



Phenomenological Study of ESL Students' Lived Experiences with AI-Powered Language Learning Tools

Jamaine Cristobal*¹, Bryan Credo², Juquir Esguerra³, Russel Mhilo Mabagos⁴, Cielo Mae Mamaril⁵, Pia Bianca Ordoña⁶, Jennelyn Lacar Raymundo⁷

^{1,2,3,4,5,6,7} Isabela State University, Philippines

jamainecristob@gmail.com¹, shidonibryan@gmail.com², juquiresguerra@gmail.com³, russelmhilo4thyr@gmail.com⁴, mamarilcielomae@gmail.com⁵, piyayabianca0918@gmail.com⁶, jennelyn.b.lacar@isu.edu.ph⁷

*Corresponding Author: jamainecristob@gmail.com

ARTICLE INFO	ABSTRACT
<p>Keywords: AI-Powered Language Learning Tools; Artificial Intelligence; ESL Students; Language Learning; Lived Experiences</p> <p>Received: 08 Jul 2025 Revised: 09 Oct 2025 Accepted: 05 Nov 2025</p>	<p>This qualitative phenomenological study explored the lived experiences of ESL students at the College of Education, Isabela State University-Echague Campus, in using AI-powered language learning tools such as Grammarly, Gemini Bard, ChatGPT, QuillBot, and Bing AI. It responds to the growing need to understand how these emerging tools are transforming language learning. This study was anchored in Lev Vygotsky's social constructivist framework, focusing not just on tool effectiveness but on how learners perceive, interact with, and are challenged by these tools in the context of language learning. There were 25 respondents selected among the first to fourth year Bachelor of Secondary Education English students, specifically those with experience using AI-powered language learning tools. The Interpretative Phenomenological Analysis (IPA) was used to analyze the data. Findings revealed that AI tools enhanced students' grammar, vocabulary, reading comprehension, and writing skills through personalized feedback and support. However, it also revealed significant issues such as over-reliance, data privacy concerns, and issues with output accuracy and bias. Therefore, the study highlights the importance of a student-focused capacity development program that equips ESL learners with digital literacy, critical thinking, and responsible AI use skills to maximize the benefits and minimize the drawbacks of AI-powered tools in language learning.</p>

This is an open-access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license



1. INTRODUCTION

The emergence of Artificial Intelligence has transformed language learning into a more engaging and creatively interactive process, facilitating students' completion of language tasks and contributing to significant progress in their overall language proficiency (Divekar et al., 2022). Based on the study conducted by Xu et al. (2023) on AI-powered language learning tools, it was discovered that there is a positive impact on the English language learners' overall learning outcome. These tools enhance accessibility, providing an opportunity for every student to learn as they create personalized learning that caters to the students' individual needs, and they optimize teaching methods to deliver the best results (Zawacki-Richter et al., 2019; Zhang et al., 2019).

Despite its benefits, there are also existing challenges and barriers. Based on Nguyen's (2024) findings, ESL students view AI tools as helpful in enhancing their skills and overall language learning experience. However, concerns persist regarding the reliability and accuracy of these tools. While AI can assist with grammar and sentence structure, it often struggles with deeper concepts, such as idioms, which are prone to misinterpretation (Pokrivcakova, 2019). Additionally, issues like academic integrity, overdependence, reduced human interaction, and hindered critical thinking are notable drawbacks



(Hwang et al., 2020; Thai, 2023). This reliance on AI could limit students' ability to analyze information and generate original ideas (Creely, 2023), raising concerns about authenticity and the essence of independent learning (Craig, 2021). Furthermore, data privacy and bias remain significant risks, as AI systems rely on historical data, potentially amplifying inaccuracies and educational inequalities (Baker & Hawn, 2022; Creely, 2023).

Recent studies on Artificial Intelligence indicate that the learning landscape is rapidly evolving with the introduction of new AI tools. However, these technological advancements also pose various risks and challenges. The effective integration of AI-powered language learning tools depends not only on technological progress but also on understanding learners' perceptions and experiences in using these tools. Despite this, limited research has explored how learners experience and utilize AI for language learning (Nguyen, 2024). Furthermore, the previous studies relied solely on the outcome of AI-powered language learning tools and how they benefited the students' language learning to achieve successful learning outcomes (Boubker, 2024). Achieving successful AI integration in language education means striking a balance: overcoming its challenges while maximizing its strengths to create effective and inclusive learning. This necessitates future research and policy focused on ethical, equitable deployment and empowering educators. Nonetheless, current research often lacks guidance on how to effectively navigate AI's inherent challenges, which are crucial for responsible implementation in language education (Sasikala & Ravichandran, 2024).

Therefore, this study seeks to develop a comprehensive understanding of how technology influences learners, not just in terms of performance data, but in how they feel, adapt, and grow within these tools. By describing their experiences, students provide educators and researchers with valuable insights into the real-world impact of AI-powered language learning tools, revealing not only their strengths and limitations but also uncovering the overall relevance of these technologies in supporting meaningful and effective language development. Additionally, by providing insights for educators and policymakers regarding the challenges and limitations of AI tools experienced by ESL students, it guides the development of more effective, tailored language-learning technologies. Addressing these gaps is crucial for harnessing AI's full potential while mitigating its risks. Therefore, a student-focused capacity development program is designed to enable ESL learners to use these tools effectively, maximize their benefits, and address the challenges and barriers they encounter. Moreover, this will help the students to develop their critical thinking, digital literacy, and adaptability to evolving AI technologies, preparing them not just to use AI tools but to thrive in an AI-enhanced academic and professional world. This study also emphasizes sustainable improvements in language education, positioning AI as a meaningful partner in learning that empowers ESL students to succeed academically, socially, and professionally.

2. METHODS

2.1 Research Design

This study employed a qualitative research design, specifically phenomenology, to explore the lived experiences of ESL students using AI-powered language learning tools. Phenomenology aimed to understand the essence of a phenomenon from the perspective of those who experience it (Creswell & Poth, 2018). This approach allowed for an in-depth understanding and description of students' motivations, perceived benefits, and challenges related to AI tool use in language learning.

While the study was grounded primarily in a phenomenological framework, it also incorporated elements of developmental research to a limited extent. Informed by the principles of developmental research as defined by Richey and Klein (2005), which involved needs analysis based on the study's findings and systematic design of instructional interventions or products, these selected phases were used to inform the creation of a targeted capacity development program aimed at addressing challenges identified through student narratives. Thus, this research integrated aspects of developmental



methodology to propose practical enhancements for improving the effectiveness and accessibility of AI tools for ESL learners.

2.2 Data Gathering Procedure

A formal request to conduct the study was submitted to and approved by the Dean of the College of Education and the Program Chairperson. Upon approval, the researchers distributed a Google Form from freshmen to seniors enrolled in the Bachelor of Secondary Education major in English. This helped narrow the sample to select the participants who had experience using various AI-powered language learning tools. Data collection was conducted at Isabela State University – Echague Campus, specifically in the College of Education.

Before data collection, the researchers explained the consent form, ensuring participants gave informed and voluntary consent. Anonymity and confidentiality were emphasized, with participants assigned codenames in transcripts. The study's objectives and relevant terms were clarified to ensure honest and informed responses. To gather the necessary data, a semi-structured interview was utilized to analyze the lived experiences of the English major students in using AI tools in their language learning. A total of 25 students participated, with 15 interviewed face-to-face and 10 interviewed virtually via Google Meet, with both interviewer and interviewee present, each lasting for 30-40 minutes. Individual interviews were conducted, with each researcher interviewing one participant. The interviews were voice-recorded with the participants' consent.

