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# Generative AI on professional development: a narrative inquiry using TPACK framework

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This study explores the integration of generative AI (GenAI) tools in the professional development of English language teachers (ELT) using the Technological Pedagogical Content Knowledge (TPACK) framework. Subscribing to narrative inquiry research design, in-depth interviews were conducted with four educators in Kathmandu Valley, Nepal, in August 2024 to understand their experiences integrating GenAI in teaching practices. Four themes were identified using thematic analysis—enhanced teaching skills and methods, professional growth as a continuous learning process, GenAI dependency, and ethical challenges and coping mechanisms for further discussion. The findings disclose that GenAI enhances pedagogical strategies by providing personalized learning resources, dynamic classroom activities, and automated feedback, which foster student engagement and teacher adaptability. Participants noted that GenAI supports continuous professional growth by offering real-time insights to refine instructional methods and address diverse learner needs. However, challenges such as technical skill gaps, ethical concerns about data privacy, and the risk of over-reliance on AI, which may hinder critical thinking and teacher-student rapport, were identified. The study emphasizes the need to balance GenAI's technological benefits with human-centric pedagogy, underlining the importance of ethical guidelines, institutional training, and collaborative peer learning to reduce the dependency and algorithmic biases by aligning GenAI integration with TPACK principles—harmonizing technological, pedagogical, and content knowledge—the research advocates for structured support systems to empower educators in using AI responsibly. The implications call for policy frameworks prioritizing AI literacy, equitable access, and mindfulness practices to sustain professional development while preserving the irreplaceable role of human interaction in education.

## KEYWORDS

GenAI, professional development, TPACK framework, english language teachers, narrative inquiry

## 1 Introduction

Adapting and exploring professional development for language teachers is essential in the evolving educational landscape. Rapid changes in education necessitate the integration of emerging technologies (Dahal et al., 2022), which offer modern avenues for enhancing teaching and learning experiences. In this context, scholars and instructors are revolutionizing teaching and learning methods across diverse educational settings using generative AI (GenAI) tools (Chen et al., 2020). However, applying pedagogical

strategies is crucial in language instruction to develop learners' linguistic competency and communication skills, as GenAI can significantly impact specific fields (Zhai and Wibowo, 2023). The Technological Pedagogical Content Knowledge (TPACK) framework is essential for integrating GenAI tools in language teaching. This framework helps language educators incorporate GenAI tools into teaching methodologies and student learning outcomes by comprehensively understanding the intersections among technology, pedagogy, and content knowledge. This study explores the professional development of English language teachers by examining the use of GenAI tools in language instruction. AI-enhanced tools and methods can transform education (Rusmiyanto et al., 2023). English language education, in particular, benefits from GenAI tools, which can enhance instructional methods, promote personalized learning, and support educator professional development (Al-Badi and Khan, 2022). GenAI tools offer the possibility of individualized and adaptable learning experiences that cater to diverse learner needs (Peng et al., 2019). As Divekar et al. (2022) noted, GenAI applications simplify language learning and facilitate communication across multiple languages, fostering a bilingual society. However, the effective integration of GenAI in language classrooms requires continuous professional development for English language teachers (ELT).

All of the above, the narrative framework captures the lived experiences of teachers using GenAI in their practice, allowing them to share their challenges and successes (Clandinin, 2006). Through these narratives, we can better understand how GenAI tools can support ELT teachers' professional growth and ultimately improve student learning outcomes. This research aims to explore how GenAI can foster the professional development of English language teachers. The study investigates how GenAI tools might enhance teaching techniques, teacher effectiveness, and student learning outcomes (Chassignol et al., 2018). The study examines instructors' experiences with GenAI, identifies challenges and successes, and provides insights into best practices for using GenAI as a critical user in language instruction. To achieve the purpose of the study, this article addresses the following two questions:

1. How do GenAI tools contribute to the professional development of English language teachers?
2. How do GenAI tools impact the teaching practices of English language teachers?

