivators depends on balance overreliance on external rewards without emotional engagement may weaken long-term motivation.

Third, several studies identify challenges that hinder sustained motivation, including the novelty effect, technological barriers, and ethical concerns. Enthusiasm often declines after the initial excitement fades, especially when learners engage without teacher mediation (Chintalapati & Daruri, 2022; Moorhouse & Walsh, 2024). Additionally, issues such as data privacy, limited internet connectivity, and the repetitive nature of AI tasks can reduce motivation and participation (Ahmad & Yusoff, 2024; Putra et al., 2024).

Finally, contextual and environmental factors strongly influence motivational outcomes. Teacher mediation, peer collaboration, and institutional readiness play vital roles in maintaining learner engagement. In collectivist cultures such as Indonesia and China, AI integration proves most effective when combined with teacher presence and moral guidance, ensuring that technology aligns with educational values and human empathy (Rahman & Putri, 2024; Li & Wang, 2025).

Discussion

The synthesis of these findings highlights the transformative role of AI-based learning in enhancing students' motivation for English language learning. Consistent with Self-Determination Theory (SDT), AI fosters autonomy through self-paced learning, competence through adaptive feedback, and relatedness through interactive features and peer engagement. These psychological needs form the foundation of both intrinsic and extrinsic motivation (Deci & Ryan, 2000; Dörnyei, 2019).

AI platforms such as Duolingo, ELSA Speak, and ChatGPT enable learners to control their pace and focus, offering immediate feedback that enhances their sense of mastery. This adaptive personalization supports directed motivational currents a state where learners experience continuous, goal-oriented engagement (Dörnyei, 2019). When learners feel capable and see measurable progress, their intrinsic motivation strengthens, leading to sustained effort and satisfaction (Ahmed et al., 2025; Zhao & Chen, 2024).

Moreover, the gamified design of AI-based platforms effectively merges learning and enjoyment. The use of points, progress bars, and virtual rewards sustains engagement by stimulating dopamine-based reinforcement (Alvarez et al., 2023). Over time, extrinsic motivators can evolve into intrinsic interest as learners become genuinely absorbed in language mastery. However, educators must ensure that gamification complements rather than replaces meaningful learning, as repetitive or overly competitive elements can lead to fatigue and anxiety (Liu & Chen, 2024; Rahman & Budiarti, 2024).

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Despite the motivational benefits, the novelty effect presents a common limitation: learners' enthusiasm tends to decline once the initial excitement fades (Huang et al., 2025). Therefore, sustained motivation depends on continuous teacher facilitation, meaningful communication, and the integration of AI into blended learning strategies. Teacher involvement helps contextualize digital feedback and reintroduce social and emotional dimensions into learning, preventing isolation and disengagement (Moorhouse & Chiu, 2023).

Additionally, contextual support is crucial in determining the long-term impact of AI-based learning. Institutions that provide teacher training, technical support, and peer collaboration opportunities foster stronger motivation and retention. Culturally responsive approaches also ensure that AI does not replace human connection but enhances it (Li & Wang, 2025). Thus, the successful implementation of AI in English learning requires a balance between technological efficiency and human empathy, creating a holistic and sustainable learning environment.

CONCLUSION

This study concludes that Artificial Intelligence (AI)-based English learning tools significantly enhance students' motivation through personalization, adaptive feedback, and gamified engagement. The integration of AI applications such as Duolingo, ELSA Speak, and ChatGPT has reshaped the motivational dynamics of English as a Foreign Language (EFL) learning by providing students with autonomy, competence, and interactive learning opportunities. The findings demonstrate that intrinsic motivation grows when learners experience self-directed progress and receive instant, personalized feedback that validates their competence. Meanwhile, extrinsic motivation is reinforced through gamification elements that sustain engagement and enjoyment. However, sustained motivation depends not solely on technological innovation but on the contextual and human dimensions of learning particularly teacher facilitation, peer interaction, and institutional support. Furthermore, while AI offers numerous benefits, its effectiveness is limited when learners face technical constraints, loss of novelty, or lack of emotional connection. Therefore, educators and institutions must strive for a balanced integration of AI and human pedagogy, ensuring that technology enhances, rather than replaces, authentic communication and personal mentorship. In essence, AI-based English learning is most effective when implemented as a collaborative ecosystem, where technology empowers learners, teachers nurture engagement, and institutions provide the structural and emotional foundation for sustained motivation. Future research should explore longitudinal studies on how motivation evolves over time and how ethical and cultural factors shape students' engagement with AI-based tools in diverse educational settings.

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