

“It’s cool but...”: Future Teachers’ Perception of Generative AI in an Under-represented EFL Blended Learning Context

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Abstract

This study investigates the perceptions of future English as a Foreign Language (EFL) teachers in Bali, Indonesia regarding artificial intelligence (AI), particularly generative AI tools like ChatGPT and Gemini. Recognizing the potential of AI to enhance instructional practices, the research employs an embedded mixed-method design with 150 participants, utilizing surveys and semi-structured interviews. The instruments demonstrated content validity and reliability, with quantitative data analyzed for frequency distributions and qualitative data subjected to interactive model analysis. Findings reveal a predominantly positive perception of generative AI among EFL students in a blended learning context, who recognize its utility while expressing concerns about implementation. As prospective educators, participants are beginning to contemplate pedagogical strategies for integrating AI into their future classrooms. The study highlights the urgency of establishing AI policies grounded in critical digital pedagogy principles to optimize educational experiences. This research contributes to the discourse on AI in education, emphasizing the need for context-specific approaches to leverage AI’s potential while addressing pedagogical, ethical, and technical challenges.

Keywords: blended learning, future teachers’ perception, GenAI, underrepresented EFL context

Technology has developed very rapidly recently and this development is no longer gradual, but exponential and disruptive—indicated by faster accelerations and replacements of outdated existing systems and practices. Technology has advanced at an exponential rate in recent years, meaning its growth is accelerating faster than ever before, with each innovation building rapidly on the last. This development is also disruptive, as it significantly alters existing systems and practices—often replacing traditional methods rather than simply improving them. In education, for instance, tools like Generative AI are not just supporting teaching but transforming how learning occurs, challenging conventional roles of teachers, materials, and classroom interactions. This development affects many sectors, including education. According

to Raja and Nagasubramani (2018), in the 21st century, technology has a big role in every sector in helping human work become more efficient, faster and easier. The education sector feels the impact of technology on learning. This rapid development requires teachers and students to be able to adapt and develop their abilities to meet the demands of the times. Technological developments have opened the gates for automation technology, which has helped ease work in many roles in life, including education (Susskind, 2020). This situation influences the increase in automation technology where computer systems can imitate human intelligence through language processing and are able to perform tasks with the information collected. This technology is known as Artificial Intelligence (AI) (Sumakul et al., 2022). The term AI was actually first introduced by McCarthy et al. (1955) in his project about automated machines capable of solving problems and improving themselves to help humans. Luckin et al. (2016) state that AI has various definitions according to the fields in which AI is implemented, such as education, economics, psychology, and others. In the educational context, AI can be identified as a branch of computer science developed and known as human assistant machines (Ocaña-Fernández et al., 2019). It can be analogous to smart ‘robots’ that have started to enter classrooms (Sumakul, 2019). Technology and especially AI is currently transforming education and this condition indicates the changes and demands of a very complex development era.

Along with the exponential development of technology and current technology utilization policies, the education area has begun to get used to the use of AI in classroom learning. The use of AI in the English language learning context is starting to occur massively with various findings, for example the use of AI Grammarly technology by Fitria (2021) and Ebadi et al. (2022) who added that Grammarly with the help of providing teacher feedback had a significant influence on student performance in writing. Another research is about Quillbot for paraphrasing and helping students improve their writing with a better variety of paraphrases, although students' critical thinking must still be the main consideration so that they are able to show their own views while avoiding plagiarism (Fitria, 2022). The use of AI in other fields has also begun to vary and emerge. Zhao (2022) reviewed the Wordtune application, an AI-based application to aid the writing process and suggested several pedagogical benefits. Additionally, Underwood (2018) has used chatbots in the form of Voice Assistants. Features, like Siri, Cortana, OK Google have become part of everyday human life and in the context of learning English, this AI can be useful for improving students’ abilities because there are elements of interactivity and feedback (El Shazly, 2021). In Programming area, Malik et al. (2022) found that chatbots can help young programmers understand program concepts and syntax errors. AI is also present in games, for example ColorShapeLinks. According to Fachada (2021), this board game can help teachers and students to understand the sequence of objects ranging from simple to complex. AI like this is good for early grade students, for example to learn the shape of objects. Other AI that are good for learning at the early grade level are the Semantris and Quick Draw! applications. These two applications are part of the AI development project by Google.

The latest development is the emergence of Generative AI (GenAI), a technology that differs from previous AI applications in its ability to act like a human—capable of communicating and generating diverse responses based on user prompts. This is possible because it uses a language model called Natural Language Processing (NLP) which gives this application space to respond like a human. ChatGPT gained highest numbers of users in several months compared to other applications. GPT is an abbreviation for Generative Pre-Trained Transformer which is a programming ‘language’ model from OpenAI that generates responses from very large datasets. Due to the recent trends, many sectors undergo transformations with benefits and limitations. The education sector has been affected and students are pampered with rich and varied information. Students can ask ChatGPT and other GenAIs about anything. In the context of

writing, research from Ali et al. (2023) found that using ChatGPT motivates students because it can be used as a learning medium, as long as it is equipped with clear guidelines and strong AI policies. Even though teachers can learn from ChatGPT, they also have to consider negative impacts on the critical process and students' knowledge construction. Due to its rapid changes and disruptive nature, there is still little research at this time with different views regarding this GenAI in the teaching and learning process.

