Edu Cendikia: Jurnal Ilmiah Kependidikan
Volume: 6 | Nomor 01 | April 2026 |
DOI: 10.47709/educendikia.v6i01.8509

Beyond the Classroom: Investigating EFL Students' Self-Endeavors in Enhancing English Language Learning Within the Emerging AI Era

Author:
Irpan Apandi Batubara[1]
Khairul Azmi[2]

Afiliation:
Universitas Islam Negeri Sultan Syarif Kasim Riau[1,2]

Corresponding email
irpan.apandi.batubara@uin-suska.ac.id

Histori Naskah:
Submit: 2026-04-15
Accepted: 2026-05-10
Published: 2026-05-14

Abstract:
The emergence of artificial intelligence (AI) technologies has transformed English language learning practices in higher education by encouraging more autonomous, flexible, and digitally mediated learning behaviors among students. This study investigates students' self endeavors in English language learning in the emerging AI era at an Islamic university in Riau, Indonesia. Using a qualitative case study, this study conducted a semi-structured interview involving 30 university students. The collected data were analyzed using thematic analysis. The results show that students used a variety of self-endeavors to enhance their English language learning that fall into several main categories: informal English exposure through digital media, self-regulated vocabulary and language development, social interaction and communicate practice, autonomous writing and reflective learning, and technology-assisted and AI oriented learning practices. The study concludes that EFL students in emerging AI era enhaced their English language learning beyond the classroom through self-directed, technology-mediated, and socially situated learning practices.

Key words: Emerging AI Era; Enhancing English Learning; Self-Endeavors.

Introduction

The rise of generative AI technologies like ChatGPT, Grammarly, Gemini, Duolingo AI, and other AI-powered language learning platforms has changed English language instruction in higher education. These tools give students instant access to pronunciation models, writing help, grammatical correction, translation, and interactive conversational practice. Because of this, students studying English as a foreign language (EFL) are no longer entirely reliant on printed learning materials or conventional classroom instruction to improve their language skills. Language learning has become more adaptable, individualized, and learner-centered in the approaching AI era, allowing students to participate in English learning outside of traditional academic contexts. In EFL contexts, where students frequently have little opportunities for real English engagement in their everyday surroundings, this shift is particularly crucial. AI technologies have a favorable impact on students' motivation, learning autonomy, and self-regulated learning behaviors in English teaching (Hapsari & Rizky, 2025). As a result, comprehending how students independently navigate English learning in the AI era has grown in importance in current language education research.

It has long been known that self-directed learning is essential to learning a language successfully. According to, self-directed learning is a process where students independently determine what they need to learn, set goals, choose tactics, use resources, and assess their progress (Knowles, 1975). Through reading exercises,

digital contact, online conversation, and independent skill development, self-directed learning in EFL learning environments enables students to expand their language practice outside of the classroom. By allowing students to tailor their educational experiences based on their interests, skill levels, and learning preferences, the incorporation of AI technologies enhances this process even more. In order to enhance students' independent learning engagement, AI-assisted applications can help with vocabulary acquisition, grammar practice, pronunciation improvement, writing growth, and real-time feedback (Romdhoni et al., 2025). Furthermore, prior research has shown that AI-assisted learning settings enhance students' metacognitive awareness and promote greater accountability for tracking their own learning progress (Trinovita et al., 2025). These results imply that learners are now active managers of their own language learning processes rather than passive recipients of knowledge thanks to AI.

In the Indonesian context, University students are increasingly using AI-assisted technologies for academic writing, translation, reading comprehension, and communication in English. Previous research has shown that Indonesian EFL learners view generative AI as beneficial for improving language proficiency, enhancing learning efficiency, and promoting independent learning habits (Surachmi et al., 2025). Nevertheless, despite the increasing amount of research on AI integration in language education, most of it focuses on the efficacy, perceptions, and autonomous learning practices outside of the classroom. Other research findings focus on Indonesian EFL students believe generative AI will help them become more proficient in the language, learn more effectively, and develop independent study habits (Surachmi et al., 2025). The effectiveness, perceptions, or technological capabilities of AI tools in classroom learning environments are the main topics of current research, notwithstanding the expanding corpus of literature addressing AI integration in language education. Students' real self-initiatives and independent learning practices outside of the classroom have received less attention, especially when it comes to how they freely integrate AI technologies, digital media, and regular learning activities to enhance their English proficiency. More significantly, research on similar experiences at Indonesia's Islamic higher education institutions is still lacking. Islamic universities have unique sociocultural and educational traits that are influenced by institutional culture, moral principles, and religious beliefs. These traits may have an impact on students' attitudes on technology use and independent learning methods. Thus, a major research gap is the lack of contextual studies looking at how EFL students in Islamic higher education participate in self-directed English learning in the developing AI era.