2.3 Participants of the Study

The target population of this study comprised BSE English major students enrolled during the First Semester of Academic Year 2024-2025 at Isabela State University – Echague Campus, ranging from first to fourth year and representing all genders. To identify potential participants, a Google Form survey was administered to determine which students actively use AI-powered language learning tools. Based on the survey responses, 25 students were purposively selected to participate in the phenomenological study, ensuring that each met the necessary criteria and had direct experience with such tools. This purposive sampling approach aligned with the study's objective of capturing rich, in-depth insights into the lived experiences of students integrating AI into their language learning process. Below are the criteria used in selecting the target participants in this study:

Table 1. Inclusion and Exclusion Criteria for the Selection of Target Participants

Study Parameters	Inclusion Criteria	Exclusion Criteria
Field of Specialization	ESL students, particularly students from first year to fourth year, are taking up the Bachelor of Secondary Education – major in English.	Students who are not in the Major in English program.
Learning Experience	ESL Students who are using or have experience in using AI-powered language learning tools. They should at least use 3-5 AI-powered language learning tools. Students should have enough knowledge and know how to utilize the tools for their language learning.	ESL students who do not have experience in using AI-powered language learning tools.

2.4 Research Instrument

Data was collected through semi-structured interviews consisting of six open-ended questions, designed to gather rich, descriptive data. The first four questions focused on the participants' language learning experiences with AI tools. The remaining two questions addressed the challenges and limitations they faced while using such tools. The semi-structured interview questions were initially



LONTARA
DIGITECH
INDONESIA

GLENS: Global English Insights Journal

E-ISSN: 3026-569X; P-ISSN: 3026-734X

Journal Homepage: <http://journal.lontaradigitech.com/GLENS>



crafted through priori coding to ensure that the questions meet the objectives of this research study. Therefore, six interview questions composed the initial set of questions, which were crafted to gather the needed data. However, probing and follow-up questions could not be stipulated as this could spring from the responses of the research participants, thereby making these unpredictable at the outset of the data gathering procedures.

2.5 Data Analysis

The qualitative data gathered in this study were subjected to Interpretative Phenomenological Analysis by Moustakas (1994) and modified by Van Kaam (Galinha-de-Sá & Velez, 2022) for the interpretation and analysis of data. The 7 stages are illustrated below:



Figure 1. Interpretative Phenomenological Analysis

The data gathered from the different sources were organized accordingly to saturate the recurring patterns through a series of coding; thus, yielding themes that shed light on the research questions. First, the data gathered from the interviews were transcribed, meaning the researchers created a complete written copy of the recorded interviews.

The researchers used a model or framework for the analysis of data. It utilized the Interpretative Phenomenological Analysis (IPA) by Moustakas in 1994 and modified by Van Kaam in 7 steps in 1994 (Galinha-de-Sá & Velez, 2022): (1) Horizontalization: Listing and Preliminary Grouping. The data are treated equally, with no excerpts considered more important than others. This is where the process of preliminary coding and grouping occurred, with every quote that is relevant to the experiences being investigated listed; (2) Reduction and Elimination: Determination of Invariant Constituents: the researchers list every quote as it helped them in refining the relevant data, eliminating redundancy, and removing ancillary information. Moustakas suggests that the researchers ask the following questions: “Does the expression itself represent a moment of experience sufficient for understanding, and adequate to subsequently reflect on?” and “Can the expression be classified and, therefore, abstracted?” (3) Categorization and Themmatization of Invariant Constituents. The researchers take the excerpts that passed the questions and begin exploring the meanings and groups of these excerpts. The datasets that do not coincide with the questions in step 3 are eliminated. The groupings formed the themes that expressed the experience for each participant; (4) Application and Validation: Final Identification of Invariant Constituents and Themes. The researchers began examining the themes against the dataset to ensure that the themes accurately represented the participants’ experiences in using AI-powered



language learning tools. The researchers also reflected on whether the themes were significant for the description of the phenomenon, with this process being initially designated as application by van Kaam and application and validation by Moustakas; (5) Construction of Individual Textural Descriptions. The researchers came up with participant-specific textural descriptions, incorporating quotes word by word from the participants; (6) Construction of Individual Structural Descriptions: the researchers create an individual structural description of experiences to examine the emotional, social, and cultural connections across all the participants. The researchers came up with similarities regarding the participants' lived experiences in using AI-powered language learning tools; (7) Composite Description: Construction of Structural-Textural Description: the researchers compiled the participants' lived experiences in using AI-powered language learning tools. Both the textural and structural descriptions were combined to comprehensively understand the phenomenon.

Moustakas (1994) suggests that creating a table or graph would be helpful to identify existing connections from the data. After the analysis of data, the results are organized and discussed. The data that undergoes analysis served as a basis for designing and developing language instructional activities. This study used the ADDIE Model created by Florida State University for the military in the 1970s. ADDIE is a 5-stage model, and it stands for Analysis, Design, Development, Implementation, and Evaluation that serves as a roadmap to build effective training programs and learning resources. However, this study is limited only to the first three stages, namely: (1) Analysis, (2) Design, and (3) Development.

Furthermore, to enhance the trustworthiness of the qualitative analysis, consensus on emerging themes was reached through multiple strategies. As outlined in Stage 4 of the data analysis, the researchers validated the data by consulting participants again, ensuring that interpretations accurately reflected their perspectives. Additionally, AI tools such as ChatGPT and Bard were employed to assist in thematizing and identifying codes, while MAXQDA software facilitated systematic thematic analysis. The process was further strengthened through guidance from the research adviser and collaborative discussions with co-researchers, which allowed for peer debriefing and cross-checking of codes. These combined measures ensured a rigorous and reliable approach to identifying and interpreting the study's key themes.

3. FINDINGS AND DISCUSSION

Drawing on Interpretative Phenomenological Analysis (IPA) as outlined by Moustakas (1994) and further refined through the seven-step Van Kaam method, this study explored the lived experiences of ESL students using AI-powered language learning tools. The analysis highlights both the benefits students gain from these tools and the challenges and barriers they face. Moreover, anchored in Lev Vygotsky's Zone of Proximal Development (ZPD), the findings offer valuable insights into how AI can serve as a scaffolding mechanism, supporting learners as they move from assisted to independent language use. This highlights how AI-powered language learning tools, when combined with learners' collaborative abilities, can facilitate meaningful and effective language development in a digitally mediated context.

3.1 Lived Experiences of ESL Students in Using AI-powered Language Learning Tools

Based on the experiences of ESL students, they highlight the benefits of AI-powered language learning tools for their language learning, which serve as a learning assistant and a friendly companion. Moreover, they also emphasized the importance of these in enhancing their language skills and academic performance. Additionally, participants mentioned that responsible use of these tools is crucial, emphasizing the need for critical thinking and discernment.

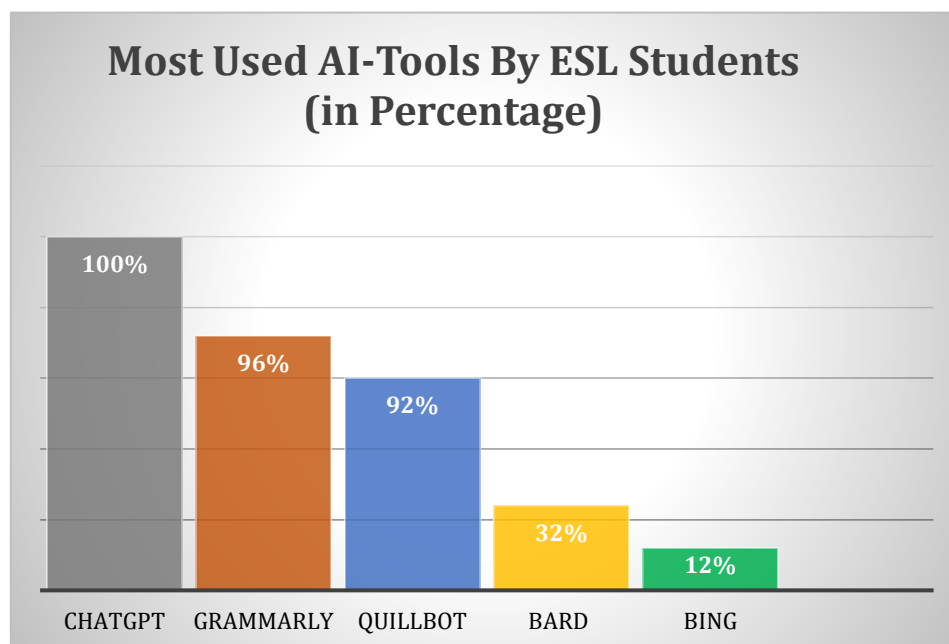


Figure 2. Most Used AI Tools By ESL Students (in Percentage)