Schools and higher education in underrepresented context are also impacted with the development of GenAI. Indonesia, with its vast archipelago and diverse landscape, faces a significant challenge in providing equitable education opportunities for all its citizens. While strides have been made in expanding access to education, a persistent issue remains - the existence of underrepresented schools. These educational institutions, often located in marginalized and economically disadvantaged areas, face a myriad of challenges that hinder the realization of a quality education for their students (Cabell et al., 2021). Among the challenges, infrastructures and resources can be one significant hindrance in achieving the quality. Underrepresented schools in Indonesia often grapple with inadequate infrastructure and limited resources, with insufficient classrooms, outdated teaching materials, and a lack of modern technology hinder the learning experience for students (Juharyanto et al., 2021). The absence of proper facilities hampers the overall educational environment and impacts the quality of education provided. Along with the rapid growth of technology, learning has shifted to be more ubiquitous with blended fashion emerging more flexibly. The shift requires adequate supports, from facilities and resources to quality of instructions.

With the GenAI disruptive wave, teaching learning process utilizing blended learning needs to shift while at the same time retains the education quality. These need multi-faceted and collaborative approach from many stakeholders, like teachers, students, principals, and community to ensure the effective and meaningful utilization of new technology, such as GenAI taking place in the instructional process (Kohnke & Moorhouse, 2022). As GenAI technology is advancing every minute, various views emerge from teachers and future teachers. It deals with whether teachers should use the technology or not in the classroom practices. In English teaching and learning, massive information has been available in the target language and with the GenAI technology, information is not only available as in the Google era, but now can be crafted according to the needs (i.e. prompts) (Javier & Moorhouse, 2023; Kohnke et al., 2023). Future teachers, who are preparing their career, are also impacted with the trend. Different perceptions still take place with these teachers.

To find out the teachers and students' view in underrepresented setting regarding the use of AI which is developing rapidly now, it is important to carry out an in-depth investigation regarding perceptions. Currently, several studies have been conducted regarding perceptions of AI. Armanda et al. (2022) for example, found that students studying English preferred using Grammarly to help their article writing process. Positive perceptions were also given by students in Hakiki's research (2021) where students felt this application was very useful for helping write English essays. In the context of postgraduate students, Kurniati and Fithriani (2022) found that students positively perceived the use of Quillbot to improve the quality of their writing. Apart from that, Quillbot can also provide various alternative paraphrasing results with its features and help their foreign language learning process. In the context of AI use in general, Sumakul et al. (2022) found that teachers showed positive perceptions of AI assistance. However, the integration of AI must still consider to its suitability for pedagogical competence, technological competence and the level of student motivation. On the other hand, students have a good impression about the benefits provided, especially in writing. Students claim that AI applications help them in identifying and promptly correcting writing errors. In addition,

because of the diversity of views so far, it is also necessary to identify supporting and limiting factors of using AI in English language learning, so that effective and meaningful use and clearer AI policies can be formulated. Because the study of GenAI in the context of learning with all its potential is still relatively new, the development of GenAI, the diversity of views regarding AI, and changes in learning in the post-pandemic context, there is still few research on this topic. Based on the research background, the present study aims to answer the following research problems.

1. How is the future teachers' perception of GenAI in an underrepresented EFL blended learning context?
2. What are the supporting factors for using GenAI for future teachers in an underrepresented EFL blended learning context?
3. What are the inhibiting factors for using GenAI for future teachers in an underrepresented EFL blended learning context?

This research aims to investigate future teachers' perception of GenAI in an under-represented EFL blended learning context as well as supporting and inhibiting factors for using the technology.

Literature Review

Constructivism

Constructivism is a learning theory that emphasizes students' efforts to build their knowledge independently or with the help of other people to help understand a concept or thing. There are two main theories in constructivism, namely cognitive constructivism and social constructivism. This cognitive constructivism theory explains that knowledge arises from a person's actions and how they reflect on them to adjust behavior (Fosnot & Perry, 2005). As stated by Huitt and Hummel (2003), Piaget developed his theory of cognitive constructivism because of his interest in how children think and how they recognize and develop that knowledge, starting from sensorimotor (babyhood), pre-operational (early childhood), concrete operational (basic), and formal operational (adult). Another theory is social constructivism from Lev Vygotsky. This theory states that social situations help students to emerge knowledge (Hirtle, 1996) and the process of cognitive development stages begins in a social context (Vygotsky, 1978). Based on their theory, it can be concluded that Piaget believed cognitive development was a product of the mind achieved through observation and experimentation whereas Vygotsky saw it as a social process achieved through interaction. In English language learning, the constructivist approach can be adapted to facilitate learning by giving students choices and by providing interesting and meaningful language practice (Schcolnik & Abarbanel, 2006). Krahnke (1983) also stated that the constructivist approach can encourage students to experiment freely with the language they will learn. This theory is relevant to this research where students can build their own knowledge, either independently or through social interaction, to understand something.