## 2 GenAI in education: transforming language teaching and professional development

This study focuses on integrating Generative AI (GenAI) in education, specifically in English Language Teaching (ELT) and professional development. Indeed, GenAI has been the subject of significant research in today's competitive era due to its transformative potential, connecting the self and the world. Thus, this study shows how GenAI can personalize learning experiences, improve educational outcomes, and boost linguistic proficiency and professional development. The advantages of using GenAI in education include adaptive feedback, intelligent

tutoring systems, and automated evaluation tools (Aggarwal, 2023). Drawing from Aggarwal (2023) and Alam (2022) notes that GenAI technologies, such as intelligent tutoring systems, automated assessment tools, and virtual learning environments, have shown student engagement and learning outcomes. So, the findings from Alam (2022) suggest that GenAI can help create a more responsive and effective educational environment, fostering innovative human resources development. The TPACK framework integrates technical, pedagogical, and content knowledge and provides a comprehensive strategy for incorporating AI into education. Many studies have demonstrated that these frameworks effectively apply GenAI tools to enhance educational strategies and personalize student learning experiences (Mishra and Koehler, 2006).

Furthermore, Luckin and Holmes (2016) underline that GenAI can analyze large volumes of data, allowing educators to gain deep insights into student performance and tailor facilitation to meet individual needs. Supporting the above argument, Nguyen et al. (2023) advocate implementing GenAI technologies in language education and professional development, stressing the importance of developing ethical guidelines for educators and developers. Zuiderveen Borgesius (2018) also addresses the ethical implications of using GenAI in language assessment and offers practical insights and solutions.

In this context, language educators must improve their professional development and instructional practices as they adapt to emerging technologies (Billiot, 2023). Onesi-Ozigagun et al. (2024) highlight that GenAI can support professional development by providing real-time feedback, identifying areas for instructional improvement, and offering personalized learning methods. Additionally, AI-powered tools can help educators and learners access quality resources, foster collaboration, and build professional learning communities (Onesi-Ozigagun et al., 2024). However, researchers (e.g., Dahal, 2024; Dwivedi et al., 2023; Ghimire et al., 2024) argue that GenAI may not replace human expertise but rather a supplementary tool to enhance the language learning experience and beyond. Thus, ongoing research continues to explore the impact of GenAI on language education. Baskara (2023) highlights GenAI's potential to bridge linguistic and cultural gaps and enhance intercultural communication skills. Zou et al. (2023) focuses on practically implementing GenAI applications in diverse language-learning environments.

While much research has been conducted on the educational benefits of GenAI (Aggarwal, 2023; Alam, 2022), there is still a lack of detailed exploration into its impact on day-to-day teaching and learning activities. Few studies use narrative inquiry to gain deep insights into teachers' lived experiences, and questions remain about how GenAI supports long-term professional growth (Onesi-Ozigagun et al., 2024). Additionally, ethical and practical guidelines for GenAI implementation are still underexplored (Nguyen et al., 2023). So, integrating GenAI in teaching, learning, and professional development presents challenges, such as the need for comprehensive training and continuous support, despite its potential benefits. Nonetheless, enhancing student learning outcomes, GenAI holds significant promise for improving professional development, teaching strategies, and techniques for English language instructors (Al-Zyoud, 2020).

### 3 TPACK framework with GenAI for professional development

Technological Pedagogical Content Knowledge (TPACK) framework emphasizes integrating technology in teaching and incorporating technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK) to create effective educational practices. The context of this study guides with fundamental knowledge of how generative AI (TK) is effectively integrated with teaching techniques and strategies (PK) and English language content (CK) to foster teaching instructions and professional development (Mishra and Koehler, 2006). Thus, the TPACK framework helps to ensure a balanced integration of technology, thereby GenAI tools in English language teaching, considering practices, challenges, and practical strategies for applying GenAI tools (Chai et al., 2013). Ning et al. (2024) remarked that to maximize the benefits of GenAI tools, the alignment of digital tools with pedagogical goals and required contents is very crucial in education so that the TPACK framework can serve its critical lens while emphasizing the role of GenAI tools in English language teachers' professional development.