The pie chart presents the distribution of AI-powered language learning tools used by ESL students enrolled in the Bachelor of Secondary Education – Major in English. Among the tools, ChatGPT emerged as the most utilized, with 100% usage, indicating that all 25 respondents are using this tool. Its popularity is attributed to being free, highly accessible (especially GPT3.5), and user-friendly, along with its advanced text generation capabilities, which support various writing and language tasks. These features contributed to its rapid global adoption, reaching over 100 million users within just two months of its launch (Casella et al., 2023; van Dis et al., 2023; Zhai, 2022). It was followed closely by Grammarly (96%) and QuillBot (92%). Grammarly is favored for its real-time grammar, punctuation, and spelling corrections, making it a reliable writing assistant. QuillBot, on the other hand, is known for its effective paraphrasing and rewording features, which help students improve clarity and avoid plagiarism. Both tools are widely recognized for enhancing writing quality and fluency, making them essential for ESL learners (Raheem et al., 2023). In contrast, Bard and Bing AI show much lower usage, at 32% and 12% respectively. Bard's limited adoption is likely due to its later release in March 2023, which may have affected its reach and familiarity among students (DeTemple & Meine, 2025). Bing AI is the least favored, as students found it less interactive and more search engine-like, often providing external links rather than direct answers (Kelly et al., 2023). While students use a range of AI tools, ChatGPT, Grammarly, and QuillBot are clearly the most preferred, offering comprehensive support that aligns with ESL students' academic writing and language learning needs.

Figure 3 highlights the lived experiences of ESL students in using AI-powered language learning tools and the following subthemes. These subthemes discuss the lived experiences of ESL students in using AI-powered language learning tools, especially the English major students of the Bachelor of Secondary Education.

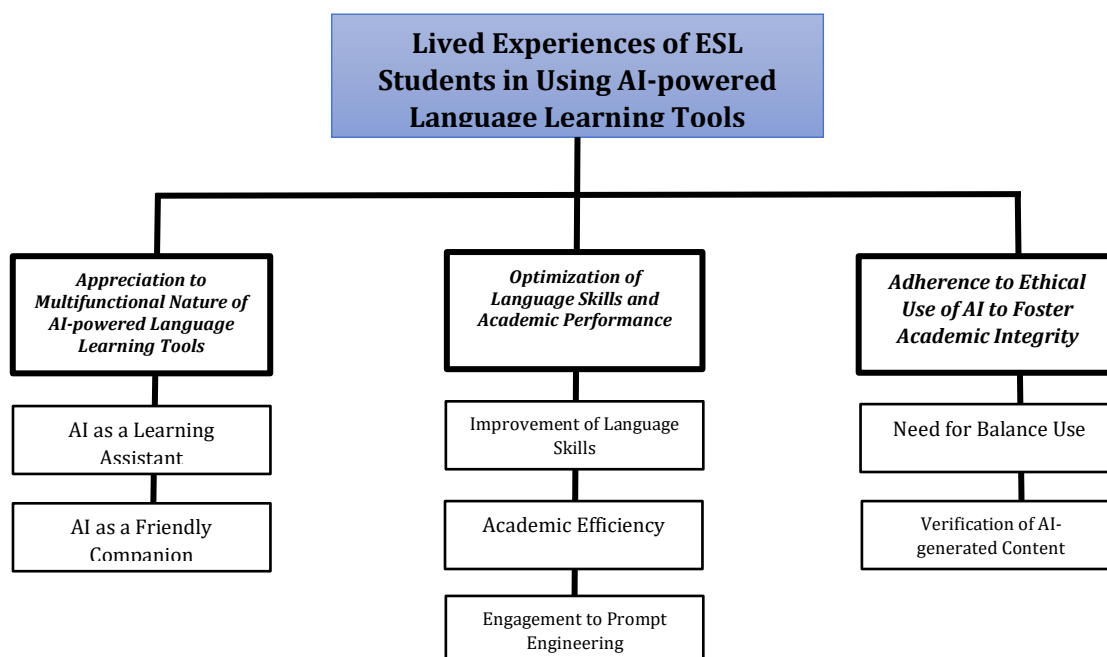


Figure 3. Lived Experiences of ESL Students in Using AI-powered Language Learning Tools

Appreciation to the Multifunctional Nature of AI-powered Language Learning Tools

AI as a Learning Assistant: AI tools like ChatGPT offer scaffolding support, helping ESL students understand complex topics more easily through simple prompts. These tools analyze student performance data and deliver individualized assistance (Onesi-Ozigagun et al., 2024). As Student Participant 13 stated:

"Because, as they say, you need to build, or you need to have your style of learning. So, for me, because I understand things faster when they are simpler. And straight to the point, the explanation. So, through ChatGPT, I can get what I need." (SP13)

This aligns closely with Vygotsky's Zone of Proximal Development (ZPD), which presents tasks that are unattainable to the learners unless there is support or guidance from someone who is more knowledgeable (McLeod, 2023). In this context, ChatGPT functions as a form of digital scaffolding: it provides tailored explanations, examples, and language support that help students bridge this gap, enabling them to perform tasks they might not accomplish alone. AI's ability to process large datasets and personalize learning experiences reflects its design goal, which is to reason, solve problems, and communicate like humans (Murtaza et al., 2022). Students confirmed that ChatGPT provides more comprehensive insights than traditional search engines. Chatbots can offer a diverse range of expressions and language support beyond static sources, effectively supporting learners within their ZPD by adapting to their individual needs and pacing (Wiboolyasarini et al., 2025; Yousif, 2025).

AI as a Friendly Companion: Aside from academic support, AI tools like ChatGPT and Bard can serve as friendly companions, offering immediate responses without judgment or criticism. Student Participant 4 described the experience:

"I can say that this AI tool is really a friendly tool and also approachable too. Like, I feel like I'm still talking to a person who I can run to any time because every time I click send, there's an immediate response, and it's super easy to talk to him. It is not judgmental if ever you make mistakes."

This highlights how AI fosters a comfortable environment for asking questions and making mistakes, providing supportive and positive interactions. Baidoo-Anu and Ansah (2023) similarly note



that ChatGPT functions as a virtual counselor, responding empathetically and offering users a platform to express ideas and feelings. It can act as a friendly tutor, creating a secure learning space for students struggling to excel. At the same time, such supportive interaction may raise concerns about dependency, where students might rely on AI instead of seeking necessary, constructive human feedback. It can act as a friendly tutor, creating a secure learning environment, but students should use AI with cautious optimism, setting clear boundaries to avoid overdependence (Guemide & Sahraoui, 2023).

For students who are less vocal or hesitant to share thoughts with others, AI provides a convenient and reliable companion. Student Participant 9 emphasized:

"I'm not totally that type of person who tells other people. So, I guess I consider myself, I consider AI as my friend. So, sometimes, I also ask questions, what to do, or what are the things I need to do when, and when I also encounter problems. So, even though it's not a real person, even though it's an artificial intelligence, imagine that even though you're asking very personal questions and you're asking him. And they also give, they do reply."

These experiences show that AI can aid language learning, critical thinking, problem-solving, and creativity, enhancing students' learning and cognitive development (Chiu et al., 2023). Positive AI experiences depend on personalization (Sundar, 2020) and human-AI interactions, like with social chatbots such as Replika. This illustrates how digital platforms can foster friendship-like connections tailored to users' needs (Skjuve et al., 2021).

