Generative AI and AI Tools in English Language Teaching and Learning: An Exploratory Research

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Abstract

Generative AI (GenAI) tools such as ChatGPT, Gemini and Copilot have created concerns in academia, particularly after the launch of ChatGPT. GenAI and AI have been the buzz words and academics are discussing about the possibilities of its positive and negative impacts on educations and research. Recently, studies have been conducted on the influence of GenAI tools in education and research. With the above concerns and the impact of GenAI, grounded on Vygotsky's Zone of Proximal Development (ZPD) as a theoretical lens, this study explores how English language teachers integrate GenAI tools to enhance teaching and learning. Particularly, this study explores the integration of GenAI tools in English language teaching and learning, focusing on teaching efficiency, student engagement, personalized learning, and writing skills, subscribing to exploratory research methods grounded on semi-structured interviews. The findings of the study affirmed the positive impact of GenAI tools on teaching efficiency, students' engagement, and writing skills. The results indicated that GenAI positively influences teaching efficiency and student engagement in learning. The implications of this research highlighted the potential of GenAI tools to create a more intelligent and personalized learning environment for English language teaching that benefits both educators and learners.

Keywords: GenAI, language teaching, exploratory research, Nepal, student engagement, writing skill, personalized learning

Introduction

Generative AI (GenAI) tools such as ChatGPT, Gemini and Copilot have created critical concerns in education and research for the relevance of teachers in the future aligned with ethical issues. Some academics, such as Chiu (2023) and Dahal (2023), have considered GenAI tools

revolutionary in the 21st century, highlighting cognitive and evaluative abilities while using them. Likewise, GenAI tools have emerged as a transformative force across various domains, including education, where its integration holds significant promise for revolutionizing traditional teaching and learning approaches. In recent years, GenAI technologies have gained attraction in English Language Teaching (ELT), offering educators and learners innovative tools to enhance language acquisition and proficiency (Sallam et al., 2023; Yu et al., 2023).

Aligned with the background, Hai-bo (2022) highlights how to incorporate GenAI tools in English language learning that can yield superior learning outcomes, fostering quantitative and qualitative advancements. Furthermore, GenAI tools facilitate personalized learning experiences, providing genuine support to individual learners while enabling educators to optimize teaching methodologies (Sharadgah & Sa'di, 2022). Next, GenAI-enabled systems streamline administrative tasks, enhance language practice opportunities, and offer real-time feedback that fosters a dynamic and interactive learning environment (Kay, 2012; Shu & Xu, 2022). These GenAI-enabled engagements for the learners signify a shift towards deep and consequential learning techniques, empowering learners to attain competitive qualifications for future endeavours (González-Calatayud et al., 2021).

In light of the above brief review, it becomes evident that integrating GenAI tools in ELT signifies a shift towards more efficient, personalized, and adaptive learning environments. By using AI technologies, educators can transcend the limitations of traditional teaching methods to offer learners engaging experiences that cater to their individual needs (Guerrero et al., 2020; Jia, 2022). These research studies by Guerrero et al. (2020) and Jia (2022) indicated the potential uses of GenAI in enhancing teaching and learning while bringing ethical issues in its integration, making teachers cautious in adopting these tools. Hence, guided by the question, "How have ELT educators in Nepal effectively incorporated GenAI and AI tools like ChatGPT, Gemini, and Copilot into their English teaching and learning practices?" Thus, this study explores the current uses of GenAI and/or AI tools in English language teaching and learning in Nepal.

Zone of Proximal Development as a Theoretical Lens

This study employed the Zone of Proximal Development (Vygotsky, 1978) as the theoretical lens to explore how ELT educators in Nepal effectively incorporated GenAI tools like ChatGPT, Gemini, and Copilot into their English teaching and learning practices. Vygotsky's Zone of Proximal Development (ZPD) theory has significantly shaped problem-based teaching, emphasizing diagnostic teaching, creating authentic activities, supporting students as peers, and fostering students' autonomy (Harland, 2003). This influence extends to the possibility of virtual support in problem-solving, allowing for the teacher's invisibility in the learning process (Hakkarainen & Bredikyte, 2008). Moreover, Vygotsky's ZPD concept has profoundly impacted education, teaching, and research, contributing to the development of academic help-seeking, scaffolding theory, and reciprocal teaching (Dan-qing, 2012). The theory has also influenced new educational concepts and models, such as the scaffolding teaching model and interactive teaching (Mei-na, 2010). Likewise, Scrimsher and Tudge (2003) emphasized that Vygotsky's theory requires attention to individuals, interactions, and cultural contexts involving teaching and learning rather than just scaffolded instruction.