## 4 Method

Subscribing to the narrative inquiry under the interpretive research design and using in-depth interviews as a data collection approach, this study explores participants' understanding, perspectives, and experiences integrating generative AI (GenAI) for professional development. "Narrative inquiry offers room for reflection, deepens understanding, and facilitates learning for professional growth" (Simkhada et al., 2025, p. 3). Furthermore, a narrative inquiry methodology examines participants' experiences and perspectives (Muzari et al., 2022). We presented our research and its objectives to nine educators for this study. Subsequently, six educators expressed interest, and four participated in the study. This study was conducted among English language educators (three males and one female, pseudonym names as Ram, Muna, Aim Prasad, and Deepak) from different institutions in the Kathmandu Valley, Nepal, and purposefully selected based on criteria (Dahal et al., 2024; Lopez and Whitehead, 2013) from different institutions of the Kathmandu Valley, Nepal as shown in Table 1.

Thus, this research design emphasized the complex and nuanced realities of the participant's journey (Lama et al., 2024; Sunar et al., 2024) of integrating GenAI in teaching and learning, thereby, professional development. The language educators involved in this study were teaching at the bachelor's and master's levels in the English language for at least 3 years. Similarly, to maintain the ethical standard of the research, the original names of participants and institutions were replaced by pseudonyms to maintain anonymity (Wiles, 2012) for integrated findings to enhance teaching practices and professional growth of educators, addressing the obstacles that teachers may face in the evolving landscape.

### 4.1 Data collection procedures

In-depth interviews were this study's primary data collection method, providing qualitative insights into educators' experiences, perceptions, and challenges (Clandinin, 2006). These interviews were conducted based on the guidelines outlined in the Annex. The research team, led by the first author, Laxmi, visited educators at their respective institutions to conduct the interviews. The aim was to investigate instructors' experiences with integrating GenAI, identify problems and successes, and gather participants' insights on best practices for using GenAI in language instruction and enhancing language learning experiences. The interviews followed established procedures for selected participants, who were given pseudonyms such as Ram, Muna, Aim Prasad, and Deepak. The interview questions were designed to explore the intersection of technological, pedagogical, and content knowledge, incorporating the TPACK framework (Mishra and Koehler, 2006). Data were collected through two phases of in-depth interviews—initial and follow-up. Initial interviews were ~60 min. Additionally, the interviews were recorded on a mobile phone after ensuring the participants' consent from each participant.

### 4.2 Data analysis, ensuring the quality and ethical considerations

Open-ended questions aligned with the research themes were used to analyze the data thematically by ensuring cross-validation with observational data (Dahal, 2023). Observations data were field notes, memos, and jotted key concepts. We, the researchers, even interacted with the participants in the second phase until the study's objectives were satisfactorily achieved. While analyzing data, the TPACK framework provided a systematic lens that emphasizes the knowledge regarding GenAI's technological and pedagogical integration in language teaching practices (Ning et al., 2024) and professional development. So, we have used thematic analysis to analyze collected data to systematically identify the themes (Braun and Clarke, 2006). Next, we generated those themes by organizing and familiarizing the data through reading transcripts, memos, and field notes, recognizing initial patterns and coding, and developing themes by uncovering relationships (Braun and Clarke, 2006; Simkhada et al., 2025). Aligned with the above procedures, field notes before and after interviews were written, and the important insights during data collection and transcribed interviews were carefully reviewed and categorized based on themes related to the professional development of English language teachers using GenAI in English language teaching. Those findings were thematically analyzed to provide critical insights, considering that the generalizability of the findings as qualitative generalizations should be made not to the population but to the phenomenon being studied. So, our research aims to understand a particular phenomenon in depth, and our research findings can be applied to other similar phenomena, even if our findings are not generalizable to the population (Levitt, 2021). Table 2 below shows the phases of the study.

Indeed, the thematic analysis of this study concentrated on four key themes: enhanced teaching skills and methods,

TABLE 1 Participant profile.

Pseudonym	Gender	Teaching level	Teaching experience	Institution location
Ram	Male	Bachelor and Master	4+ years	Kathmandu Valley, Nepal
Muna	Female	Bachelor and Master	5+ years	Kathmandu Valley, Nepal
Aim Prasad	Male	Bachelor and Master	4+ years	Kathmandu Valley, Nepal
Deepak	Male	Bachelor and Master	3+ years	Kathmandu Valley, Nepal

TABLE 2 Phases of the study: data collection to generalization.