In order to close this gap, the current study examines how EFL students at an Islamic institution in Riau, Indonesia, are improving their English language learning outside of the classroom in the rising AI era. This study specifically examines how students use different autonomous learning strategies, how AI and digital technologies support their English learning activities, and how students view the advantages and difficulties of self-directed language learning in modern digital environments. In addition to providing contextual insights on autonomous English learning within Indonesian Islamic higher education settings, this study adds to the expanding conversation on self-endeavors in language learning by concentrating on students' reflective experiences and daily learning practices.

Review of Literature

English Language Learning and AI

The use of artificial intelligence (AI) in English language instruction has changed how students interact with language learning outside of the conventional classroom. Conversational chatbots, grammar checkers, adaptive learning apps, and pronunciation tools are examples of AI-powered technologies that give students quick feedback, individualized help, and flexible access to language practice. English learning is becoming

more and more defined by student autonomy, ongoing digital interaction, and personalized learning pathways in this changing educational environment. AI technologies are now a part of larger learning ecosystems that allow students to autonomously regulate their language development in both formal and informal contexts, rather than just serving as auxiliary tools (Feng, 2025; Wei, 2023).

The idea of self-regulated learning (SRL), which stresses students' active participation in organizing, observing, assessing, and reflecting on their own learning processes, is directly related to this change. Zimmerman (2000) asserts that self-regulated learners are proactive people who deliberately manage the behavioral, motivational, and cognitive components of learning in order to meet academic objectives. Furthermore, by providing learners with instant access to language input, automated feedback, and adaptive learning experiences that can be customized to individual proficiency levels and learning preferences, AI-mediated learning environments reinforce these processes (Sagita et al., 2025; Al-Smadi et al., 2025; Siregar et al., 2025). As a result, students are active agents who create learning experiences through ongoing engagement with digital materials, online communities, and AI-supported platforms rather than passive recipients of teaching.

Studies on AI-enhanced language acquisition regularly show that students often integrate informal digital habits with formal academic learning. Exposure to English through movies, podcasts, YouTube videos, songs, online forums, and social media content has emerged as a key tactic for improving vocabulary acquisition, listening comprehension, pronunciation awareness, and communication confidence. Learners can become acquainted with idiomatic language, colloquial expressions, and contextual language use through authentic media exposure, all of which are frequently absent in traditional classroom settings. Additionally, through repeated exposure and imitation, techniques including shadowing, repeated listening, and engagement with online English content assist learners in internalizing pronunciation patterns and enhancing speaking fluency (Jinfen & Juan, 2024; Hou & Zhou, 2025). Another important aspect of independent English learning is the development of vocabulary. In order to improve lexical understanding, students frequently use self-regulated techniques including keeping vocabulary notebooks, reading novels and online materials, translating new words on their own, and using digital tools. By offering contextual examples, pronunciation models, and individualized language exercises, AI-supported solutions further aid in vocabulary acquisition (Wei, 2023).

AI-mediated language learning also incorporates introspective and productive language skills, especially writing. Through journaling, short essays, social media captions, and reflective writing exercises, students can assess language development, organize their thoughts, and progressively enhance their written expression and grammatical accuracy. AI-assisted feedback systems can aid in this process by assisting students in finding grammatical mistakes, improving sentence structures, and autonomously editing their writing. As students become more aware of their strengths, shortcomings, and advancement over time, these exercises strengthen metacognitive awareness. As a result, in addition to enhancing technical writing abilities, AI-supported writing exercises promote reflective learning behaviors, which are crucial in self-regulated learning settings (Tao et al., 2026; Liu et al., 2025).

Notwithstanding these benefits, the expanding application of AI in language acquisition nevertheless brings with it a number of difficulties. Research suggests that an over-reliance on AI-generated support may diminish critical thinking, impair the ability to solve problems on one's own, and lead to a cognitive dependence on automated feedback systems. Additionally, the success of AI-mediated learning experiences may be impacted by students' varying levels of digital literacy. Because there are so many digital resources and learning platforms available, some students might find it difficult to critically assess AI-generated

content, while others would suffer from cognitive overload (Liu et al., 2025). These worries imply that integrating AI into language acquisition should be seen as a pedagogical and cognitive process that calls for critical and balanced interaction rather than just a technology problem.