The 21st century learning paradigm emphasizes that education is in the knowledge age and focuses on students' ability to think critically, be able to connect knowledge with the real world, master information technology, communicate and collaborate. In the 21st century, education is becoming increasingly important to ensure that students have learning and innovation skills, skills in using technology and information media, and can work and survive using life skills. English learning is also not immune from the demands of the 21st century. When the global world requires graduating students to have a variety of skills needed in the future, learning that still focuses on teachers or lecturers and memorizing activities alone will certainly not be able

to help students achieve these targets. The use of technology in the learning context can be directed at efforts to improve the quality of this learning. To achieve mastery of 21st century skills, students should be directed to study non-routine world problems to stimulate curiosity (Kuhlthau et al., 2007). By integrating relevant technology, like AI, approaches like this are believed to enhance students' abilities and skills in the context of English learning because the educational process requires an active thinking process that involves all students.

In relation to the use of Mobile-Assisted Language Learning (MALL) and AI in English language education, constructivist theory offers a strong pedagogical foundation. Cognitive constructivism supports the idea that learners actively build knowledge through exploration and reflection—something facilitated by AI tools that offer personalized feedback and adaptive learning paths. Meanwhile, social constructivism emphasizes the importance of interaction and collaboration, which is reflected in AI-driven features such as chatbots, peer feedback, and real-time communication. Both MALL and AI encourage student-centred, meaningful, and context-rich learning experiences that align with constructivist principles, making them valuable tools for developing 21st-century skills in EFL classrooms.

Artificial Intelligence in Education (AIED)

AI has evolved through several key phases—beginning with rule-based systems in the 1950s–1980s, which enabled basic problem-solving and decision-making applications. During this early phase, educational uses were limited, often confined to intelligent tutoring systems with pre-programmed responses (Zhang & Aslan, 2021; Zheng et al., 2021). In the 1990s–2000s, AI shifted toward machine learning, allowing systems to learn from data, which led to the emergence of more adaptive educational technologies, including personalized learning platforms and automated assessment tools (Zawacki-Richter et al., 2019). In the current era, characterized by deep learning and generative AI, the educational impact has become more transformative (Kohnke et al., 2023; Tapalova & Zhiyenbayeva, 2022). Tools such as ChatGPT, Grammarly, and AI-powered learning apps now offer real-time interaction, feedback, and content generation, enabling more personalized, accessible, and autonomous learning experiences. This historical perspective not only highlights the growing sophistication of AI but also emphasizes its increasingly central role in shaping modern teaching and learning practices.

The recent development of AI in Education has made use of Mobile Assisted Language Learning (MALL) extensively in its implementation. MALL is a way of learning languages with the help of mobile technology. The use of devices with various learning applications that can be accessed at any time and from anywhere makes this process easier (Santosa et al., 2022). The use of technology in language learning can be used in teaching and learning activities for speaking, reading, listening and writing, including to improve language components, critical thinking and academic studies (Gholami & Azarmi, 2012). MALL is directly related to the use of mobile technology which is not only used in language learning and cannot only be used in the classroom, because it can be used anywhere and at any time (Febriyanti et al., 2021). Burston (2015) emphasized that MALL is very useful in learning foreign languages, such as English because it is able to accommodate the latest developments, student characteristics, and a learning environment that is without boundaries of space and time. Recent developments, such as GenAI are exponential and learning occurs anytime and anywhere without the walls of the classroom anymore.

In the field of education, GenAI is a powerful tool to support education and the learning process through developing an adaptive learning environment using various efficient and effective tools (Luckin et al., 2016). Artificial Intelligence in Education (AIED) is a technological development

that can perform cognitive tasks, usually related to learning and problem solving, which can help the learning and teaching of English (Zawacki-Richter et al., 2019). AIED has also been a field of scientific research for more than 30 years, and as time progresses, interest in understanding and improving the use of AI for educational purposes is higher than before, even reaching the government sector (Zhang & Aslan, 2021). With the increasingly widespread application of AI technology for teaching and learning, teachers and students are given the convenience to reduce routine and manual tasks and replace them with automation so that this can advance an adaptive and personalized learning process (Zheng et al., 2021). Because it is still new, various perceptions emerge and this requires in-depth investigation.

Perception

Perception is defined as a person's view of thinking about something, the way a person observes something with the senses of sight, hearing, and how to understand or pay attention to something quickly (Robbins & Judge, 2013). In the context of this research, perception is the process in which teachers and students describe or respond to the information they receive through their five senses. There are several causes for differences in individual perceptions of views regarding information, especially perceptions of the use of GenAI in English language learning. There are three aspects that influence a person's perception of something, namely the respondent, target, and situation.

Respondents are individuals who feel about something which consists of five components.