Phase	Description
Data collection	Open-ended questions aligned with research themes, supported by observations (field notes, memos, concepts)
Interaction phase	Follow-up discussions with participants to clarify and validate findings
Thematic framework	Analysis guided by the TPACK framework for technological and pedagogical integration of GenAI
Thematic analysis steps	1. Familiarization with transcripts, memos, and notes 2. Initial coding 3. Theme development
Theme categorization	Based on GenAI's role in professional development for English language teachers
Four major themes identified	1. Enhanced teaching skills and methods 2. Professional growth as a continuous learning process 3. GenAI dependency 4. Ethical challenges and coping mechanisms
Qualitative generalization	Focus on transferability to similar phenomena rather than broad population generalizability.

professional growth as a continuous learning process, potential dependency on GenAI in language education, and navigating ethical challenges and coping mechanisms in GenAI integration for teacher development. This qualitative interpretative design explored the teaching techniques, teachers' personalization, and learning outcomes, which is a complete comprehension of GenAI technologies (Chassignol et al., 2018). Thus, this research study has stressed the integration of GenAI into educational practices, considering ethical challenges and coping mechanisms to underline GenAI's opportunities and challenges for professional development (Salas-Pilco et al., 2022). Table 3 below shows the quality assurance and ethical considerations of the study.

To uphold research ethics, we informed participants about the research process, the reasons for their selection, and the interview procedures during data collection. We obtained consent from all participants for the interviews, and they also provided written informed consent to publish any potentially identifiable names, images, or data included in this article. We assured them that their information would remain confidential and not cause them any harm in the future. Dahal (2023) suggested "creating a flexible framework for qualitative researchers to help define, implement, and justify quality research principles and rigor of the research

TABLE 3 Quality assurance and ethical considerations.

Quality/ethical aspect	Description
Informed consent	Participants were fully briefed on the research process and provided written consent.
Confidentiality and anonymity	Pseudonyms were used; participants assured their identity and data would remain confidential.
Participant validation	Participants reviewed and verified their interview transcripts.
Researcher reflexivity	Researchers documented reflections and maintained detailed field notes during data collection.
Credibility and rigor	Triangulation through interviews and observations; systematic documentation
Ethical compliance	Assured no harm to participants and ethical handling of identifiable data

process while reporting qualitative studies" (p. 2,312) is a common tenet of qualitative inquiry. So, to maintain the credibility and rigor of the study, we asked participants to review the transcribed interviews. Additionally, we documented data in detail to ensure the study's rigor. During the interviews, we recorded our reflections with the assistance of the first author. This approach helped us gather credible information from the field.

## 5 Findings

Based on the developed research question and constructed methodological map, this section discusses the findings in the spirit of the research among four educators to gather insight through in-depth interviews with English language educators from four distinct institutions in the Kathmandu Valley of Nepal, based on four significant themes—enhanced teaching skills and methods, professional development as a continuous learning process, potential dependency on AI in language education and navigating ethical challenges and coping mechanisms. These findings were connected to GenAI tools that help language teachers' professional development and impact their teaching methods.

### 5.1 Enhanced teaching skills and methods

Ram revealed that GenAI has enabled him to incorporate technological devices into his instruction, making his classroom atmosphere more dynamic and supportive. Indeed, the tools helped



design several very enthusiastic activities for learners. Moving on, integrating GenAI technologies assisted in creating various engaging exercises for students. He claimed that AI-assisted him in developing simulations, interactive quizzes, and individualized learning activities. GenAI further helps generate intended text that keeps students involved and helps them comprehend the topics, leading him to deeper comprehension in his classes. Muna expressed a similar thought on this matter: *'GenAI applications make my teaching more enthusiastic and dynamic; it is adaptable and has greatly improved learners' understanding. GenAI tools help me design activities like real-time discussions that cater to different learning styles.'* The experiences of Ram and Muna reflected upon the growing consensus on the use of GenAI tools in professional development. Aligning with the same, Holmes et al. (2023) documented that GenAI can tailor educational experiences to individual learning styles and enhance comprehension. They advocated the use of GenAI in teaching to create personalized learning methods that assist in keeping students engaged. The experience shared by Ram and Muna showed the effect of TPACK components in the creation of dynamic and interactive learning settings. Likewise, Aim Prasad shared his experience with the adaptivity of GenAI, and he said, *'I receive instant feedback from AI chatbots, which allows me to adjust my teaching techniques on the go. For example, if I notice some struggling part in the content, I immediately get into it for additional examples of explanations. This adaptability has made my teaching-learning more responsive and effective.'* Sajja et al. (2023) expressed supportive and dynamic teaching methods through GenAI tailoring to teachers' and students' needs in real-time.