Additionally, Vygotsky's ZPD theory can enhance professional practice and improve education in problem-based learning by focusing on diagnostic teaching, authentic activities, and supporting

students as peer teachers (Harland, 2003). In sum, Sanders and Welk (2005) stated that Vygotsky's ZPD theory scaffolds student learning to promote self-learning and higher-order learning through interactions with the knowledgeable other. And, Stremmel and Fu (1993) stressed the importance of Vygotsky's ZPD theory in educational practices, as it centres on teaching-learning as a social process that enables children to exceed their current developmental level in the GenAI and AI era. So, in language teaching and learning, GenAI can be used as a tool and more knowledgeable others, as noted by Vygotsky.

Methodology

We adopted an exploratory research design to gain insights into the perceptions and influence of using generative AI (GenAI) in English language teaching. Creswell and Tashakkori (2007) stated that exploratory research is conducted to gain insights and understand the phenomena or problems, typically with limited prior knowledge or theory. It aims to explore new ideas, generate hypotheses, and provide a foundation for further investigation. Similarly, Neuman (2013) defines exploratory research as being conducted when little is known about the phenomenon or when previous findings are inconsistent. Exploratory research is characterized by its flexibility and openness to new ideas. It involves exploring a research problem without necessarily aiming to provide definitive answers. Instead, it seeks to generate insights and hypotheses for further investigation (Babbie, 2016). Exploratory research serves as an initial step in the research process, focusing on investigating topics or issues that lack comprehensive understanding or have limited existing knowledge.

In this study on integrating GenAI tools in English language teaching, we employed exploratory research to gain insights into the impact of GenAI tools on teaching and learning practices. We utilized semi-structured interviews with purposively selected three experienced English language teachers who integrated GenAI tools into their instructional practices since the launch of ChatGPT in November 2022. The choice of exploratory research was motivated by the need to discover new facts and interpret existing ones concerning an issue that is not well understood or about which little is known, as outlined by Cooper and Schindler (2019). These interviews explored the teachers' perceptions and experiences regarding using GenAI tools in English language teaching to explore how GenAI tools influenced teaching efficiency, student engagement, personalization, and writing skills. By adopting an exploratory research design, the study sought to explore new insights, interpret existing information, and lay the foundation for more comprehensive investigations into integrating GenAI in English language teaching.

We purposely selected three lecturers teaching English at the BEd programme within community campuses in Nepal who integrated GenAI tools into their instructional practices since the launch of ChatGPT in November 2022. Data generation primarily involved semi-structured interviews conducted with each participant, using open-ended questions on the uses of GenAI tools such as ChatGPT, Gemini and Copilot to explore their perceptions and experiences regarding the use of GenAI in English language teaching. The interviews were conducted in person and recorded on mobile devices. Multiple interviews were conducted, first face-to-face, then online, and follow-up interviews were done via telephone calls for each participant to capture comprehensive insights and uses of GenAI tools. Additionally, notes were taken during the interviews to supplement the recorded data as memos and field notes for analysis. We transcribed and translated those recordings for further

coding. Then, during the coding process, those transcripts were tabulated, read, and reread for a deeper understanding of the data and the development of patterns in the transcript. Important lines were highlighted, and also codes were developed. Then, codes, categories, and themes (Elliott, 2018) were created, and those themes were presented in logical sequence in the research report within the broader context of the research question, existing literature, and theoretical lens.

Results and Discussion

A thorough examination of the data revealed the following recurring patterns intricately linked to the research problem, purpose, and methodological roadmap. This section deals with the effectiveness of integrating GenAI tools in teaching that enhance the possibilities of personalized and self-directed learning and teaching efficiency through GenAI tools integration and the impact of GenAI on students' writing skills. The themes are further discussed with past literature and Vigotsky's Zone of Proximal Development notion.

Effectiveness of GenAI Tools in Teaching

The careful examination and interpretation of participants' views and experiences regarding the incorporation of GenAI tools in English language teaching and learning revealed different themes. All three participants noted that using GenAI tools in the classroom has provided new learning experiences for students and enabled the lecturers to address specific learning gaps. It means the integration of GenAI tools in education has transformed traditional teaching and learning practices by encouraging personalized learning and managing the learning gaps among students in the class. Ramesh argued:

> AI tools have changed my instructional practices in the classrooms. They provide personalized learning experiences for students. Likewise, they allow me to meet individual needs by addressing specific learning gaps. It has helped me greatly to enhance teaching and learning in my classroom.