Optimization of Language Skills and Academic Performance

Improvement of Language Skills: AI tools contribute to ESL students' grammar, vocabulary, writing, and comprehension. Student Participant 4 stated:

"When I use AI, because I really read it to make sure if it is accurate, and at the same time it's amazing. Because there are things I read, some new words, like that, new information, they also stick in my mind... So, I can really say that AI is super helpful. It not only helps thoroughly but also can influence your learning processes in a positive way. For me, I enhanced everything like grammar, vocabulary, writing, and also comprehension since in using AI, I encounter different words and unlock difficulties. Like AI would mention a word like this and then of course I'd be curious, I'd ask it what this means, then it would provide that. And also, with AI, I felt like I became more confident in the way I talk in English and also in structuring sentences." (SP4)

Student Participant 4 felt more confident in sentence construction and word use after interacting with ChatGPT. This experience can also be anchored in Lev Vygotsky's theory, which laid the foundation for social constructivism, emphasizing that learning occurs most effectively through social interaction and collaboration (Wei, 2023). Traditionally, these interactions occur with more knowledgeable individuals, such as teachers or peers; however, in the digital age, students can also engage collaboratively with intelligent systems like ChatGPT. By providing responsive feedback, tailored explanations, and practice opportunities, AI tools function as a digital "more knowledgeable other," guiding learners through tasks that they may not accomplish independently.

Through these interactions, students are exposed to new vocabulary and language structures, enhancing both comprehension and expressive ability. ChatGPT's extensive database and advanced language capabilities offer a wide range of word choices, sentence variations, and contextual examples, effectively supporting vocabulary development and linguistic confidence (Lund & Wang, 2023). In this way, AI scaffolds learning within the learner's (ZPD), helping students progress from current skill levels toward greater linguistic competence.



LONTARA
DIGITECH
INDONESIA

GLENS: Global English Insights Journal

E-ISSN: 3026-569X; P-ISSN: 3026-734X

Journal Homepage: <http://journal.lontaradigitech.com/GLENS>



Academic Efficiency: AI tools like ChatGPT streamline studying by generating reviews, quizzes, and summaries. Student Participant 1 highlights the benefit of AI tools, such as ChatGPT, in providing efficiency:

"When it comes to writing my reviewer. You know how long our readings can be, right? Well, I'm using the premium version of ChatGPT, which allows me to upload any PDF, regardless of its file size. Once uploaded, I can ask it to create a specific number of items or a certain type of test questions, and it will provide me with both the questions and the answers." (SP1)

Student Participant 1 uses the premium version of ChatGPT to create test questions from lengthy PDF readings, which they said saved time. Thurzo et al. (2023) validated that ChatGPT helps generate customized quizzes to improve test readiness.

On the other hand, Student participant 4 says, *"I use AI to get summaries of texts so I can read faster."* This shows the interviewee's claim about using AI to summarize literature readings, helping them interpret and understand the readings quickly, aligning with Chiu et al. (2023), who emphasized AI's ability to break down complex information effectively.

Engagement with Prompt Engineering: Effective use of Artificial Intelligence depends on precise and detailed prompts. Student Participant 2 stated:

"...it's a matter of providing it, the ChatGPT, as I mentioned earlier. You need to be precise... your prompt should be very detailed regarding what you want to happen, what you want to convey, what you want it to provide, what you want to get from it or what you want them to do. Since it's an AI, sometimes, what it usually does is expand on what you provide. Sometimes, it might stray from the topic, or it might find its own way just to provide an answer, and that's it. If you can't examine and correct it, there will indeed be errors in what they provide." (SP2)

Student Participant 2 noted that vague queries often lead to unrelated or incorrect outputs. Prompt engineering, as discussed by Dathathri et al. (2019), involves choosing the correct wording and structure to optimize AI responses.

Furthermore, Student Participant 6 stressed the importance of direct prompts to reduce inaccuracy, *"...sometimes, it [ChatGPT] doesn't understand my question, and the result is different. That's why, when I use it, I make sure to be very direct and detailed. I'm very careful with my prompts to ensure the result is accurate."* While Student Participant 12 noted that unclear queries result in overly broad or irrelevant answers, *"So, you need to extract [questions] for it to get the information you want. If your first queries or questions aren't clear, it won't provide the main topic but rather just broad knowledge within that subject."* In a study by Zellers et al. (2019), it emphasized that unclear prompts increase the likelihood of inaccurate results, highlighting the need for critical human oversight.

Adherence to Ethical Use of AI to Foster Academic Integrity

Need for Balanced Use: Overdependence on AI can hinder deep learning, as warned by Creely (2023). Student participant 14 says, *Actually, there are a lot of advantages to using AI, but we also need to set limitations for ourselves. In other words, we have to be aware when using AI because it can help us, but it can also control us as students. The response expressed that while AI is useful, it must be used with self-awareness and limits. AI should complement—not replace—human learning experiences.* Student Participant 17 also emphasized that copying AI responses without understanding leads to shallow knowledge and self-deception:

"If you use that knowledge to improve your work, it's essentially not cheating. But if you use it passively, just taking the answers without understanding the context of what AI provides, then you're not really learning. If your learning becomes superficial and you aren't gaining knowledge, you're just deceiving yourself and not truly learning." (SP17)



In relation to this, Guemide and Sahraoui (2023) expressed cautious optimism about AI use among students and emphasized that establishing clear boundaries can prevent excessive dependence on these technologies.

Verification of AI-generated Content: Students highlighted the need to validate AI-generated content. Student Participant 9 says,

"We need to make sure that the information that was given by the artificial intelligence is accurate. First and foremost, as a student, you need to make sure, and you have this ethical consideration as a student that not all the data you gather online is accurate on the things you do." (SP9)

Student Participant 9 mentioned that while Artificial Intelligence offers helpful information, it requires fact-checking to ensure credibility. Queloz (2025) supported this, stating that AI responses should be treated as suggestions, not absolute truths. Student Participant 24 shared their habit of verifying AI content with other sources, *"When I use AI, I really check if the information it provides is correct. I validate it. I search for it and check other resources."* It aligns with Villarino (2024), who argued that AI models may reflect biases or inaccuracies without human oversight.

3.2 Barriers and Challenges Encountered by ESL Students in Using AI-powered Language Learning Tools

This theme discusses the barriers and challenges faced by BSE English Major students in using AI-powered language learning tools. It highlights the problems and limitations they encountered, as well as the negative implications of these tools on their language learning journey. Figure 4 shows the barriers and challenges encountered by ESL students in using AI-powered language learning tools and their subthemes. The subthemes present the results obtained from the interview about the barriers and challenges encountered by BSE English Major students when using AI-powered language learning tools.