They highlighted how GenAI applications are flexible, enabling a collectively responsive and intelligible learning process. The answer of Aim Prasad demonstrates the ideal synthesis of technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK), as technologies such as AI chatbots lend themselves to quick pedagogical adjustments that improve overall teaching strategies. Next, Deepak expressed his concerns about GenAI applications, *'I can give precise and helpful feedback to students. Since GenAI can commonly analyze students' mistakes, it can figure out the correct patterns and suggest specific exercises for learners to focus on to improve. Furthermore, more GenAI tools will help me save time and address their shortcomings effectively. In a nutshell, it enhanced my assessments and comments, which is good for students.'* The difficulties stated by Deepak are consistent with those of the authors Pereira et al. (2022), who underlined that AI-powered solutions provide meaningful and timely feedback, which is critical for teachers' and students' growth. Thus, Deepak demonstrates that the TPACK framework and use of GenAI tools enhance his feedback technique, which combines CK and PK to deliver focused support.

## 5.2 Professional development as a continuous learning process

This theme focused on the professional development of language educators by incorporating GenAI tools in language training. In this regard, the research participants shared their

insights. Ram acknowledged continuous learning enhanced through GenAI and stated, *'The insights provided by GenAI have helped me understand my ways of delivering better, it assists me in improving my methods and made me feel confident in my student's needs based on their study. GenAI power tools have transformed my professional progress.'* The ideas offered by Ram are also consistent with those of Luckin and Holmes (2016), who stated that GenAI can help teachers improve their teaching tactics and processes for delivering ongoing instruction, resulting in continual progress. In this case, Ram experienced continuous development of PK and TK, where GenAI tools provide insights into developing pedagogical techniques and content delivery.

In this regard, Muna stressed her experience with the same concern, *'I am a learner; thus, constant learning is essential for language instructors, and GenAI offers several options for professional growth. AI-powered platforms increase personalized learning; therefore, we must stay current on their benefits in teaching procedures. It enables me to learn new skills, motivates me, and drives my continuous professional progress.'* Concerning this, Schleicher (2016) emphasized that technological advancement in education provides ample personalized learning opportunities that help teachers for educational advancement and improve teaching practices. In the same concern, Aim Prasad noted that *'GenAI applications have opened up new possibilities for his professional development.'* He further noted that AI-powered platforms provided him with specific feedback on his teaching, allowing for ongoing professional improvement. He said the insight he obtained from AI-powered technologies was essential in helping him execute excellent teaching practices. These had benefited his growth and impacted the learning outcomes.

In this concern, Deepak emphasized that *'it is a reward in the case of professional growth of the English language Teacher. It awakened my shortcomings and assisted me in analyzing my strengths, and it has made me a more effective teacher. GenAI tools enabled me to make informed decisions and respond to the requirements of my students. This ongoing growth has allowed me to remain at the forefront of educational techniques.'* These remarks by Aim Prasad and Deepak highlighted the importance of GenAI in the professional development of English language teachers, which aligns with Fullan and Langworthy (2014) perspective that educators must always be at the forefront of educational practices and that continuous improvement in educational instruction is essential. GenAI tools support offering resources, technologies, and methodologies that keep teachers updated and address their learners' diverse needs.