AI, Learner Autonomy, and Sociocultural Learning

The connection between learner autonomy, AI, and sociocultural learning offers a crucial theoretical framework for comprehending modern language learning methods. According to Holec (1981), learner autonomy is the capacity of students to assume accountability for their own education through autonomous decision-making, strategy selection, and self-evaluation. Autonomous learners actively look for opportunities to practice the language outside of the classroom and participate in meaningful interactions that promote language development. By giving students flexible access to learning materials, instant feedback, and chances for individualized language practice, the development of AI technology has enhanced learner autonomy.

Learner autonomy, however, should not be viewed as a completely solitary or independent activity. According to a sociocultural approach, social interaction, mediation, and involvement in cultural contexts all contribute to the development of learning. According to Vygotsky (1978) Sociocultural Theory, social contexts, cultural resources, and interactions with more experienced people all contribute to cognitive growth. Thus, learning a language requires engagement in socially mediated activities in addition to individual cognition. Digital technologies and AI platforms can serve as mediational tools in the emerging AI era, facilitating interaction, scaffolding learning processes, and supporting students' meaning-making endeavors. Digital communication platforms, online communities, and AI applications give students the chance to participate in authentic conversation, collaborative learning, and socially placed language use.

In the recent context, students are encouraged to experiment with language use, negotiate meaning, and gain confidence through frequent engagement with digital tools and online communities in AI-supported learning settings (Feng, 2025; Xu, 2026). For instance, social media and online learning environments expose students to real-world language usage and cross-cultural communication, while conversational AI platforms can mimic communicative interaction. As students concurrently control their own learning and interact with socially significant linguistic information, these experiences support both autonomous learning habits and sociocultural participation. Because there are frequently little possibilities for genuine English conversation in offline settings, the sociocultural aspect of AI-mediated learning becomes more crucial in EFL contexts like Indonesia. Consequently, , students build alternate venues for language exposure and conversation through the use of AI tools, digital media, and online communities. Outside of formal educational settings, informal encounters like podcasts, YouTube videos, movies, TikTok, online games, and social networking sites become types of socially mediated learning that promote language development. As a result, the connection between AI, learner autonomy, and sociocultural learning emphasizes that learning English in the modern era is both a socially situated and technologically mediated experience as well as an individual cognitive process.

Emerging AI in Indonesia EFL Context

In Indonesia, students' everyday academic and personal learning activities are increasingly incorporating AI technologies. AI-assisted programs for reading comprehension, translation, academic writing assistance, grammar checking, and pronunciation practice are frequently used by Indonesian university students. Students are now able to practice English outside of classroom schedules and institutional learning environments because to the increasing availability of generative AI tools, which have pushed them to adopt

more flexible and independent learning habits. Thus, in Indonesian higher education, AI technologies are helping to foster learner autonomy, especially among students who have few opportunities to interact in real-world English. According to Surachmi et al. (2025), Indonesian EFL students believe that generative AI tools are very helpful for enhancing their speaking, academic writing, grammar, vocabulary, and translation skills. In a similar vein, Hapsari and Rizky (2025) found that Indonesian students use AI programs to help them study academically through self-regulated reading and writing.

In addition, many students in Indonesia see AI as a collaborative learning companion that supports their own study activities, rather than just a technical tool. AI tools help students manage learning assignments more effectively, improve vocabulary, organize thoughts, and edit written work. Indeed, using Google Gemini and other generative AI platforms, Indonesian students actively encourage independent study habits, especially when it comes to language learning and academic writing assignments (Darmono et al., 2025). Additionally, it has been demonstrated that generative AI applications support EFL learners' self-directed revision techniques and reflective learning habits (Hareem Arif & Javairia Naeem, 2025; Trinovita et al., 2025). These circumstances are consistent with the ideas of self-regulated learning, in which students actively manage their learning tactics, assess their own development, and modify their learning habits to suit their own requirements.

However, there are still a lot of pedagogical and ethical challenges with AI-mediated learning in Indonesian higher education. Concerns about academic dishonesty, plagiarism, and an over-reliance on AI-generated outputs persist despite the fact that generative AI improves learning efficiency and accessibility (Batubara et al., 2025). Similarly, Rahiem (2026) contends that because students may become passive users of automated answers without engaging in critical thinking processes, the growing usage of generative AI causes tensions between academic integrity and learning efficacy. These issues suggest that responsible learning practices and critical digital literacy should go hand in hand with AI integration.

Method

This study used a qualitative case study design to examine the self-endeavors of EFL students to enhance their English language learning. Since the study sought to investigate students' experiences, views, reflections, and learning practices about the use of digital resources and artificial intelligence (AI) technology in learning beyond classroom. Through qualitative research, researchers can comprehend the lived experiences and subjective meanings of participants in particular social and educational situations. Yin (2018) asserts that a case study design is appropriate for investigating modern phenomena in real-life settings, especially when it is difficult to distinguish between the phenomenon and the context.