- a. Attitude: the way the respondent feels and reflects a certain thing which is expressed in two ways of pleasant and unpleasant statements. There are three parts of attitude, namely cognitive, affective, and behavioral.
- b. Motive: the respondent's intention to take action to achieve something. In this research, when a respondent is given something as a perception target, the perception will achieve something based on the needs and values he feels.
- c. Interest: the respondent's curiosity about something or the object of perception.
- d. Experience: the way humans receive knowledge through three stages, namely doing, seeing and feeling something.
- e. Expectations: the respondent's expectations about certain things that are expected to happen in the future.

The target can be interpreted as the object of the respondent that will be interpreted. There are seven components that influence individual perceptions.

- a. Novelty: something original, new and unusual that the observer experiences when interpreting something.
- b. Motion: an activity that provides a certain action to move something.
- c. Sound: something that reaches the individual's ears and can be heard.
- d. Size: the proportion of the perception target.
- e. Background: the circumstances that support a certain thing that has happened recently.
- f. Proximity: how close the target of perception is to the individual.
- g. Similarity: something that looks the same, but there are several components that may be different.

Finally, a situation is a condition that can be supported by the respondent when perceiving the target of perception. The situation has three components, namely time, work setting, and social setting.

- a. Time: when or the range of time allocation that is perceived to interpret the perception target.
- b. Work background: the environment that influences individuals to do something.
- c. Social setting: the surrounding atmosphere that influences individuals to do something.

Understanding how and why individuals, like future teachers perceive GenAI is important to examine the meaningful use of the technological trend in the EFL blended learning context for effective instruction.

Use of AI in the Underrepresented EFL Blended Learning Context

The integration of AI, particularly Generative AI (GenAI), in English as a Foreign Language (EFL) education has been gaining momentum globally. In the context of AI use in general, Sumakul et al. (2022) found that teachers showed positive perceptions of AI assistance. Specifically, studies have shown that AI technologies can enhance student engagement, personalize instruction, and support differentiated learning in blended learning environments (Kohnke et al., 2023; Kostka & Toncelli, 2023). Tools such as ChatGPT, Grammarly, and AI-powered learning platforms have been used to support writing instruction, vocabulary acquisition, and real-time feedback (Chen et al., 2023; Zhang & Aslan, 2021; Zheng et al., 2021) and motivation (Ali et al., 2023). These tools have shown positive impacts in various contexts where access to AI and digital literacy is relatively high. However, much of the existing research is concentrated in technologically advanced regions, such as North America, Europe, and parts of East Asia, leaving a significant gap in understanding how such technologies are perceived and utilized in more localized or underrepresented regions, such as rural and culturally distinct areas of Indonesia, including Bali.

While Bali is well-known globally as a tourism destination, its educational context, especially in teacher education for EFL, remains underrepresented in academic literature. Blended learning itself is still developing in many teacher education institutions in Indonesia (Juharyanto et al., 2021), where challenges such as infrastructure limitations, varying levels of digital literacy, and contextual pedagogical beliefs significantly influence the adoption of emerging technologies (Santosa & Dewi, 2025). Moreover, cultural factors, language policies, and resource availability also play a crucial role in shaping how AI is perceived and implemented in classrooms (Kurniati & Fithriani, 2022; Tapalova & Zhiyenbayeva, 2022). Given these contextual complexities, it becomes important to explore not only the benefits of GenAI use but also the barriers and inhibiting factors that may hinder its integration into teacher preparation programs. Despite the immense development of GenAI, there are few empirical studies that have explored how future teachers in places like Bali view the role of GenAI in blended EFL learning, especially in relation to their readiness and support systems. Therefore, emphasizing on the future teachers' perceptions of using GenAI in an EFL blended learning environment is highly important for the present study, while focusing on both the supporting and inhibiting factors of GenAI implementation.

As the use of AI in education continues to expand, addressing the ethical implications also becomes increasingly urgent. Ethical concerns include data privacy, algorithmic bias, transparency, academic integrity, and the potential replacement of human roles in teaching and assessment. In the Indonesian educational context, the discussion around AI ethics is still

emerging and relatively limited. While the national strategy for AI acknowledges the importance of ethics and regulation, concrete guidelines specifically tailored for educational settings remain limited (Kementerian Pendidikan, Kebudayaan, Riset dan Teknologi, 2024). Therefore, understanding views on the GenAI use, including its ethics, is pivotal to provide context-specific policies and ethical frameworks that guide the responsible implementation of AI in Indonesian classrooms—frameworks that safeguard both student rights and educational quality while fostering innovation.

Methods

Design

This research is mixed-methods research consisting of quantitative and qualitative descriptive methods (Ary et al., 2010). The use of these two methods adheres to a pragmatism paradigm where all relevant research methods are used to answer research questions for a more comprehensive study (Creswell, 2009). A sequential mixed methods strategy was carried out where the quantitative method is carried out first and the qualitative method supports the findings of the previous method (Creswell, 2012).