AI tools like ChatGPT, Google Bard, and Duolingo have become integral to their teaching methodology. These tools have helped the participants prepare content and gather relevant information when facing confusion on various topics. Laxman noted:

> Well, I see the potential of AI tools in education, and I've started using ChatGPT, Google Bard, Grammarly, and Duolingo, among others, in my teaching. They assist me whenever I am confused in preparing and gathering content on any topic.

These anecdotes highlight the potential of GenAI tools in enhancing the teachers' teaching practices and enhancing their understanding whenever they feel confused on any topic. GenAI tools have contributed as knowledgeable others to teachers for their classroom preparation. However, some ethical issues may arise in the use of content created by AI, and the potentially misleading information that AI may make may mislead teachers, so they need to be cautious.

Likewise, Hari believes that the adaptability of AI has contributed to an overall enhancement in the effectiveness of education. He emphasized the positive impact of AI integration in the teaching process. Hari opined:

> I find AI tools in teaching quite helpful. They make learning more interactive and personalized. The adaptive nature of AI assists in catering to individual learning styles, enhancing overall effectiveness in education. AI tools positively contribute to students' academic achievement. I find AI tools fascinating.

Integrating AI tools in the classroom has revolutionized teaching practices, providing personalized learning experiences and addressing specific learning gaps. Participants expressed how AI tools like ChatGPT, Google Bard, Grammarly, and Duolingo have become indispensable in their instructional methodologies. These tools assist educators in content preparation, information gathering, and addressing confusion on various topics. The adaptability of AI has led to an overall enhancement in the effectiveness of education, making learning more interactive and personalized.

Reaffirming the perspectives and experiences of English teachers from Nepal, Hai-bo (2022) and Sharadgah and Sa'di (2022) emphasize the transformative potential of AI in improving learning outcomes and optimizing teaching methodologies. Similarly, Vygotsky's (1978) ZPD theory stresses the role of scaffolding and peer-teaching support in fostering student autonomy and enhancing learning outcomes. The integration of AI tools in teaching, as observed in the participants' experiences, aligns with the concept of ZPD by providing personalized learning experiences and addressing specific learning gaps as knowledgeable others. AI tools serve as scaffolds, assisting educators in adapting teaching strategies to students' individual needs, thus optimizing the learning process within their zone of proximal development.

Student Engagement and Personalized Learnings

Participants' perceptions and experiences revealed that the utility of AI tools promoted students' engagement by delivering dynamic and interactive content and developed inclusivity in education, contributing to more effective teaching practices. In the classroom, there are students of mixed abilities, and teachers may not be able to cater to the needs of the students as per their competence level. In such cases, AI tools can be a boon as they allow students to engage in personalized learning at their own pace. So, integrating AI in teaching and learning creates an equitable and inclusive learning environment. Ramesh argued:

> I have used AI tools to promote student engagement by offering dynamic and interactive content. These tools have helped me to make education more inclusive and effective. None of the students in the classroom have equal linguistic and learning capabilities. Integrating AI tools can enhance students learning, making the learning process more inclusive and equitable.

Integrating GenAI and/or AI tools into instructional practices and student learning engagements has heightened student learning experiences through personalized learning. The classroom is characterized by heterogeneity in terms of students understanding level and performance. Students have rich learning experiences via GenAI and/or AI tools in such cases.

The use of AI has facilitated a stronger connection with the material. Furthermore, it has contributed to improving students' comprehension levels overall. When students encounter any problem, they can talk with AI tools to serve their learning needs. Even Laxman's experience reinforces the perception of Ramesh. Laxman maintained:

> Using AI in my instructional practices has promoted student engagement by providing personalized learning experiences. It has assisted me in developing a deeper connection with the material and enhancing overall student comprehension. Students use the AI tools as per their needs without taking support from teachers. Even shy students can use AI for their learning.

Incorporating AI tools like ChatGPT in the classroom has helped all three participants gain insights into students' strengths and weaknesses and refine teaching strategies.

Additionally, it has enhanced the learning outcome of the students who generally hesitate to come to teachers during times of confusion. It has made students independent and promoted individualized learning. Reaffirming the value of AI tools in enhancing personalized teaching approaches, Hari responded:

> I occasionally use AI tools such as ChatGPT in the classroom. The ChatGPT has helped me to address students' learning needs in specific areas where students may need additional support. ChatGPT helps conceptualize ideas, get ideas for writing, and have initial thoughts on any issue. Students do not feel blank on any topic. ChatGPT has been a very effective tool for student engagement.