## 5.3 Potential dependency on AI in language education

This theme emphasizes a balanced educational environment far from the hindrances of AI-driven tools such as critical thinking, teacher-student dynamics, and problem-solving skills. It highlighted that over-dependency on GenAI and/or AI can impact teaching-learning activities. Ram raised his concerns and expressed that he could see students becoming too reliant on GenAI for the assigned tasks. He also remarked, *'GenAI can provide quick*

solutions and information that unknowingly hinder critical thinking skills and make us passive in learning.' The aligning concerns resembled the research by [Elbyaly and Elfeky \(2023\)](#), who observed that over-reliance on GenAI might harm learners' independent thinking skills and problem-solving creativity.

Likewise, Muna added that 'GenAI can assist language educators and learners by providing the content of learning in well-organized form. However, it is also essential to manage and effectively encourage learners and language educators to explore problems independently without relying on AI-powered language chatbots.' This concern is supported by [Snyder and Snyder \(2008\)](#) findings, which show that this increased the demand for educational techniques and activities that promote critical thinking and problem-solving skills. Next, Aim Prasad emphasized the relationship between the teacher-student which is affected by the use of the GenAI tools. He said, 'GenAI technology is quickly responding. So, language educators should show their creativity by engaging students in interactive activities to make the learners aware of it. Students should not rely increasingly on GenAI technology for rapid replies, as this may lead to a drop in instructors' responses, which directly may hinder the bond between teacher and student.' This perspective is related to the views of [Ye and Bors \(2021\)](#), who highlighted how GenAI can reduce meaningful interaction between teachers and students. Next, Deepak stressed the importance of maintaining a balanced approach to GenAI in education. He said that 'GenAI tools can elasticize the learning experience by providing interactive activities and content. However, it should not replace face-to-face interaction or traditional teaching methods. Overall, it cannot replace human elements that play a pivotal role in learning.' This viewpoint is also emphasized by the findings of [Patel \(2024\)](#), who argued for maintaining the melodious bonding of technology and human interaction. Overall, it emphasized that AI should be applied to enrich traditional ways of educational instruction.

Concerning the TPACK framework, Ram and Muna emphasize the balance between TK, PK, and CK to support critical thinking and avoid over-reliance on GenAI. Similarly, Deepak highlights the need for a balanced integration of TK, PK, and CK in the case of traditional teaching methods.

## 5.4 Navigating ethical challenges and coping mechanisms

Nevertheless, by raising concerns, Ram stated, 'GenAI poses a big challenge when teachers apply GenAI tools for professional growth; they have to think about data privacy and be careful about the decisions that GenAI makes.' To cope with these challenges, language educators should learn from each other's experiences, discuss them with policymakers, and join programs that teach how to use GenAI properly. Moreover, educational institutions must foster a culture of transparency and accountability regarding how GenAI can be used well so that teachers can be empowered regarding professional development. Likewise, Ram is concerned about necessary precautions when using GenAI, particularly for professional growth, related to the perspectives of [Luan et al. \(2020\)](#), who discussed data privacy, ethical challenges, and decisions made by GenAI systems that educators should maintain. On the

other hand, Muna expressed that, 'I worry that learners would be reliant on AI-powered languages hindering their critical thinking skills. Hence, I like to use conventional teaching techniques that encourage learners to participate in activities autonomously, think independently, and use GenAI as a supplementary resource. We should critically evaluate GenAI algorithms to eradicate biases and collaborate among educators to share strategies to address diverse students' needs. [Shuford \(2024\)](#) emphasized the necessity of a responsible GenAI system to ensure fairness in education, equity, and inclusion.

Furthermore, incorporating ethical concerns is critical to assuring equity in GenAI platforms and reducing the potential for individualization. Furthermore, [Lomicka \(2003\)](#) underscored the widespread worries about excessive resilience in GenAI. Who further discussed the importance of maintaining the balance of using technology with traditional methods. She emphasized that emerging technologies can be valuable, but these technologies should complement rather than replace them since traditional teaching approaches can encourage critical thinking and make students independent in learning.