Participants

The quantitative part consisted of frequency data from a perception survey 150 future EFL teachers in Bali, Indonesia. The qualitative part was in the form of interviews with 6 future teachers who voluntarily agreed to be interviewed on the supporting and inhibiting factors for GenAI use. To collect quantitative data, a survey method regarding perceptions was carried out. Creswell (2012) states that survey methods can be used to collect data on opinions, behavior, attitudes or sample characteristics using a questionnaire as an instrument. In this research, a questionnaire was used to measure the perceptions of 150 future teachers. All participants were informed about the purpose of the study, the voluntary nature of their participation, and the confidentiality of their responses. They were assured that their identities would remain anonymous and that the data would only be used for academic purposes. Written consent was obtained from each respondent prior to participation, both for the survey and the interviews.

Data Collection and Analysis

A Likert scale Google Form-based questionnaire containing 10 statement items was distributed in this research (see Appendix 1). This research also conducted open-ended interviews as a qualitative data collection method examine supporting and inhibiting factors for future teachers when using GenAI. Using the Gregory Formula, content validity results from the two raters show that the survey and interview guide items were valid (.1) and reliable ($\alpha=.95$) (see Appendix 2). There are two data analysis methods in this research, namely quantitative and qualitative analysis. After all the survey data was collected, all data were calculated using the frequency analysis method. From the interview, the records were transcribed and then analyzed using Interactive Model Analysis from Miles et al. (2014). This analysis model contains four main stages of data collection, data sorting, data visualization, and data verification. Considering that there are two types of data, a triangulation process was carried out to ensure credibility and trustworthiness. Data triangulation was performed, where data from the survey and interviews were compared for similar findings.

Findings

The study aimed to investigate the future teachers' perceptions on GenAI in the EFL blended learning context in an underrepresented context in Bali, Indonesia. Using a questionnaire,

responses from 150 future EFL teachers were gathered from Google Form and it was analyzed using the frequency analysis. Graph 1 further portrays the questionnaire result.

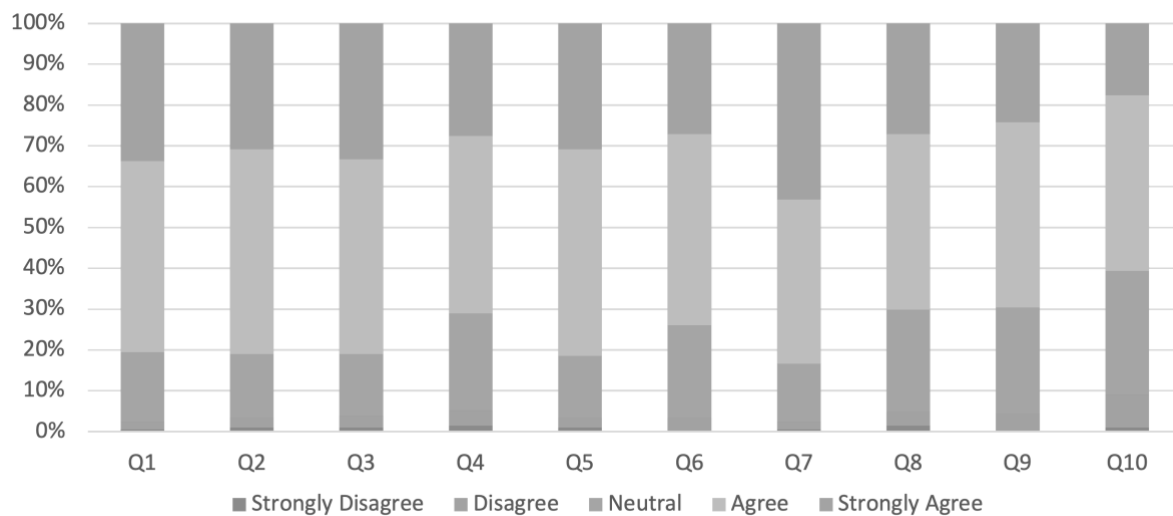


Figure 1. Future Teachers’ Perceptions of GenAI in an Underrepresented EFL Blended Learning Context

From Figure 1, it was found that the future teachers mostly ‘Agree’ to GenAI in the current EFL blended learning context in their respective situation. This means that majority of the respondents (approximately 50%) positively perceived the use of GenAI in their teaching and learning process in the EFL blended learning context. However, it was also found that neutral answers were relatively high in several statements of four (24%), six (23%), eight (25%), nine (26%) and ten (30%). Only a few ‘Disagree’ and ‘Strongly Disagree’ responses were found in the data. These data show that few respondents were indecisive on GenAI use and very little respondents negatively viewed its use in the EFL blended learning context. These findings are interesting to be explored further despite of the majority positive perceptions emerging from the survey responses.