AI tools have promoted students' engagement by delivering dynamic and interactive content, fostering inclusivity, and enhancing teaching practices. Participants reported that AI tools facilitate personalized learning experiences, deepen connections with course materials, and improve student comprehension. By incorporating AI tools like ChatGPT and Google Bard, educators can foster students' learning outcomes by enabling them to refine teaching strategies and provide targeted support.

The findings of the study resonate with past research highlighting the role of AI in promoting student engagement, personalized learning, and effective teaching practices (Kay, 2012; Shu & Xu, 2022). In this regard, Vygotsky's (1978) ZPD theory underscores the importance of dynamic and interactive learning environments in promoting student engagement and facilitating more profound understanding. The integration of AI tools, such as ChatGPT, Google Bard and others, into instructional practices aligns with the concept of ZPD by providing personalized learning experiences that cater to individual learning styles. This fosters a stronger connection with the material and enhances overall student comprehension within their zone of proximal development.

Enhanced Teaching Efficiency through GenAI and AI Integration

The integration of GenAI and AI tools has positively influenced the participants' efficiency in the classroom. GenAI and AI tools have contributed a lot to serving the needs of the students at their competency level. These tools have contributed to teachers prioritizing personalized student support and fostering meaningful interactions, indicating a shift towards a more student-centric and engaging teaching approach. GenAI and AI have increased teachers' teaching efficiency. Moreover, these tools have contributed a lot in enabling students to engage in dialogic processes for learning. Ramesh argued:

> GenAI and AI tools have increased my teaching efficiency and saved time in my instructional practices. I integrate these tools for instructional planning, session design, and delivery. These tools are time efficient. Also, those tools provide me with enough opportunities to focus more on personalized student support and meaningful interactions in the classroom. GenAI and AI tools have positively contributed to teaching-learning activities.

Reaffirming Ramesh's experiences, Hari acknowledged that using GenAI and AI tools has enhanced his lesson planning and content delivery techniques. These tools assisted him in identifying and addressing specific learning gaps among students, saving time and ensuring a more targeted and effective educational experience.

GenAI and AI have made teaching-learning more effective by assisting teachers with session design to delivering content with student engagement in active, task-based, and problem-based

learning strategies. Laxman remarked:

> GenAI and AI tools have improved my lesson planning and content delivery techniques. By identifying the students' learning gaps, I can engage them in different activities assisted by GenAI and AI tools. This saves time and ensures a more targeted and effective educational experience.

The use of GenAI and AI has supported increased efficiency in teaching-learning practices. Not only this, its usage in teaching enabled the participants to adapt their teaching strategies, saving time and enhancing overall effectiveness in the educational process. Hari claimed, "The impact of AI on efficiency is unbelievable to me in my teaching routine. This enables me to adapt my teaching strategies by saving time and improving overall effectiveness." The integration of GenAI and AI tools has increased teaching efficiency, resulting in time savings and prioritizing personalized student support. Participants noted improvements in lesson planning, content delivery, and addressing specific learning gaps among students. The adaptability of GenAI and AI tools enables educators to refine teaching strategies, adapt to students' requirements, and enhance overall teaching effectiveness.

These findings align with previous studies conducted by Guerrero et al. (2020) and Jia (2022), who emphasize the importance of GenAI and AI's potential to streamline administrative tasks, inform teaching strategies, and improve teaching quality. Furthermore, Vygotsky's (1978) ZPD theory also advocates diagnostic teaching and authentic activities to enhance teaching efficiency and effectiveness. As highlighted in the study, integrating GenAI and AI tools supports these principles by providing educators with insights into students' strengths and weaknesses, enabling them to refine teaching strategies and prioritize personalized student support. Adapting teaching strategies aided by GenAI and AI within students' zone of proximal development enhances teaching efficiency and fosters meaningful interactions in the classroom.

Impact of AI on Students' Writing Skills

All three participants shared their experiences with AI integration in education and gave the positive impact of AI-powered writing tools on student skills during their interviews. Their insights emphasized benefits like instant feedback, language diversity through machine translators, and support for creative content generation. These responses collectively suggest AI's potential to enhance diverse aspects of the writing process in education. Ramesh shared:

> AI-powered writing tools provide instant feedback, helping students identify and rectify errors in their writing. This immediate corrective guidance significantly enhances their writing skills. I also use AI-powered tools to edit my language. It is very effective in identifying the problems and solving them. However, we teachers and students should be capable of identifying right and wrong suggestions; after all, a machine is a machine.