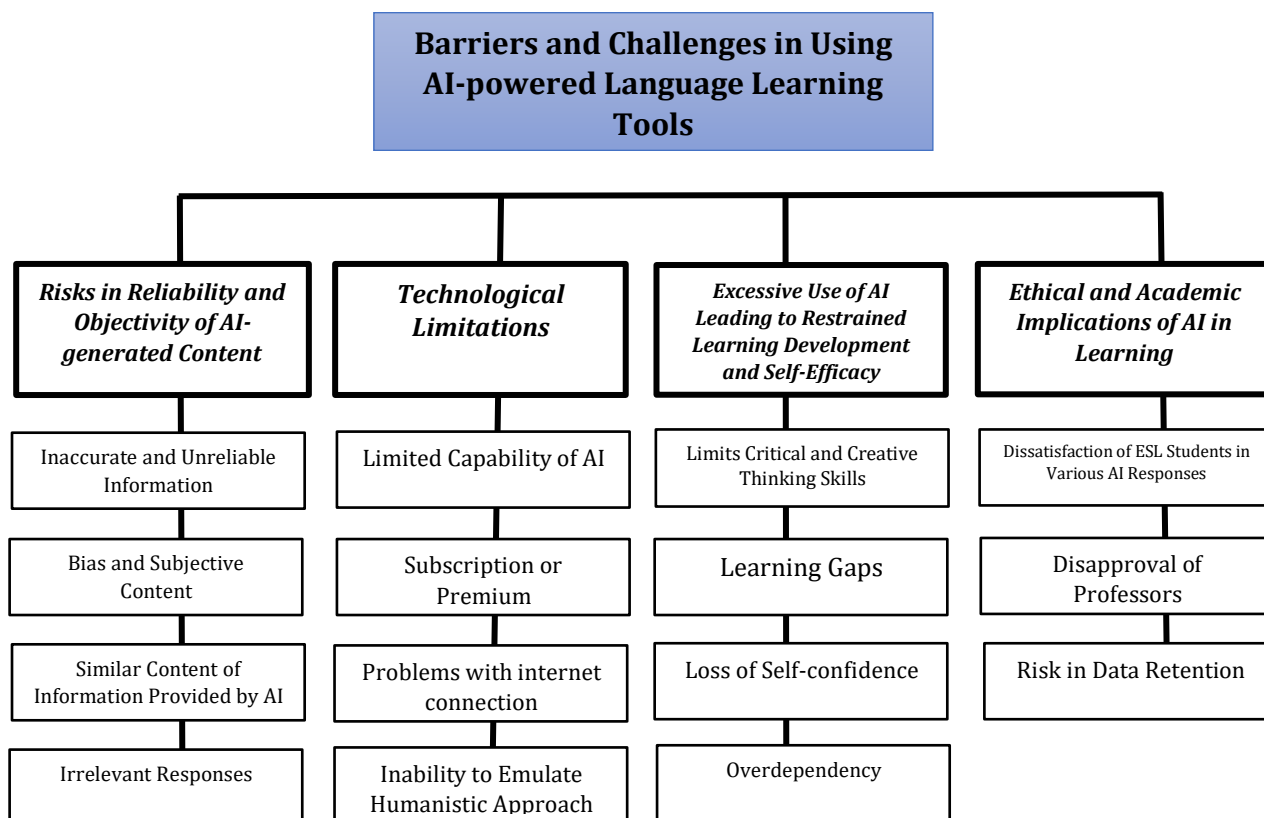


Figure 4. Barriers and Challenges in Using AI-powered Language Learning Tools



Risks in Reliability and Objectivity of AI-generated Content

Inaccurate and Unreliable Information: ESL students face challenges with the reliability and objectivity of AI-generated content. Participant 2 shared:

"For example, maybe you've tried this, but try creating a prompt where you instruct it to write an essay with citations or references. Although it will give you some, when you try to search for them on the internet, they are most likely not available. Also, if you ask it to provide a link to support its arguments or claims, it will give you a link, but it's often broken. That's it. It lacks reliability, particularly in terms of the credibility and reliability of the information, which is a limitation of AI tools." (SP2)

It highlights that AI-generated essays often contain citations and links that cannot be verified or found online, which raises concerns about the credibility of AI outputs. This is also similar to the experience of Student Participant 6, *"Then, maybe another thing. When I tried to search for RRL for our research, I was surprised because it provides information, but I'm not sure if it's correct. It's not accurate."* These concerns align with studies by Nguyen (2024), which warn that AI may produce inaccurate or misleading information that learners must critically evaluate.

Bias and Subjective Content: AI systems can reflect bias and partiality based on their training data. Student Participant 21 stated that:

"Also, regarding the data provided by AI, I think there is a bias or subjectivity that occurs when AI provides information. For example, I used AI for our journalism work and prompted it for information about the West Philippine Sea. The information AI provided mainly focused on the position of the Philippines. I think it doesn't present a very diverse range of information; it seems to only provide one side. I believe this is the case even though the prompts I used were specifically about information related to the West Philippine Sea." (SP21)

Student Participant 21 experienced this when using AI for a journalism project on the West Philippine Sea, where the AI predominantly presented the Philippine perspective, lacking a broader, balanced viewpoint. This highlights the potential for AI to reinforce biased narratives, consistent with Mittelstadt et al. (2016), who demonstrate how AI can inherit biases such as gender or cultural partiality from its data sources.

Similar Content of Information Provided by AI: Students also noted a lack of diversity and originality in AI responses. Student Participant 13 stated that:

"My problem with using is that it often provides only one answer, especially when, for example, you give a prompt to create a two-paragraph essay on a specific topic, like climate change. When AI produces an answer, it is very similar to the responses of other AI users." (SP13)

The response asserts that AI tends to give a single, generic answer to prompts like climate change essays, leading to similar responses among different users. Likewise, Student Participant 1 pointed out that:

"Another one is when constructing sentences. If you don't know how to paraphrase the sentences or paragraphs generated by ChatGPT, they will surely detect that it's AI-generated because there's a pattern from the introduction to the conclusion. So, if you're not good at paraphrasing the content you prompted, it will really be obvious that it's AI-generated." (SP1)

It highlights that AI-generated text often follows predictable patterns, making it easily recognizable and less creative. Shumanov and Johnson (2021) support these observations, noting that some chatbots recycle a limited range of answers, which limits creativity and varied perspectives.

Irrelevant Responses: AI sometimes provides irrelevant, off-topic, or incomplete answers. This statement is similar to the response of Student Participant 25:



"There was a time when, with ChatGPT, the information it provided seemed to cross the line of the question I asked. For example, if my question was about 'How do the West Philippine Sea and China blah blah blah,' the answer it gave wasn't directly related and went beyond the point of the question." (SP25)

Similarly, Student Participant 23 stated, *"My problem sometimes is the information it provides. Because they are incomplete or strayed far from the question. At other times, the responses just don't seem connected. That's a problem I encounter."* Student Participant 25 mentioned receiving AI responses that diverged from the original question, delivering excessive or unrelated information. Similarly, Student Participant 23 reported instances where AI answers seemed disconnected or incomplete, reflecting limitations in AI's understanding of user intent and contextual nuances.

Technological Limitations

Limited Capability of AI: AI tools have technological limitations that affect ESL students' learning experiences. As Student Participant 12 mentioned:

"Sometimes, the topics are irrelevant, and some of the responses it gives are not really aligned with the question you're asking the AI. It's also really limited in terms of information. Especially in our field, there are terms it can't process and generate. For example, in our language, it can't create tree diagrams for tree structures." (SP12)

Student Participant 12 shared that AI struggles with unclear or specialized queries, such as generating tree diagrams in language studies, requiring repeated rephrasing. This illustrates the constraints of narrow AI systems, which excel at specific tasks but lack broad adaptability (Chiu et al., 2023).

Subscription or Premium: Some respondents discussed the advantages and disadvantages of using premium features in AI-powered language learning tools. For instance, Student Participant 1 stated, *"I have a premium subscription to ChatGPT. With premium, you can upload any PDF... Then you can just ask it to create a certain number of items."* Basic features are generally made accessible to all users for free, while more advanced capabilities are reserved for premium subscribers. This model allows users to access more powerful algorithms, enhanced data processing, and additional tools if they pay for a higher tier. Such features might include higher usage limits or more complex tasks that require robust AI capabilities.

Problems with internet connection: Stable internet access is crucial for effective AI use. According to the response of Student Participant 21:

"I faced a lot of problems while using AI-powered language learning tools because they require an internet connection; they cannot function offline. For instance, in emergencies, like in our classroom, we use AI. However, I find it inconvenient when I'm in a place where the internet is not strong." (SP21)

The response highlighted that poor connectivity disrupts AI tool usage, causing delays and inconvenience, especially in classroom settings. This limitation underscores the importance of reliable internet infrastructure to support AI-powered language learning tools.

Inability to Emulate Humanistic Approach: AI lacks the emotional intelligence and experiential insight that human teachers provide. As Student Participant 19 has stated:

"Of course, the AI cannot provide insights based on personal experiences, which is something only humans can offer. That's a limitation of AI. For example, there are questions that really require assistance from teachers. There are some questions that can only be answered by humans, such as those that stem from human experience. So, AI cannot answer those." (SP19)

Student Participant 19 pointed out that AI cannot offer personal or empathetic guidance, which is essential in education. AI cannot replicate the empathetic feedback and understanding that human



teachers provide (Nzoka, 2024). For example, in a classroom setting, a teacher's ability to recognize a student's emotional or psychological struggles and adjust their approach accordingly is something AI systems currently lack.