The study was carried out at an Islamic university in Indonesia's Riau Province involving 30 islamic university students. Semi-structured interviews and thoughtful written responses were used to gather data. While staying focused on the study's goals, semi-structured interviews gave participants a more in-depth opportunity to share their thoughts, experiences, and viewpoints about their endeavors to improve their English in the emerging AI era. Participants were also encouraged to share reflective narratives about their endeavor to enhance their learning English in the emerging AI era. These thoughtful answers offered further information about the individual learning paths and self-directed endeavors in learning English language of the students.

Thematic analysis was used to examine the data. First, the interview recordings and reflective responses were transcribed and organized into textual data. The researcher repeatedly read the transcripts to achieve data familiarization and gain a holistic understanding of participants' experiences. Second, initial codes were generated by identifying meaningful statements, recurring ideas, and significant learning practices

related to students' self-directed English learning endeavors. Third, the codes were categorized and organized into broader themes based on conceptual similarities and recurring patterns across participants' responses. Finally, the themes were reviewed, refined, and interpreted to construct a comprehensive understanding of students' self-endeavors in English language learning within the emerging AI era. In addition, data triangulation was conducted by comparing information obtained from semi-structured interviews and reflective written responses to ensure consistency and depth of interpretation.

Results

The thematic analysis of the interview data revealed that EFL students at the islamic university engaged in variou self-directed endeavors to improve their English proficiency beyond formal classroom activities. Their efforts demonstrate how students combined traditional learning strategies, digital media exposure, peer interaction, and technology-assisted learning within the emerging AI and digital era. Five major themes emerged from the data: (1) Informal English Exposure Through Digital Media, (2) Self-Regulated Vocabulary and Language Development, (3) Social Interaction and Communicative Practice, (4) Autonomous Writing and Reflective Learning, and (5) Technology-Assisted and AI-Oriented Learning Practices.

The results show that EFL students in the islamic university actively participated in informal English exposure through various forms of digital media as part of their self-directed learning endeavors. Students regularly used entertainment-based content, such as movies, podcasts, YouTube videos, TikTok, English songs, and social media platforms, to improve their listening comprehension, pronunciation, and familiarity with authentic language use. Many participants purposefully watched English movies without subtitles or listened to English podcasts to train their ears to recognize natural pronunciation, intonation, and everyday expressions. This suggests that digital media served as an accessible and ongoing learning environment outside of the classroom. In order to enhance their listening comprehension, pronunciation, and familiarity with real-world language use, students often used entertainment-based content such movies, podcasts, YouTube videos, TikTok, English music, and social media platforms. To educate their ears to identify natural pronunciation, intonation, and common expressions, several participants purposefully viewed English-language films without subtitles or listened to English-language podcasts. This suggests that digital media served as an accessible and ongoing learning environment outside of the classroom. Students eventually gained confidence and grew more used to real-life communication patterns through frequent exposure to realistic English content. The results also imply that language learning has become more individualized and adaptable in the digital age, with students being able to choose their own learning resources based on their interests and skill levels.

Students' self-regulated vocabulary and language development techniques are another significant discovery. Through a variety of exercises, participants independently increased their vocabulary, enhanced their comprehension of grammar, and practiced language use, demonstrating autonomous learning characteristics. In order to expand their vocabulary and acquire contextual language usage, a number of students reported reading English novels, articles, comics, and internet publications. Some kept vocabulary journals, translated words they didn't know, and tried to deduce meanings on their own before utilizing translation software. Students' understanding of the value of regular vocabulary exposure in enhancing general English ability is reflected in these behaviors. Furthermore, social engagement and communicative practice have been identified as critical elements of students' language development. Despite feeling bashful or having poor grammar, several participants worked on speaking English with friends, classmates, or online forums. Discussions in the classroom, presentations, informal conversations, and even social media contacts provided chances to practice communication and boost self-assurance. Students prioritized bravery

and consistency in actively using English in everyday communication rather than concentrating only on linguistic correctness.