AI-supported tools like Grammarly and Google Bard have effectively improved teachers' and students' writing skills as they instantly give feedback on improving writing.

Reinforcing Ramesh's experiences, Laxman stated that the utilization of AI tools was beneficial for students in exploring and integrating diverse linguistic aspects. Exposure to different language distinctions was seen as a positive factor that enhanced students' overall proficiency in writing. Laxman added that AI tools have played a crucial role in broadening students' language skills so they can express themselves effectively in written communication. He argued:

The use of AI tools helps students to identify different linguistic distinctions. This exposure contributes positively to their overall writing proficiency. AI tools enhance writing skills from initial conceptualization to planning and final draft development and revising and editing. Grammarly, in particular, has been a very effective spelling and grammar correction tool.

Hari reaffirmed:

AI tools assist students in generating creative and well-structured content. The AI-driven support sparks creativity and refines their ability to express ideas effectively in writing. I encourage students to get ideas from AI tools before they start writing. I also caution students about the ethical issues that may arise while using AI and the possible ways to address the ethical concerns.

Participants highlighted the positive impact of AI-powered writing tools on student writing skills, including instant feedback, exposure to linguistic diversity, and support for creative content generation. AI tools assist students in identifying errors, exploring linguistic nuances, and generating well-structured content.

Educators noted that AI tools have transformed the way they guide students in the writing process, fostering confidence and skill refinement. These findings corroborate past literature emphasizing AI's role in enhancing diverse aspects of the writing process and improving overall writing proficiency (Sanders & Welk, 2005; Stremmel & Fu, 1993). However, they also highlighted the ethical concerns that may arise while integrating AI tools in writing. So, before integrating AI in writing, it is pertinent to understand the ethical issues that may occur, and teachers can be instrumental in raising such awareness.

Regarding this finding, Vygotsky's (1978) ZPD theory emphasizes the role of scaffolding in facilitating higher-order learning and skill development. As noted in the study, the positive impact of AI-powered writing tools on student writing skills aligns with the zone of proximal development concept by providing instant feedback and supporting language diversity to scaffold students' writing proficiency. AI tools serve as scaffolds, guiding students in writing and fostering creativity within their learning community. However, the participants do not highlight ethical concerns that may arise while integrating GenAI and AI tools during writing, and further research in this line is pertinent.

Conclusion and Implications

The study on integrating GenAI and/or AI tools such as ChatGPT, Gemini, Grammarly, and Duolingo in English language teaching has concluded that these tools significantly positively impact teaching efficiency, student engagement, personalized learning, and writing skills. However, the ethical issues that may arise while integrating such tools are still unexplored in the context of Nepal. Based on qualitative research engagement with English language instructors, the findings underscore how GenAI and other AI tools have impacted conventional teaching approaches and explore the possible way out for new and formative teaching and learning processes. GenAI tools offer tailored learning experiences and target specific gaps in writing skills for the learners at their own pace, speed and environment. Consequently, their integration has resulted in greater teaching efficiency, time savings, and a transition toward student-centred teaching methods—ultimately enhancing the overall effectiveness of educational engagements.

Furthermore, the findings emphasized the adaptability of GenAI and/or AI tools in improving

lesson planning, content delivery, and addressing individual student needs. Participants noted that AI tools such as ChatGPT, Google Bard, Grammarly, and Duolingo played a crucial role in content preparation, gathering information, and enhancing teaching practices. The study revealed that AI-powered writing tools not only assist students in generating creative and well-structured content but also foster confidence and skill refinement in the writing process. Similarly, the study's alignment with Vygotsky's Zone of Proximal Development theory underscores the importance of scaffolding in facilitating higher-order learning and skill development. AI tools provide instant feedback, support language diversity, and guide students in the writing process, and educators can enhance student writing proficiency within their ZPD. The implications of this research extend to educators and policymakers, emphasizing the transformative potential of AI in creating more effective and personalized learning environments in English language education in general and other educational environments. In sum, using GenAI, or AI, can promote personalized learning by adapting resources to each student's learning pace and style, potentially improving outcomes in writing skills and learning engagements. However, over-reliance on GenAI or AI tools could reduce critical thinking skills as students may become passive learners, depending on technology to solve problems. Furthermore, the ethical issues that may arise while integrating GenAI and AI tools in teaching-learning and writing should be addressed wisely by both teachers and students.

Acknowledgment

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