Excessive Use of AI Leading to Restrained Learning Development and Self-Efficacy

Limits Critical and Creative Thinking Skills: Many respondents expressed concerns that over-reliance on AI tools limits students' engagement with their own thinking processes, which is essential for effective learning and intellectual growth. Craig (2021) warns that when students depend heavily on AI-generated content, they may fail to develop analytical skills or generate original ideas and perspectives, sometimes viewing AI output as definitive answers. Student Participant 3 emphasized this limitation by stating,

"I think that's one of the problems with using AI: it limits the critical thinking of the user. This is one of the disadvantages of AI. It becomes a constraint on your ability to think more extensively. Your ideas and inputs start to revolve only around what the AI provides." (SP3)

This statement illustrates how students' critical thinking abilities can weaken, and their capacity to explore alternative solutions can diminish, as noted by Creely (2023). Similarly, Student Participant 11 reflected, *"It has been helpful, but it doesn't really enhance your ability to develop your own ideas. In a way, you can't fully express what you truly think,"* underscoring the missed opportunity to develop personal insights and analytical skills. AI tools often offer structured responses that may restrict students' freedom to explore and express their own thoughts, potentially limiting the development of original and independent thinking.

Learning Gaps: There is growing concern among educators worldwide that students' heavy reliance on AI to complete assignments might skip critical stages of learning, such as engaging deeply with concepts and practicing vital skills. Student Participant 25 voiced this worry: *"It feels like a part of my learning process is skipped."* This highlights the risk that the process of understanding and knowledge construction may become secondary to merely obtaining quick answers.

Loss of Self-confidence: While AI offers personalized content and feedback that can enhance learning, it also raises concerns about students' self-efficacy. Student Participant 8 shared a personal reflection: *"For me, I start to lose confidence in myself because sometimes AI, like ChatGPT, is really better."*

This highlights a concern that excessive reliance on AI might lead students to doubt their own abilities. From a social constructivist perspective, self-efficacy develops through interaction, collaboration, and guided support (Wei, 2023). Learners typically build confidence by attempting tasks with guidance from more knowledgeable others and gradually internalizing those skills. When AI is seen as consistently "better," students may perceive it as more capable than themselves, potentially undermining this confidence-building process. Creely (2023) similarly notes that overdependence on AI can weaken students' belief in their own competence. Therefore, AI should function as a supportive scaffold rather than a replacement, helping learners engage actively, solve problems, and develop autonomy, which are key elements in fostering genuine self-efficacy.

Overdependency: AI undeniably benefits ESL students by improving grammar, vocabulary and providing quick solutions, but overreliance carries significant drawbacks such as fostering dependency. Student Participant 14 admitted,

"And depending on the time, if there's no time left, I have to admit that sometimes I don't retain the information. I just think about submitting on time. And if I like a particular statement, if I don't have time to do it, there are times when you'll see that it's pasted into my work." (SP14)

This admission reveals how students may rely on AI, especially when under time pressure or workload stress, corroborated by Ngo (2023), who found that students facing tight deadlines frequently used ChatGPT, prioritizing task completion over comprehension.



Ethical and Academic Implications of AI in Learning

Dissatisfaction of ESL Students in Various AI Responses: AI language tools, such as QuillBot, are popular among ESL students to improve paraphrasing and writing skills. Research shows that QuillBot increases students' understanding and motivation (Fitria, 2022), yet problems remain with accuracy. Student Participant 16 remarked,

"With Grammarly or paraphrasing tools, sometimes the paraphrasing is so extensive that it changes what I originally wanted to say. In QuillBot's paraphrasing tool, it's the same issue. With Grammarly, the grammar is more correct, but sometimes when you read it, something feels off, and I have to go back and correct it myself." (SP16)

This highlights how AI suggestions can alter intended meaning, requiring manual review to maintain natural and coherent expression.

Disapproval of Professors: Concerns about academic integrity have led institutions like the University of Hong Kong to impose temporary bans on AI tools in academic work (Yau & Chan, 2023). Student Participant 22 reflected this sentiment simply, *"Well, the professors don't like it."* This echoes the broader apprehension among educators about AI encouraging overdependence, which may impair students' ability to engage deeply with tasks, produce original work, and develop critical problem-solving skills.

Risk in Data Retention: The extensive data collection by AI systems raises privacy and security concerns, especially as students share personal information and learning progress. Moybeka (2023) stresses that large volumes of sensitive data stored by AI can expose students to online risks. Student Participant 12 expressed this fear, *"One of my concerns is that AI can remember information even after it has been deleted. The information you provide can become a bit risky in that sense..."* This highlights worries about data retention beyond its intended use, potential misuse, and insufficient security measures.

3.3 Student-Focused Capacity Development Program

Despite the huge number of benefits and advantages brought by AI-powered language learning tools to the students in enhancing their English language acquisition and the development of their learning process, alongside the improvement of academic learning, there are also existing barriers and challenges with the use of these tools. These challenges and barriers include the risks in reliability and objectivity of AI-generated content, technological limitations, excessive usage of AI leading to restrained learning development and self-efficacy, and ethical and academic implications of AI in learning. Hence, the study underscores the pressing need to empower ESL students with the competencies and support necessary to effectively navigate and overcome the challenges associated with AI-powered language learning tools. In response, a student-focused capacity development program was designed not merely to offer practical tips but to foster digital literacy, critical thinking, and responsible AI use. This program aims to holistically address the barriers identified through learners' experiences and support their long-term academic, social, and professional growth in an AI-integrated learning environment.

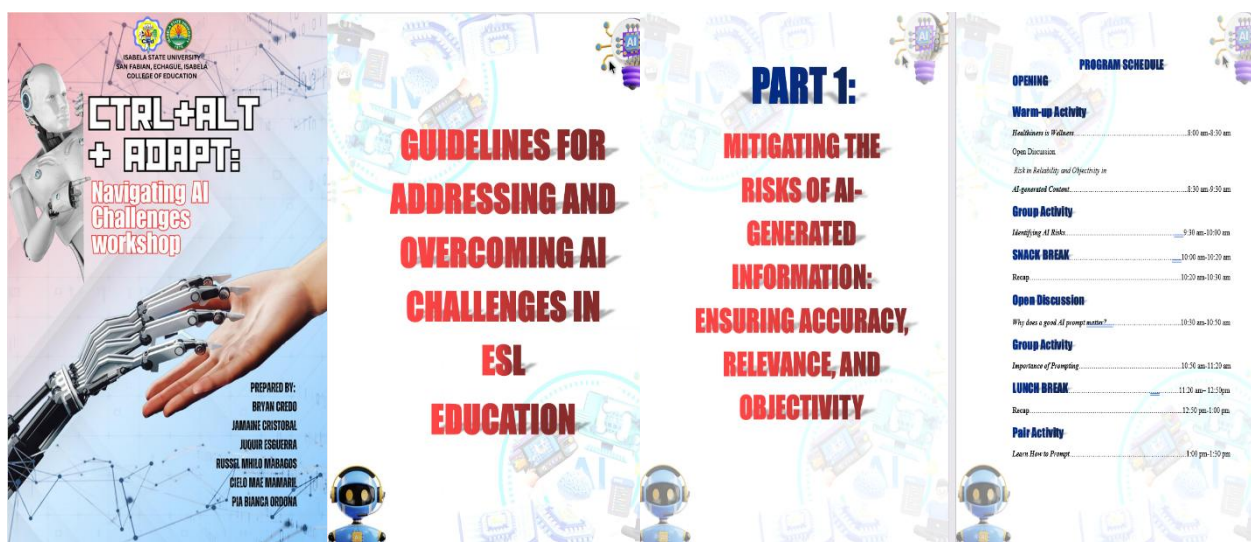
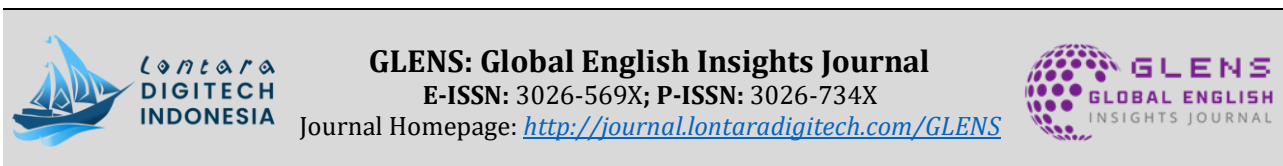


Figure 5. A preview of CTRL + ALT + ADAPT: Navigating AI Challenges

In response to the challenges identified in this study regarding ESL students' use of AI-powered language learning tools, the researchers designed a student-focused capacity development program titled CTRL + ALT + ADAPT: Navigating AI Challenges. This program offers a structured series of sessions, each addressing specific barriers identified through student narratives. Participants are guided through actionable strategies, ethical considerations, and practical applications to help them responsibly and effectively integrate AI into their language learning. Designed to build long-term competencies such as digital literacy, critical thinking, and responsible AI use, the program empowers both educators and learners to maximize the benefits of AI technologies while mitigating potential challenges.