The results also show that, in the developing AI era, pupils became more dependent on technology-assisted learning methods and formed independent writing habits. Students' writing organization, grammar awareness, and self-expression improved as a result of writing exercises like journaling, writing brief essays, making English captions for social media posts, and getting comments from lecturers. Regular reflective practices eventually improved the participants' ability to organize ideas and communicate more effectively in English, despite the fact that many of them were originally unconfident writers. Additionally, technology was a major factor in helping pupils learn on their own. To practice pronunciation, assess competency, and improve grammar and vocabulary, participants used a variety of digital tools and programs, including YouGlish, language learning software, online dictionaries, smartphone language settings, and the Duolingo English Test. These results show that by giving students instant access to real language input, individualized learning materials, and self-assessment tools, technology advancements and AI-supported platforms have increased prospects for autonomous language acquisition. As a result, learning English in the new AI era is becoming more learner-centered, mediated by technology, and incorporated into students' regular digital activities.

The result summary is presented in Table 1.

Students' Self-endeavors	Main Focus	Representative Activities
Informal English Exposure Through Digital Media	Learning through entertainment and online content	Watching movies, podcasts, YouTube, TikTok, songs
Self-Regulated Vocabulary and Language Development	Independent vocabulary and grammar learning	Reading novels, writing vocabulary notebooks, translating texts
Social Interaction and Communicative Practice	Speaking practice and confidence building	Conversations with friends, presentations, social media interaction
Autonomous Writing and Reflective Learning	Writing development through reflection	Journaling, essays, captions, lecturer feedback
Technology-Assisted and AI-Oriented Learning Practices	Digital and AI-supported learning tools	YouGlish, learning apps, Duolingo Test, smartphone language settings

Table. 1 Summary of The Results

Informal English Exposure Through Digital Media

Students' substantial usage of digital media as an informal source of English language learning was one of the most prevalent themes found. As part of their daily learning routines, participants regularly described watching English-language films, TV series, podcasts, YouTube videos, songs, and social media content. Students were better able to use vocabulary, listen comprehension, natural conversations, and realistic pronunciation as a result of this exposure.

Many students purposefully watched movies without subtitles in order to hone their listening abilities and enhance their understanding of real-world English communication. Others depended on social media, TikTok videos, English vlogs, movies, and songs for entertainment-based learning. For example, one participant explained:

"*I watched the TV show 'Friends' because it uses daily conversations that are easy to understand. I also listened to podcasts by Tyler, the Creator to get used to natural English expressions."*

Excerpt 1

Another participant stated:

"I often watch English videos and movies, sometimes without subtitles so I can get used to listening."

Excerpt 2

Students also consumed English content passively through social media algorithms and entertainment platforms, which unintentionally increased their exposure to English. One participant mentioned:

"My reels and fyp changed, many related contents appeared."

Excerpt 3

This finding indicates that digital media functioned as a continuous and accessible learning environment where students naturally interacted with English outside formal education settings.

Self-Regulated Vocabulary and Language Development

The second subject focuses on how pupils independently expand their vocabulary and improve their language skills. By taking the initiative to practice grammar, translate new words, memorize vocabulary, and expose themselves to English reading resources, participants showed self-regulated learning behaviors. Before using translation tools, a number of students acknowledged reading novels, articles, comics, and online publications, noting new terms in their notebooks, and translating new terminology on their own. Participants shared:

"I try to remember new words by writing them in my notebook. When I have a chance, I use the words that I learned."

"If I find a word I don't know, I will translate it."

Excerpt 4

Students also emphasized contextual learning strategies, where vocabulary was acquired through authentic materials such as novels, films, manga, and social media posts. A participant stated:

"I tried to improve my writing skills by reading the novel Harry Potter and the Sorcerer's Stone because I think it has rich vocabulary and many useful phrases."

Excerpt 5

Others attempted independent meaning-making strategies:

"I will always try to translate the meaning by myself first… I always tried not to use the tools."

Excerpt 6

These findings suggest that students actively exercised learner autonomy by regulating their own vocabulary acquisition processes and selecting personally meaningful learning resources.

Edu Cendikia: Jurnal Ilmiah Kependidikan
Volume: 6 | Nomor 01 | April 2026 |
DOI: 10.47709/educendikia.v6i01.8509

Social Interaction and Communicative Practice

The analysis also revealed that students viewed communication practice as an essential strategy for improving speaking confidence and fluency. Most participants reported practicing English with friends, classmates, online communities, or even native speakers in informal situations beyond classroom requirements. Students often used casual daily conversations, classroom discussions, presentations, and social media interactions to practice speaking despite grammatical inaccuracies or limited vocabulary. Participants expressed:

"I usually made random conversation about anything with my bestie, even gossiping about someone, in English."

"I practice speaking with my friends both inside and outside the classroom to build my confidence."

Excerpt 7

Several students emphasized overcoming fear and anxiety in speaking English:

"Even though sometimes I'm still confused with grammar, the important thing is that I dare to try to speak first."