To understand the result more comprehensively, the study also investigated the supporting and inhibiting factors for the future teachers to utilize GenAI in the underrepresented EFL blended learning context. Six voluntary future teachers, coded as S1 to S6, participated in the interview sessions. Using the Zoom application, interviews were conducted by recording conversations with the help of an interview guide. During the interview, the students expressed their abilities and challenges in using GenAI-based applications in the EFL learning practices based on the results of the questionnaire. Several students have experienced using GenAI-based applications to assist learning, namely ChatGPT or Perplexity. According to S1, GenAI-based applications are believed to be useful in English language learning because students need innovative technologies to support them.

“...GenAI is certainly useful in learning English, especially for people who have not mastered the foreign language because they need adequate assistive technology.” – S1

S1 further stated that the he utilized other AI-based applications used in English learning, like Grammarly, Google Translate, and Quillbot to help learning.

“I use other AI-based applications to learn, such as Grammarly, Google Translate, and Quillbot. It really help me!” – S1

From Graph 1, it can be seen that the future teachers tend to agree with the use of GenAI in English classes in the EFL blended learning context. S2 concurred that AI-based applications are innovative and useful.

“... Using GenAI-based applications helps me in learning English, especially in the blended learning environment, providing new ways that are innovative and interactive and can be used flexibly and independently.” – S2

S3 added that GenAI-based applications can help distance learning to effectively improve English language skills, for example,

“... GenAI has many advantages and potentials, such as helping distance learning and increasing learning efficiency. ... the use of AI applications in English learning also makes it easier for students to learn and improve their English language skills.” – S3

S4 further emphasized that GenAI-based applications are beneficial for learning English and improve the learning atmosphere.

“... GenAI is very helpful in English lessons, for example when learning to write with correct grammar. ... In general, AI makes the atmosphere of learning English more relaxed because we can prepare materials for learning English.” – S4

Apart from supporting factors, there are also factors inhibiting the application of GenAI for the future teachers in the context of English language learning in an underrepresented context. S5 stated that GenAI-based applications still do not have proper instructions and hamper the ability to communicate with the learners as it does not always meet their needs.

“The use of GenAI needs to be explored more deeply because the guidelines are still unclear while the results can be unrealistic sometimes. Teachers’ role should be present to accommodate students’ diverse needs in a classroom.” – S5

S5 also added that AI-based applications are less effective in learning English.

“... needs a combination of media, such as AI-based applications and appropriate teaching methods by lecturers.” – S5

S6 strengthens the above statement by asserting that AI-based applications are not effective in improving attitudes in learning.

“... although the use of AI-based applications itself is very helpful, it is too instant and may affect students’ learning attitudes in the long run.” – S6

S6 emphasized that the use of AI-based applications requires correct and appropriate direction from lecturers with more communicative practices.

“... However, teacher’s guidance is important to further improve students’ abilities in EFL learning, especially in the online environment. Students also need more exercises to communicate in real contexts.” – S6

These findings provide a nuanced interpretation of the survey results, indicating that while future EFL teachers generally perceive GenAI positively, several contextual challenges must be addressed to achieve effective and meaningful blended learning, particularly in under-

resourced regions such as rural areas of Bali. Despite recognizing the pedagogical affordances of GenAI—such as enhanced writing support, vocabulary development, and increased learner autonomy—its practical integration is often constrained by infrastructural limitations, digital literacy gaps, and a lack of institutional support. In such contexts, the adoption of GenAI risks remaining superficial or tokenistic unless accompanied by sustained capacity-building efforts, context-sensitive pedagogical design, and equitable policy interventions. Therefore, the successful implementation of GenAI in EFL blended learning requires more than favourable perceptions; it demands systemic readiness, inclusive planning, and a critical awareness of the socio-cultural and technological conditions that shape teaching and learning in underrepresented educational settings.

Discussion

The present study aimed to explore future teachers' perceptions of GenAI in an underrepresented EFL blended learning context as well as supporting and inhibiting factors shaping their engagement with these applications. Data from a perception survey and follow-up interviews revealed that most participants viewed GenAI positively, particularly in its potential to assist English learning through vocabulary development, writing support, and grammar improvement. The findings of this study are in line with the research of Şeren and Özcan (2021) which highlights that education in a disruptive era like today needs smart technology, as seen from smart machines or robots. The findings of this research are also supported by Sumakul et al. (2022) who stated that AI helps and supports teachers and students and they have positive perceptions of the use of AI applications. It can be projected that students who are learning English feel benefited because the use of AI-based applications can help students acquire vocabulary, writing processes, grammar and theoretical ideas in writing. Most of the future teachers perceived that GenAI-based applications are very helpful and useful in learning, for instance in providing answers, information, and knowledge to the students. Kohnke et al. (2023) supported by stating that AI-based applications, like ChatGPT are innovative and useful for improving English learning abilities. Some other research also agreed that students find AI-based applications helpful when it is difficult to understand meanings in English and helps them in improving their English language skills (Karakose, 2023; Kostka & Toncelli, 2023). Future teachers recognized the efficiency of GenAI tools, such as ChatGPT and Grammarly, for providing instant feedback, explanations, and personalized learning assistance—an especially valuable feature in contexts where human instructional support may be limited.