Implementation Plan

This program will be implemented by the school administrators as part of the school's activity or training program, intended to address and overcome the challenges posed by AI in education. This program will provide students and teachers with clear guidelines on how to effectively navigate and utilize AI tools in their learning process while being mindful of the potential challenges.

Structure and Content of the Program

This capacity development program provides a comprehensive facilitator's guide that includes interactive discussions and learner-centered, immersive sessions and activities aimed at addressing the challenges and barriers associated with AI-powered language learning tools. The first four parts focus on these immersive sessions and activities designed to build participants' knowledge, skills, and critical awareness in using AI responsibly and effectively. The program concludes with a final part featuring a formal recognition ceremony, where certificates are awarded to both facilitators and participants in acknowledgment of their engagement and learning.

Student-Focused Capacity Development Program 1: Part 1 focuses on the risks of AI-generated content, particularly misinformation and bias. Participants engage in hands-on activities to practice proper prompting and fact-checking. They also learn techniques to detect and mitigate bias in AI systems.

Student-Focused Capacity Development Program 2: Part 2 addresses technical and accessibility barriers to AI in ESL learning, such as cost and internet issues. Participants explore hybrid models



LONTARA
DIGITECH
INDONESIA

GLENS: Global English Insights Journal

E-ISSN: 3026-569X; P-ISSN: 3026-734X

Journal Homepage: <http://journal.lontaradigitech.com/GLENS>



combining AI tools and teacher input to enhance learning. They also discuss the ethical implications and the importance of preserving human roles in education.

Student-Focused Capacity Development Program 3: Part 3 emphasizes how excessive AI use can weaken students' cognitive skills, like critical and creative thinking. Participants analyze AI-generated content for accuracy and explore collaborative storytelling using both AI and human creativity. Activities focus on reinforcing students' independent thinking and decision-making abilities.

Student-Focused Capacity Development Program 4: Part 4 explores the ethical and academic challenges of AI in education, including data privacy and academic integrity. Participants engage in role-play, essay writing, and idea generation to address these concerns. They also formulate ethical principles to ensure AI is used safely and fairly in classrooms.

Student-Focused Capacity Development Program 5: Part 5 was intended for the recognition and culmination. Certificates are awarded to participants and speakers to celebrate their engagement and learning. The day reflects on the knowledge and skills acquired throughout the training.

4. CONCLUSION

This study demonstrates that AI-powered language learning tools contribute a great benefit to ESL students by offering a personalized and efficient learning experience. AI-powered language learning tools offer significant benefits for ESL students, but several challenges persist. Key concerns include the reliability and objectivity of AI-generated content, which require careful evaluation to ensure effectiveness. Limitations in functionality and accessibility can hinder full student engagement with these tools. Additionally, excessive dependence on AI may reduce critical thinking and independent learning, impacting students' confidence. To be more effective, AI should support, not replace, human learning. Lastly, ethical and academic concerns surrounding AI use must be addressed to maintain academic integrity. As AI technology advances, developing digital literacy and critical thinking skills among language learners becomes essential. ESL students must understand AI's strengths and limitations to use these tools effectively for their language learning goals. Focused training activities are crucial to help them navigate challenges with AI-powered language tools. Responsible and thoughtful use of AI will enhance its benefits, and a balanced integration of AI and human effort will significantly improve the ESL learning experience. Nevertheless, this study is limited by its small, single-institution sample, potential selection bias, reliance on self-reported experiences, short-term observation, and focus on a limited range of AI-powered language learning tools, which may affect the generalizability of the findings. Future research should address these limitations through cross-institutional studies, objective measurement of learning outcomes, longitudinal designs to assess long-term impacts, and the development of AI anti-dependence tasks to mitigate overreliance and optimize the effectiveness of AI-powered language learning tools.

ACKNOWLEDGMENTS

The researchers would like to express their sincere gratitude to those who contributed to the completion of this study. Special thanks to Dr. Jennelyn Lacar-Raymundo, the Research Adviser, for her guidance, support, and valuable suggestions. Gratitude is also extended to the Panel of Examiners, Mr. Randy Acoba and Ms. Joy Mary Paddayuman, for their helpful feedback. Appreciation is also given to Dr. Nerissa P. Batoon, Dean of the College of Education, for her support and permission to carry out the study. The researchers are deeply grateful to their parents, siblings, friends, and relatives for their sacrifices and support. Above all, they thank Almighty God for His guidance, strength, and blessings throughout the research process. This study is dedicated to them all.

**REFERENCES**

- Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the Era of Generative Artificial Intelligence (AI): Understanding the Potential Benefits of ChatGPT in Promoting Teaching and Learning. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4337484>
- Baker, R. S., & Hawn, A. (2022). Algorithmic Bias in Education. *International Journal of Artificial Intelligence in Education*, 32(4), 1052–1092. <https://doi.org/10.1007/s40593-021-00285-9>
- Boubker, O. (2024). From chatting to self-educating: Can AI tools boost student learning outcomes? *Expert Systems with Applications*, 238, 121820. <https://doi.org/10.1016/j.eswa.2023.121820>
- Cascella, M., Montomoli, J., Bellini, V., & Bignami, E. (2023). Evaluating the Feasibility of ChatGPT in Healthcare: An Analysis of Multiple Clinical and Research Scenarios. *Journal of Medical Systems*, 47(1), 33. <https://doi.org/10.1007/s10916-023-01925-4>
- Chiu, T. K. F., Moorhouse, B. L., Chai, C. S., & Ismailov, M. (2023). Teacher support and student motivation to learn with Artificial Intelligence (AI) based chatbot. *Interactive Learning Environments*, 1–17. <https://doi.org/10.1080/10494820.2023.2172044>
- Craig, C. J. (2021). The AI-Copyright Challenge: Tech-Neutrality, Authorship, and the Public Interest. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4014811>
- Creely, E. (2023). Conceiving creativity and learning in a world of artificial intelligence: A thinking model. In *Creative provocations: Speculations on the future of creativity, technology & learning* (pp. 35–50). Springer. https://doi.org/10.1007/978-3-031-14549-0_3
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. UK: Sage Publication Inc.
- Dathathri, S., Madotto, A., Lan, J., Hung, J., Frank, E., Molino, P., Yosinski, J., & Liu, R. (2019). Plug and play language models: A simple approach to controlled text generation. *ArXiv Preprint ArXiv:1912.02164*.
- DeTemple, D. E., & Meine, T. C. (2025). Comparison of the readability of ChatGPT and Bard in medical communication: a meta-analysis. *BMC Medical Informatics and Decision Making*, 25(1), 325. <https://doi.org/10.1186/s12911-025-03035-2>
- Divekar, R. R., Drozdal, J., Chabot, S., Zhou, Y., Su, H., Chen, Y., Zhu, H., Hendler, J. A., & Braasch, J. (2022). Foreign language acquisition via artificial intelligence and extended reality: design and evaluation. *Computer Assisted Language Learning*, 35(9), 2332–2360. <https://doi.org/10.1080/09588221.2021.1879162>
- Fitria, T. N. (2022). Avoiding Plagiarism of Students' Scientific Writing by Using the QuillBot Paraphraser. *Elsya : Journal of English Language Studies*, 4(3). <https://doi.org/10.31849/elsya.v4i3.9917>
- Galinha-de-Sá, F. L. F. R., & Velez, M. A. M. R. B. A. (2022). Van Kaam's phenomenology: theoretical-methodological contributions to nursing research. *Revista Gaúcha de Enfermagem*, 43. <https://doi.org/10.1590/1983-1447.2022.20220135.en>
- Guemide, B., & Sahraoui, A. (2023). Implementing AI applications to improve English language learning among EFL students in Algeria: A survey study from university students' perspective. *International Journal of Literacy and Education*, 3(2), 38–46.
- Hwang, G.-J., Xie, H., Wah, B. W., & Gašević, D. (2020). Vision, challenges, roles and research issues of Artificial Intelligence in Education. *Computers and Education: Artificial Intelligence*, 1, 100001. <https://doi.org/10.1016/j.caeai.2020.100001>
- Kelly, D., Chen, Y., Cornwell, S. E., Delellis, N. S., Mayhew, A., Onaolapo, S., & Rubin, V. L. (2023). Bing