"I practice speaking English with my classmates, even when I feel shy or nervous."

Excerpt 8

Interestingly, some students utilized digital communication spaces as speaking practice environments. One participant described using Instagram to express daily thoughts in English:

"*I tried speaking English every day on my Instagram second account to talk about my daily life."*

Excerpt 9

This theme highlights how students perceived communication itself as a learning process and prioritized confidence-building over grammatical perfection.

Independent Writing and Reflective Learning

Another significant result was the development of writing practices through journaling, essay writing, captions, and reflective activities. Students described writing as a gradual and often challenging process that helped them organize ideas, improve grammar, and express themselves more confidently. Several participants initially lacked confidence in writing but continued practicing consistently. Students mentioned:

"I started journaling even though my grammar wasn't good enough to write something, but at least I tried."

"Slowly, I realized that journaling helped me organize my ideas better."

Excerpt 10

Students also wrote short essays, English captions on social media, and personal reflections as part of their independent learning endeavors. A respondent stated:

"Sometimes I write English captions in my social media to improve my writing."

Excerpt 11

Additionally, lecturer feedback contributed to students' reflective learning process:

"I try to write short essays and ask my lecturers for feedback so I can learn from my mistakes."

Excerpt 12

The findings indicate that writing activities served not only as language exercises but also as reflective tools that enhanced self-awareness, academic preparation, and confidence.

Technology-Assisted and AI-Oriented Learning Practices

The final theme reflects students' integration of technology and emerging digital tools into their English learning process. Participants utilized learning applications, pronunciation tools, social media platforms, online dictionaries, and digital environments to support autonomous learning. One participant reported using YouGlish for pronunciation practice:

"I also used YouGlish to practice how words are pronounced by native speakers."

Excerpt 13

Others mentioned language-learning applications and online resources in improving grammar:

"I also use learning apps to practice grammar and add more vocabulary."

Excerpt 14

Students also personalized their digital environments to immerse themselves in English exposure, such as changing phone language settings or using algorithm-driven social media feeds. One participant stated:

"I started from changing my language at my handphone."

Excerpt 15

While other participant referred to online proficiency assessment tools:

"I took the Duolingo English Test to find out my level of proficiency."

Excerpt 16

These results show that students are depending more and more on easily accessible technology resources to support self-evaluation, grammar practice, independent learning, and pronunciation modeling in the emerging AI and digital era. As a result, technology serves as both an autonomous learning ecosystem that transcends institutional borders and a learning partner.

Discussions

The results demonstrate that, in the rising AI era, EFL students at the Islamic institution actively enhanced their English proficiency through independent learning activities outside of the classroom. In their everyday learning activities, students incorporated exposure to digital media, vocabulary growth, communication practice, reflective writing, and AI-assisted technologies. These findings imply that English instruction is now more learner-centered, tech-driven, and linked to students' regular digital activities. Because they can use digital tools to autonomously manage and assess their learning, students are no longer entirely

dependent on their teachers. The results also align with learner autonomy, self-regulated learning, self-directed learning, and sociocultural learning theories.

Knowles's (1975) idea of self-directed learning, which highlights learners' capacity to independently identify learning requirements, choose tactics, use resources, and assess progress, is significantly reflected in the data. Through individual English learning activities outside of the classroom, the pupils exhibited these traits. To enhance their language skills, they practiced writing, watched English-language films, listened to podcasts, kept vocabulary journals, and used AI-supported apps. These behaviors show that students actively controlled their own learning processes according to their skill levels and areas of interest. Instead of relying solely on lecturers, students made their own decisions about relevant learning materials. The results also demonstrate how digital platforms and AI technology enable customized and adaptable options for self-directed learning.

The results align with Zimmerman's idea of self-regulated learning (Zimmerman, 2000), which highlights students' capacity to organize, oversee, assess, and consider their learning processes. In order to enhance their listening and speaking abilities, students in this study purposefully interacted with English-language content via movies, podcasts, and social media. By taking notes, translating, and practicing frequently, they also tracked the growth of vocabulary. Students were able to assess their development and pinpoint their shortcomings through reflective exercises like journaling, essay writing, and lecturer feedback. These results corroborate earlier research that shown how AI-assisted learning settings improve metacognitive awareness and autonomous learning practices (Trinovita et al., 2025; Sagita et al., 2025).