Aim Prasad, in this respect, advocated that 'integrating GenAI makes teachers feel stressed because teachers need to go through technological advancement regarding its hindrances and boundaries around it. These are essential for preserving teacher wellbeing and mindfulness practices. Furthermore, educational institutions may help by giving information about GenAI integration in professional growth so that instructors can feel better utilizing GenAI and AI tools to support them with language education.' So, [Fernández-Batanero et al. \(2021\)](#) emphasized the importance of teacher wellbeing and mindfulness of practices to foster language educators familiarized with technological advancement. Deepak also resembled the same experiences; he quantified that while applying GenAI tools, teachers must consider ethical considerations, data privacy, transparency, and how to use the text generated to the forefront. For this, there is a need for collective efforts, such as ethical training workshops, peer reviews, collaborative inquiry, etc., to cope with the overwhelming challenges surrounding GenAI and AI technologies. By prioritizing these, English language teachers can benefit from the maximization of GenAI for professional development, upholding its ethical standards. The above resonant was advocated by [Luu \(2020\)](#) for the need for institutional support and guidance for sustainable professional growth so that language educators can feel more comfortable and effective in applying GenAI tools in language instructions. Similarly, [Walter \(2024\)](#) also emphasized the necessity of continuous teacher training for equitable access to GenAI applications and fostering the critical mindset possible through addressing ethical considerations. T ensures responsible use of TK, PK, and CK, addressing ethical concerns and supporting the TPACK framework. In this case, it ensures the responsible use of TK with PK and CK, addresses ethical concerns, and supports effective teaching strategies.

## 6 Discussion

This study explored how English language educators in Kathmandu Valley, Nepal, understand and integrate Generative

AI (GenAI) tools in their teaching practices and professional development. Participants highlighted GenAI's ability to enhance pedagogical innovation by designing interactive activities and personalized learning experiences. For example, Ram and Muna noted that AI tools enabled dynamic simulations and real-time feedback, fostering student engagement and adaptability. These observations align with [Holmes et al. \(2023\)](#), who emphasize GenAI's role in tailoring content to diverse learning styles. Similarly, Aim Prasad's use of AI chatbots to refine instruction in real-time reflects the TPACK framework's emphasis on merging technological, pedagogical, and content knowledge for responsive teaching. Deepak further highlighted GenAI's efficiency in delivering targeted feedback, resonating with scholarship on AI's potential to streamline assessments ([Pereira et al., 2022](#)). These insights illustrate GenAI's transformative role in creating student-centered classrooms. Beyond classroom applications, participants viewed GenAI as a driver of continuous professional growth. Ram and Muna also described how AI-generated insights helped them refine teaching strategies and address learner needs, reinforcing ([Luckin and Holmes, 2016](#)) assertion that AI supports iterative pedagogical improvement. Aim Prasad and Deepak emphasized self-assessment capabilities, enabling educators to identify strengths and stay updated with evolving methodologies. Such findings align with global calls for technology-enhanced professional development ([Schleicher, 2016](#)), positioning GenAI as a personalized, lifelong learning tool. However, participants cautioned against over-reliance on AI, warning that excessive dependency might erode critical thinking and teacher-student rapport. Ram and Muna raised concerns about passive learning, echoing ([Elbyaly and Elfeky, 2023](#)) critiques. Aim Prasad stressed the need for human creativity to sustain relational dynamics—a view supported by [Patel's \(2024\)](#) advocacy for balanced tech-human integration. These reflections underscore the importance of maintaining pedagogical intentionality when adopting AI. Ethical challenges further complicated GenAI's integration. Participants highlighted data privacy risks, algorithmic biases, and stress from navigating technological demands. Ram and Muna advocated for institutional policies and peer collaboration to mitigate risks, aligning with [Luan et al.'s \(2020\)](#) emphasis on ethical frameworks. Meanwhile, Aim Prasad and Deepak underscored the need for mindfulness and training to address educator wellbeing, resonating with [Fernández-Batanero et al. \(2021\)](#). These insights stress the necessity of ethical guidelines and institutional support to ensure equitable, responsible AI use.

Thus, while GenAI offers significant pedagogical innovation and professional growth opportunities, its integration demands mindful balance. The TPACK framework provides a lens to harmonize technology with pedagogy and content, ensuring tools enhance rather than overshadow human-centric teaching. Institutions must prioritize ethical training, collaborative dialogue, and equitable access to empower educators in navigating AI's complexities. Thus, future research shall explore how such strategies translate to student outcomes and teacher autonomy, particularly in resource-constrained contexts like Nepal, to foster sustainable, ethical AI adoption in education.