- Chat: The Future of Search Engines? *Proceedings of the Association for Information Science and Technology*, 60(1), 1007–1009. <https://doi.org/10.1002/pr2.927>
- Lund, B. D., & Wang, T. (2023). Chatting about ChatGPT: how may AI and GPT impact academia and libraries? *Library Hi Tech News*, 40(3), 26–29. <https://doi.org/10.1108/LHTN-01-2023-0009>
- McLeod, S. (2023). Vygotsky's zone of proximal development and scaffolding Theory. *Child Psychology*.
- Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L. (2016). The ethics of algorithms: Mapping the debate. *Big Data & Society*, 3(2). <https://doi.org/10.1177/2053951716679679>
- Moustakas, C. (1994). *Phenomenological research methods*. SAGE Publications, Inc. <https://doi.org/10.4135/9781412995658>
- Moybeka, A. M. S., Syariatn, N., Tatipang, D. P., Mushthoza, D. A., Dewi, N. P. J. L., & Tineh, S. (2023). Artificial Intelligence and English Classroom: The Implications of AI Toward EFL Students' Motivation. *Edumaspul: Jurnal Pendidikan*, 7(2), 2444–2454. <https://doi.org/10.33487/edumaspul.v7i2.6669>
- Murtaza, M., Ahmed, Y., Shamsi, J. A., Sherwani, F., & Usman, M. (2022). AI-Based Personalized E-Learning Systems: Issues, Challenges, and Solutions. *IEEE Access*, 10, 81323–81342. <https://doi.org/10.1109/ACCESS.2022.3193938>
- Ngo, T. T. A. (2023). The Perception by University Students of the Use of ChatGPT in Education. *International Journal of Emerging Technologies in Learning (IJET)*, 18(17), 4–19. <https://doi.org/10.3991/ijet.v18i17.39019>
- Nguyen, T. X. (2024). English Majors' Perceptions of AI Tool Application in English Language Learning at Tertiary Level in Vietnam. *Journal of Knowledge Learning and Science Technology ISSN: 2959-6386 (Online)*, 3(1), 179–193. <https://doi.org/10.60087/jklst.vol3.n1.p193>
- Nzoka, F. K. (2024). Artificial Intelligence in Education: A Hindrance or an Enabler? *European Journal of Contemporary Education and E-Learning*, 2(2), 101–108. [https://doi.org/10.59324/ejceel.2024.2\(2\).08](https://doi.org/10.59324/ejceel.2024.2(2).08)
- Onesi-Ozigagun, O., Ololade, Y. J., Eyo-Udo, N. L., & Ogundipe, D. O. (2024). Revolutionizing education through AI: a comprehensive review of enhancing learning experiences. *International Journal of Applied Research in Social Sciences*, 6(4), 589–607. <https://doi.org/10.51594/ijarss.v6i4.1011>
- Pokrivcakova, S. (2019). Preparing teachers for the application of AI-powered technologies in foreign language education. *Journal of Language and Cultural Education*, 7(3), 135–153. <https://doi.org/10.2478/jolace-2019-0025>
- Queloz, M. (2025). Can AI rely on the systematicity of truth? The challenge of modelling normative domains. *Philosophy & Technology*, 38(1), 1–27.
- Raheem, B. R., Anjum, F., & Ghafar, Z. N. (2023). Exploring the profound impact of artificial intelligence applications (Quillbot, Grammarly and ChatGPT) on English academic writing: A systematic review. *International Journal of Integrative Research (IJIR)*, 1(10), 599–622.
- Richey, R. C., & Klein, J. D. (2005). Developmental research methods: Creating knowledge from instructional design and development practice. *Journal of Computing in Higher Education*, 16(2), 23–38. <https://doi.org/10.1007/BF02961473>
- Sasikala, P., & Ravichandran, R. (2024). Study on the Impact of Artificial Intelligence on Student Learning Outcomes. *Journal of Digital Learning and Education*, 4(2), 145–155. <https://doi.org/10.52562/jdle.v4i2.1234>
- Shumanov, M., & Johnson, L. (2021). Making conversations with chatbots more personalized. *Computers in Human Behavior*, 117, 106627. <https://doi.org/10.1016/j.chb.2020.106627>



- Skjuve, M., Følstad, A., Fostervold, K. I., & Brandtzaeg, P. B. (2021). My Chatbot Companion - a Study of Human-Chatbot Relationships. *International Journal of Human-Computer Studies*, 149, 102601. <https://doi.org/10.1016/j.ijhcs.2021.102601>
- Sundar, S. S. (2020). Rise of Machine Agency: A Framework for Studying the Psychology of Human-AI Interaction (HAIL). *Journal of Computer-Mediated Communication*, 25(1), 74–88. <https://doi.org/10.1093/jcmc/zmz026>
- Thai, T. C. T. (2023). Attitudes and expectations of English language pedagogy students towards ChatGPT: a study at Hanoi National University of Education. *Journal of Education*, 51–56.
- Thurzo, A., Strunga, M., Urban, R., Surovková, J., & Afrashtehfar, K. I. (2023). Impact of Artificial Intelligence on Dental Education: A Review and Guide for Curriculum Update. *Education Sciences*, 13(2), 150. <https://doi.org/10.3390/educsci13020150>
- van Dis, E. A. M., Bollen, J., Zuidema, W., van Rooij, R., & Bockting, C. L. (2023). ChatGPT: five priorities for research. *Nature*, 614(7947), 224–226. <https://doi.org/10.1038/d41586-023-00288-7>
- Villarino, R. (2024). *Rural Philippine College Students' Perspectives and Experiences on AI Tools in Education: A mixed-method research*.
- Wei, L. (2023). Artificial intelligence in language instruction: impact on English learning achievement, L2 motivation, and self-regulated learning. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1261955>
- Wiboolyasarini, W., Wiboolyasarini, K., Tiranant, P., Jinowat, N., & Boonyakitanont, P. (2025). AI-driven chatbots in second language education: A systematic review of their efficacy and pedagogical implications. *Ampersand*, 14, 100224.
- Xu, X., Dugdale, D. M., Wei, X., & Mi, W. (2023). Leveraging Artificial Intelligence to Predict Young Learner Online Learning Engagement. *American Journal of Distance Education*, 37(3), 185–198. <https://doi.org/10.1080/08923647.2022.2044663>
- Yau, C., & Chan, K. (2023). University of Hong Kong temporarily bans students from using ChatGPT, other AI-based tools for coursework. *South China Morning Post*, 17.
- Yousif, J. H. (2025). Artificial Intelligence Revolution for Enhancing Modern Education Using Zone of Proximal Development Approach. *Applied Computing Journal*, 386–398.
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 39. <https://doi.org/10.1186/s41239-019-0171-0>
- Zellers, R., Holtzman, A., Rashkin, H., Bisk, Y., Farhadi, A., Roesner, F., & Choi, Y. (2019). Defending against neural fake news. *Advances in Neural Information Processing Systems*, 32.
- Zhai, X. (2022). ChatGPT User Experience: Implications for Education. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4312418>
- Zhang, K., Bonk, C., Reeves, T., & Reynolds, T. (2019). *MOOCs and open education in the Global South: Challenges, successes, and opportunities*. Routledge.