The results provide compelling evidence for Henri Holec's theory of learner autonomy, which describes students' capacity to assume accountability for their own education through autonomous decision-making and the use of strategies (Holec, 1981). By choosing real English resources and creating individualized study plans based on their hobbies and everyday activities, students showed autonomy. Students frequently used entertainment-based resources because they found them entertaining and pertinent, including movies, songs, podcasts, TikTok videos, novels, and social media. These results imply that learner autonomy in the AI era is increasingly achieved through digital learning experiences that take place outside of traditional classroom settings. The findings also support earlier research demonstrating that exposure to real English through digital media enhances speaking confidence, vocabulary, pronunciation, and listening comprehension (Jinfen & Juan, 2024; Hou & Zhou, 2025).

Lev Vygotsky's Sociocultural Theory, which emphasizes the function of social interaction and mediation in learning development, is further supported by the findings. This study demonstrates that students improved their English through socially mediated activities like peer talks, class debates, presentations, online communities, and social media contacts, despite the fact that self-directed learning is frequently thought of as individual. Through these exercises, students improved their speaking fluency, confidence, and ability to negotiate meaning. Digital platforms like YouTube, Instagram, and podcasts, as well as AI technology, served as mediating instruments that facilitated genuine conversation and self-expression. Feng (2025) and Xu (2026) discussing AI-assisted socially situated learning techniques are validated by this finding.

Students' balanced use of AI technologies in their English language instruction is another important discovery. Participants did not solely rely on automated systems or translation tools, despite using digital resources and applications with AI help. Before turning to technology for help, many students made an effort to comprehend meanings on their own, demonstrating active learner agency and crucial participation in educational processes. These results address worries expressed by Rahiem (2026) and Liu et al. (2025)

about the possible harm that an over-reliance on AI could do to critical thinking and problem-solving skills. Rather, students used both AI-assisted support and unaided cognitive effort. The results also support earlier Indonesian research (Surachmi et al., 2025; Hapsari & Rizky, 2025; Darmono et al., 2025) demonstrating that AI technologies enhance academic writing, vocabulary, language competency, and learning efficiency.

Conclusion

This study demonstrates that EFL students at the Islamic university actively engaged in various self-directed efforts to improve their English proficiency beyond formal classroom instruction in the emerging AI era. Students integrated digital media exposure, independent vocabulary learning, communicative interaction, reflective writing, and AI-assisted technologies into their everyday learning practices. These findings indicate that English language learning has become increasingly learner-centered, technology-mediated, and closely connected to students' daily digital activities. Rather than depending entirely on lecturers and classroom instruction, students independently regulated and organized their learning processes through flexible digital resources and online platforms. Moreover, the study reveals that digital environments have become important alternative spaces for English exposure and communicative practice in the Indonesian EFL context, where authentic interaction opportunities are often limited. Social media, podcasts, movies, online communities, and AI-supported platforms functioned not only as learning tools but also as sociocultural environments that encouraged participation, confidence-building, and language experimentation. These findings suggest that AI technologies can positively support autonomous language learning when accompanied by reflective learning behaviors, critical digital literacy, and active learner participation.

This study is limited to a specific Islamic university setting and has a rather small sample size. Future research might compare students from various educational backgrounds, look at larger institutional contexts, or assess the long-term effects of AI-mediated learning environments on learner autonomy and English competence. The development of digital literacy, ethical concerns, and the role of educators in promoting responsible technology use in EFL learning contexts are all potential topics for future research.

References

Al-Smadi, O. A., Ab Rashid, R., Awad Al-Ramahi, R., Harb Alqaryouti, M., Ugli, H. S. Z., & Vokhidovich, A. N. (2025). Jordanian English language learners' engagement with AI-supported self-regulated learning. *Research in Learning Technology*, *33*(1063519), 1–18. https://doi.org/10.25304/rlt.v33.3377

Batubara, I. A., Wariyati, W., & Prawiyata, Y. D. (2025). Exploring University Students' Perceptions of AI: Insights from Indonesia. *Edu Cendikia: Jurnal Ilmiah Kependidikan*, *4*(03), 1687–1701. https://doi.org/10.47709/educendikia.v4i03.5465

Darmono, D., Setiawan, R. J., Ma'ruf, K., & Shen, M. (2025). *Exploring the Factors Influencing Generative AI Integration for Managing Self-Directed Learning: A Case Study on Indonesian Students' Adoption of Google*. 1–24.