## 7 Conclusion and implications

This study explores GenAI's uses in ELT professional development, demonstrating its capacity to enhance teaching methods, automate tasks, and provide personalized learning insights. Through the TPACK framework, educators navigated the way of technological, pedagogical, and content knowledge, leveraging GenAI to create dynamic classrooms. However, challenges such as technical proficiency gaps, ethical concerns, and risks of over-dependence on AI tools underlined the necessity for a balanced approach. Teachers emphasized the irreplaceable role of human interaction and critical thinking in education, advocating for GenAI as a supplementary—not substitutive—tool. Institutional support, ethical guidelines, and continuous training emerged as critical enablers for sustainable integration. So, the study advocates for a harmonized model where GenAI complements traditional pedagogy, empowering educators to innovate while preserving the human-centric essence of teaching and learning for 21st-century learners. This study has illuminated the impact of GenAI on language education and English language teacher professional development, highlighting potential benefits, successes, challenges, and necessary steps to take care of based on various literature reviews and the findings from language educators' interviews. The findings feature the potential for individualized learning and immersive experiences associated with GenAI integration, stressing GenAI's positive influence, notably on language education and teacher professional development. The TPACK framework is important and valuable in this context as it incorporates GenAI tools in an effective and balanced way. Likewise, language educators benefited from interactive and tailored learning environments created by AI-powered applications such as GenAI and AI tools. They introduced novel teaching approaches, making learning more adaptive and accessible. It emphasizes real-time translation that assists in developing dynamic e-content. However, it also counseled the risk of overreliance on emerging technology, such as GenAI and AI tools, that could reduce professional development and human interactions. Besides, ethical considerations and critical factors like data privacy and algorithmic biases must be addressed when integrating GenAI. The study enhanced the ability to mitigate such challenges through collaboration, mindfulness of practices, and setting limitations along self-care schedules while using GenAI tools.

This research study advocates that educational institutions' supporting policies, including resources, assist in addressing the distinguished stress of GenAI integration in language education and professional development. The study enhances valuable suggestions, focusing on training programs and workshops to uphold the benefits of GenAI for teachers' professional development. Aligning with the TPACK framework, this research contributes insights into the ongoing discourse that accelerates continual professional development and ethical reflection in harnessing the potential of GenAI. Valuing such endeavors enables policymakers, language instructors, and technology developers to contribute to a productive and creative educational environment that boosts student learning outcomes and ensures an adequate, inclusive future.

The study suggests that universities, colleges, and schools should develop AI literacy programs to equip teachers with technical skills and ethical awareness for effective GenAI integration. Likewise, policymakers are urged to establish guidelines that address data privacy, algorithmic transparency, and equitable access to GenAI tools. GenAI's potential to provide personalized learning and real-time feedback can transform the curriculum design, promoting adaptive and inclusive classrooms. So, schools should foster peer-learning networks where educators can share strategies to reduce AI dependency and enhance critical thinking and collaboration. Teacher training programs should emphasize TPACK principles to ensure that GenAI aligns with pedagogical goals, enhancing rather than distracting from learning outcomes.

## Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## Ethics statement

The studies involving humans were approved by Kathmandu University School of Education Research Committee. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

## Author contributions

BL: Conceptualization, Data curation, Formal analysis, Methodology, Project administration, Resources, Writing – original draft, Writing – review & editing. ND: Validation, Conceptualization, Project administration, Data curation, Investigation, Supervision, Methodology, Funding acquisition, Writing – original draft, Writing – review & editing, Resources, Formal analysis, Visualization, Software. MH:

Formal analysis, Funding acquisition, Writing – review & editing, Conceptualization, Writing – original draft. SP: Investigation, Visualization, Supervision, Formal analysis, Writing – review & editing, Validation, Writing – original draft. HK: Conceptualization, Funding acquisition, Writing – original draft, Writing – review & editing.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## Generative AI statement

The author(s) declare that no Gen AI was used in the creation of this manuscript.

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