The benefits of using AI in the classroom, especially from the students' perspective, may be the reason for these positive opinions, as students find AI useful for correcting their writing errors (Enzelina et al., 2023). According to Lancy (1990), the use of technology to support learning can offer resources that encourage students to apply their cognitive potential to the challenges they face. When it comes to interviews, AI-based applications are changing the way students acquire English language skills. Huitt and Hummel (2003), imply that students should be encouraged to create their own knowledge rather than copying it from authoritative sources. The main principle of constructivism is that knowledge is constructed and students build new knowledge on top of previously acquired knowledge (Santosa et al., 2024). AI-based applications can build students' knowledge by acquiring English skills at their own pace while at other times, collaborating with their peers. The results are similar to previous research on the use of Grammarly as one of the applications of AI in education to improve student performance in English language skills and the use of Chatbots as an implementation of AI, especially in the form of student services for learning support (Fitria, 2021). AI-based applications can also help distance learning be effective and improve the learning atmosphere, especially for personalized

learning (Tapalova & Zhiyenbayeva, 2022). Vygotsky (1978) further emphasized that students who are better able to maintain interpersonal relationships with classmates are more likely to succeed than those who are not in terms of academic achievement. AI-based applications can increase student motivation due to the learning atmosphere (Ali et al., 2023). The results are consistent with previous research that has shown artificial intelligence-based education can help improve education.

It is evident that using AI-based applications in learning makes students learn more comfortably as students can get what they need quickly and easily. This is in line with previous research from Sumakul et al. (2022) who stated that the use of AI in the classroom provides benefits for students in identifying and correcting writing errors easily. Thus, this benefit provides students with comfort in learning English rather than learning using traditional methods. This is also in line with studies from Chen et al. (2023) who stated that conversational AI (as in GenAI, like ChatGPT) has the potential to reduce learning anxiety. Zou et al. (2023) further stated that AI offers a more flexible way for language learners to engage with it. In an environment that is less intimidating than a traditional classroom, they can also get feedback (Maharani & Santosa, 2025). This strongly supports the positive views of the future teachers in the context. The results of perception survey also highlight that the use of AI in general affects the students' ability to communicate with teachers. Students consider that AI can be useful for them in improving their ability to communicate with teachers. Pass (2004) states that the finding supports the idea that students can construct their own knowledge, and that this knowledge construction is based on pre-existing knowledge schemas. This kind of thinking gives rise to the concept of "Active Learning" where instructional activities, especially combined with online learning tools and activities, involve students in doing something and thinking about what they are doing (Cook & Babon, 2016). Active learning strategies mandate that students complete an activity that calls for higher-level thinking, such as reading, discussing, or writing. In addition, they often emphasize the importance of students' inquiry into their own attitudes and values. Thus, the habits they create can influence their ability to communicate with teachers. In this regard, GenAI can serve as both a tutor and a collaborator in blended learning environments.

However, unlike research conducted in digitally advanced and well-resourced educational settings, the novelty of this study lies its focus on an underrepresented EFL blended learning context – a region of Indonesia where digital infrastructure, policy support, and teacher training remain uneven. While participants expressed optimism toward GenAI, their perceptions were also tempered by structural constraints such as limited internet access, unequal device availability, and a lack of institutional guidance on ethical and pedagogical integration. These findings echo the challenges of digital inequity noted in prior scholarship (Kostka & Toncelli, 2023; Zou et al., 2023), where enthusiasm for AI adoption often coexists with uncertainty about practical implementation. The absence of clear national and institutional policies governing GenAI use in education further complicates its integration. In underrepresented contexts like Bali, there are still no comprehensive frameworks addressing AI literacy, data ethics, or culturally responsive pedagogical adaptation. As Khan (2024) emphasizes, the lack of ethical and pedagogical guidelines can impede meaningful AI integration, leaving teachers uncertain about their evolving role in AI-mediated classrooms. This policy vacuum risks reinforcing dependency on technology without equipping educators with the critical literacy needed to evaluate and adapt AI tools effectively.

The blended learning model itself also remains underdeveloped across many Indonesian regions. Although national initiatives after the COVID-19 pandemic encouraged digital transformation, actual classroom practices in underrepresented areas often rely on minimal technology, such as WhatsApp or basic online platforms—rather than comprehensive Learning

Management Systems. Consequently, future teachers in these contexts may find it difficult to envision sustainable GenAI integration without adequate infrastructural and pedagogical support. This reveals a significant gap between the perceived potential of GenAI and the operational realities of its use in Indonesian teacher education. Participants' concerns also highlighted the socio-cultural implications of GenAI in EFL learning. Some expressed apprehension that AI-mediated interactions might reduce opportunities for human dialogue, collaborative learning, and cultural transmission—core elements of EFL pedagogy in collectivist societies. This observation aligns with Vygotsky's (1978) and Hirtle's (1996) arguments that learning is inherently social and culturally mediated. In contexts where exposure to English outside the classroom is already limited, the teacher's presence as a cultural and linguistic mediator remains indispensable (Chen et al., 2023; Javier & Moorhouse, 2023). Thus, while GenAI provides flexible and personalized engagement, it should be positioned as a pedagogical supplement, not a substitute for human interaction. This interpretation underscores the importance of balancing technological innovation with relational and contextual sensitivity.