Feng, H. (2025). Influence of Psychological Well-Being and School Factors on Delinquency , During the Covid-19 Period Among Secondary School Students in Selected Schools in Nakuru County : Kenya. *International Journal of Research and Innovation in Social Science (IJRISS)*, *VII*(2454), 1175–1189. https://doi.org/10.47772/IJRISS

Hapsari, A., & Rizky, E. A. (2025). Indonesian EFL Students' Perception of the Use of Artificial

Intelligence Applications to Support Self-Regulated Learning in Academic Reading and Writing. *Malaysian Journal of ELT Research*, *22*(2), 94–111. https://doi.org/10.52696/agbc2453

Hareem Arif, & Javairia Naeem. (2025). the Impact of Generative Ai on Learner Autonomy and Critical Thinking in English As a Foreign Language (Efl) Writing Classrooms. *Journal of Applied Linguistics and TESOL (JALT)*, *8*(3), 2264–2275. https://doi.org/10.63878/jalt1249

Holec, H. (1981). *Autonomy and Foreign Language Learning*. Pergamon.

Hou, F., & Zhou, C. (2025). How AI shapes self-regulated learning in foreign language education. *Discover Computing*, *28*(1). https://doi.org/10.1007/s10791-025-09801-0

Jinfen, X., & Juan, L. (2024). *Exploring Self-Regulated Learning: A Qualitative Study of Graduate Students Majoring in English in a Human-AI Interactive Language-Learning Environment*. 15–29.

Knowles, M. S. (1975). *Self-directed learning: A guide for learners and teachers*. Association Press.

Liu, X., Xiao, Y., & Li, D. (2025). Assessing strategic use of artificial intelligence in self-regulated learning: Instrument development and evidence from Chinese university students. *International Journal of Educational Technology in Higher Education*, *22*(1). https://doi.org/10.1186/s41239-025-00567-5

Rahiem, M. D. H. (2026). Generative AI in higher education in Indonesia: Patterns of use and learning impact. *Social Sciences and Humanities Open*, *13*(March), 102672. https://doi.org/10.1016/j.ssaho.2026.102672

Romdhoni, R. D., Arrasyid, R., Widodo, S., Elviani, U., & Kunci, K. (2025). *AI-Driven Learning Analytics for Self-Regulated and Metacognitive Learning : A Systematic Review*. *04*(02), 329–347.

Sagita, M., Sagita, E. S., & Syafari, N. (2025). The Role of Generative AI Companions in Promoting Reading Engagement and Self-Regulation in EFL Contexts. *Journal of Pedagogy and Education Science*, *4*(03), 448–465. https://doi.org/10.56741/iistr.jpes.001082

Siregar, M., Zulkifli, Z., Hadi, W., Hutagalung, S. M., Kamal, S. S. L. A., & Al Smadi, O. A. A. (2025). *Students' Use of Self-Regulated Learning Strategies in English Language Learning: The Impact of AI Translation Tools* (Issue Islale 2025). Atlantis Press SARL. https://doi.org/10.2991/978-2-38476-501-0_4

Surachmi, W. S., Solihati, T. A., Rahmatika, L., Musdalifah, Islam, M. M., & Haryanto, S. (2025). Understanding EFL Students' Adoption of Generative AI for English Learning: An Integrated UTAUT2 Model and Self-Determination Theory. *Online Learning Journal*, *29*(4), 311–340. https://doi.org/10.24059/olj.v29i4.5129

Tao, L., Song, Y., & Fu, J. (2026). Exploring students' self-regulated learning behavioural patterns and perceptions in an English speaking task within a generative AI-supported immersive VR environment. *Computers and Education*, *242*(June 2025). https://doi.org/10.1016/j.compedu.2025.105515

Trinovita, D., Nurchurifiani, E., Hastomo, T., Andewi, W., & Hasbi, M. (2025). Exploring the Influence of Generative AI on Self-Regulated Learning: A Mixed-Methods Study in the EFL Context. *Jurnal Iqra' : Kajian Ilmu Pendidikan*, *10*(2), 301–316. https://doi.org/10.25217/ji.v10i2.6389

Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Harvard

University Press.

Wei, L. (2023). Artificial intelligence in language instruction: impact on English learning achievement, L2 motivation, and self-regulated learning. *Frontiers in Psychology*, *14*(November), 1–14. https://doi.org/10.3389/fpsyg.2023.1261955

Xu, J. (2026). How generative AI enhances self-regulated learning in EFL learners: a chain mediation model of "intention to use" and "learning engagement". *Frontiers in Psychology*, *17*(April), 1808183. https://doi.org/10.3389/fpsyg.2026.1808183

Yin, R. K. (2018). Case study research and applications: Design and methods. In *Journal of Hospitality & Tourism Research* (Vol. 53, Issue 5). https://doi.org/10.1177/109634809702100108

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In *Handbook of self-regulation* (In M. Boek, pp. 13–39). Academic Press. https://doi.org/http://dx.doi.org/10.1016/B978-012109890-2/50031-7