These findings suggest that GenAI adoption in underrepresented EFL blended learning contexts cannot be viewed merely as a technological upgrade. Instead, it requires multi-level systemic interventions. At the policy level, governments and educational institutions should establish localized frameworks for AI integration—covering infrastructure investment, teacher professional development, and ethical guidelines. At the institutional level, pre-service teacher education programs should embed AI literacy into the curriculum to empower future teachers with the competencies to critically and creatively use GenAI tools. At the pedagogical level, culturally responsive and contextually grounded models of AI-enhanced blended learning should be developed to ensure that technology complements rather than replaces human mediation (Mishra & Koehler, 2006; Santosa & Dewi, 2025).

In conclusion, while future teachers in this study demonstrated a generally positive orientation toward GenAI, their perceptions were shaped by the structural, policy, and cultural realities of an underrepresented EFL blended learning context. The study contributes to the growing body of AI-in-education literature by foregrounding the contextual inequities that mediate how GenAI is perceived and potentially implemented. Addressing these inequities—through inclusive policy, teacher empowerment, and equitable access—will be essential to realizing the transformative promise of GenAI in English language education across diverse Indonesian settings.

Conclusion, Suggestion, and Future Direction

Based on the findings, it can be concluded that future EFL teachers from underrepresented blended learning contexts generally express positive attitudes toward the use of technology, particularly GenAI, in the classroom. They view AI-based applications as beneficial tools in English language learning, particularly in supporting writing, vocabulary development, pronunciation practice, paraphrasing, summarizing, and building learner confidence. Neutral responses captured in the survey suggest areas of uncertainty or limited familiarity that merit further investigation. Data from interviews revealed both enabling and inhibiting factors influencing the implementation of GenAI in EFL blended learning environments. While future teachers acknowledged the usefulness of GenAI in generating diverse responses and assisting with a range of academic tasks, they also identified key challenges related to infrastructure constraints, pedagogical coherence, ethical concerns, and the evolving role of teachers. Limitations such as restricted access to reliable internet, the occasional inaccuracy of AI outputs, and the absence of clear pedagogical frameworks, ethical guidelines, and meaningful teacher–student interaction were cited as barriers to optimal integration. Despite these insights,

this study is limited on a specific region in Indonesia. Future research is encouraged to involve a larger and more diverse participants across different geographic and institutional contexts, adopt longitudinal or experimental designs to assess actual learning outcomes, and explore strategies for integrating GenAI with culturally responsive pedagogy to better support inclusive and equitable English language education.

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Appendices

Appendix 1: GenAI Perception Survey

No	Indicators	SA	A	N	D	SD
		1	2	3	4	5
1	The use of GenAI in education can improve the atmosphere for learning English.					
2	The use of GenAI is important to prepare students to obtain the English language learning needed in accordance with Indonesia's educational goals today.					
3	GenAI contributes greatly to the development of faster English learning.					
4	GenAI can meet the needs of all age levels improve English language skills.					
5	GenAI can clarify points that teachers cannot cover in English language learning.					
6	GenAI meets and complements all students' needs in learning English.					
7	GenAI allows students to obtain additional learning resources regarding the material explained by the teacher in English language learning.					
8	The use of GenAI in learning English will be less intimidating than face-to-face learning in the classroom.					
9	GenAI is changing the way students master English language skills.					
10	The use of GenAI affects students' ability to communicate with teachers.					

Appendix 2: Interview Guidelines

1. What do you think about the use of GenAI -based applications to help teach/learn English in the underrepresented blended learning context?
2. Have you ever used GenAI-based applications to support English teaching/learning in the underrepresented blended learning context?
3. What GenAI-based applications have you used to facilitate English teaching/learning in the underrepresented blended learning context?
4. Are GenAI-based applications helpful? And in what ways does it help?
5. Have you ever faced challenges when using GenAI-based applications? If so, what kind of challenges?
6. Now that you know the things that support and hinder the use of GenAI-based applications, will you still use them to support your English teaching/learning in the future?
7. Do you think the use of GenAI in education can improve the atmosphere for learning English?
8. Do you agree that the use of GenAI is important to prepare students to obtain the English language learning needed in accordance with Indonesia's educational goals today? Why?
9. Do you agree that GenAI contributes greatly to the development of faster English learning? Why?
10. Do you think GenAI can meet the needs of all age levels in developing English language

skills?

11. Do you agree that GenAI can clarify points that teachers cannot cover in English language learning?
12. Do you think GenAI can meet and complement all students' needs in learning English?
13. Do you think the use of GenAI allows students to obtain additional learning resources regarding the material explained by the teacher in English language learning?
14. Do you agree that the use of GenAI in learning English will be less intimidating than face-to-face learning in the classroom?
15. Do you think GenAI changes the way students master English skills?

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