A Critical Look at How Lecturers in Linguistics Can Leverage Generative Artificial Intelligence in Enhancing Teaching Proficiency and Students' Engagement

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Abstract—This paper focused on how lecturers in linguistics can leverage GenAI to enhance their teaching proficiency and student engagement. The paper used a quantitative approach, including 293 university lecturers teaching linguistics. The TPACK theoretical model was adopted, wherein two main segments of the theory, namely technological knowledge (TK) and technological content knowledge (TCK), were used to explore the importance of leveraging GenAI to enhance teaching proficiency. The results indicated that these tools greatly enhanced the linguistics lecturers' teaching proficiency. The study revealed that a significant majority of lecturers acknowledged using Quizizz for test and exercise generation in linguistics, followed by a substantial portion who utilized the ChatGPT series for teaching and learning enhancement without compromising academic integrity. Additionally, many lecturers reported frequent usage of Education Copilot for lesson planning and student record tracking, as well as Google Bard (now Geminin) for teaching enhancement and increased student engagement. The study also found high acceptance rates among lecturers for the effectiveness of ChatGPT, Bard, Quizizz, and Educational Copilot in translation courses, with similarly positive responses for discourse analysis courses, teaching proficiency enhancement, and student engagement across various pedagogical areas. Thus, these tools can enhance teaching and learning at the university level and students' engagement when the lecturers have the Tk and the TCK.

Index Terms—generative artificial intelligence, linguistics, students' engagement, teaching proficiency

I. STUDY BACKGROUND

According to Lim et al. (2023), systems that can generate various forms of unique material, such as text, graphics, and code, by extending the patterns learned from massive volumes of data that have been pre-trained are known as generative artificial intelligence (AI). Text-to-image generators like Dall-E and Midjourney were the initial GenAI resources to gain widespread attention; these tools encouraged users to test the limits of their newly increased creative abilities (Lan & Chen, 2024). Effectively managing the risks associated with these new technologies has the potential to improve teaching and learning, but the initial emphasis on educational honesty infractions has overshadowed this possibility. Although colleges and universities have shown reluctance to embrace new technology on occasion, teaching and learning, like the rest of daily life, need adaptability for success. Researchers have debated whether to ban students from using ChatGPT, a prominent GenAI (Gaspard-Richards, 2023).

Nevertheless, some studies have argued that schools should not have to crack down on it as they cannot keep tabs on everyone. While the second point is correct, it does not constitute the main argument against banning some GenAI, such

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as ChatGPT. In the first place, GenAI technologies like ChatGPT have the potential to revolutionize higher education, mainly in teaching and learning. In addition to the realm of higher education, they have become an integral part of the daily lives of both students and lecturers. The educational system underpins the real opportunity to make the most of AI's capabilities in the classroom.

Generative AI constantly improves its capacity to emulate human communication, the basis for teaching and learning, via pattern detection, imitation, and probability. Although pattern recognition and imitation are building blocks for many types of intelligence, they are just the beginnings and not the ends. As a result, GenAI integration has the potential to enhance linguistics lecturers' teaching proficiency and further develop their patterns of engagement with students. With little human intervention, GenAI systems may produce many representations, such as text, graphics, and more, to facilitate teaching and learning in the higher educational system.

This paper focuses on unveiling the strategic importance of GenAI in enhancing the teaching proficiency of lecturers in linguistics and how GenAI can help students further develop patterns for engagement through chatbots and interactive systems. The paper is mainly aimed at analysing specific areas in which lecturers in linguistics can leverage GenAI to enhance their teaching proficiency, mainly in the use of GenAI models such as ChatGPT models, Google Bard (now Gemini), and others as teaching aids, as assessment and evaluation tools, in helping the lecturers set personalized feedback systems, and in other areas. The study remains significant as it contributes to the ongoing discourse on the importance of generative AI in enhancing lecturers' and students' teaching and learning experiences. It also contributes to the studies on how artificial intelligence models have impacted educational activities at the university level.

II. REVIEW OF THE LITERATURE

A. Generative Artificial Intelligence in Linguistics; a Foundational Review

The transforming nature of the GenAI field is a topic that draws the attention of many scientists, including linguists. GenAI will change the landscape of language teaching and learning; hence, a careful analysis of its foundations and implications in education is necessary, especially, in the technology revolution. This paper focused on the critical components of GenAI, how its use in education is still controversial, and the positive impact of GenAI on linguistics pedagogy. GenAI is a term for algorithms that can produce natural-like linguistic outputs, like text, speech, and code generation. Advocates like Salina-Navarro et al. (2024) pointed out that it can help with personalized learning. AI-powered programs can design lessons and learning experiences tailored to all students' preferences and capabilities, outperforming traditional learning approaches. In addition, AI can offer instant feedback on pronunciation, grammar, and the mechanics of writing, thus, facilitating instructors' focus on higher-order thinking skills and enabling them to create an active learning environment for all students (Liu et al., 2023).

The application of GenAI in the linguistics education area requires an in-depth investigation to explore how GenAI can deal with the complicatedness of the human tongue, including sociolects, pragmatics, and the history of its development. According to Kadaruddin (2023), GenAI can be a helpful tool for generating authentic language materials and immersing learners in different speech environments. In contrast, Nyaaba et al. (2023) further assert that most GenAI models only address the superficial elements of language, disregarding the profound social and cultural components that form the basis of linguistic proficiency. Further, the ethical aspects of applying GenAI in education must be considered. Specific GenAI platforms' proprietary algorithms and data collection practices raise student privacy issues and possible bias (Nyaaba, 2023; Gimpel et al., 2023).

Indeed, exploring the connection between GenAI, fairness, and pedagogy is indispensable. Nasir and Javid (2024) proposed adding fairness metrics to GenAI algorithms and AI curriculum design to minimize bias risk. According to Nasir and Javed (2024), a human-centered approach in which GenAI supports, but does not substitute, lecturers are recommended to ensure that the human dimension is retained in linguistics instruction. GenAI is a potent educational tool that enhances the teaching excellence of linguistics lecturers and fosters student involvement. Apart from the advantages for the students highlighted above, GenAI can contain a plethora of tools to be used to improve the lecturer's practice and make the learning process effective and enjoyable. One more aspect is directly connected to the individual learning routes. GenAI can evaluate student data, including course results, test papers, and discussions, to understand individual strengths and weaknesses. Equipped with this information, lecturers can integrate Gen AI into their curriculum by designing tailored learning materials, suggesting specific exercises, and suggesting supplementary resources that meet the needs of each student. This ensures a more diverse learning environment, whereby students work more deeply with challenges that match their abilities (Healy, 2023).

Interestingly, GenAI reduces the monotony of repetitive tasks, permitting lecturers time for more creative tasks. GenAI can take over the dull automatic grading of quizzes and essays that lecturers commonly have to handle. Although it is not a replacement for rich feedback on advanced thinking and in-depth arguments, GenAI-powered grading can become an essential layer of evaluation in the process, providing a space for lecturers to work with students on argument structure, language comprehension, presentation of theses, and cohesiveness (Law, 2024; Baidoo-Anu et al., 2023; Nyaaba, 2023). Equally paramount are the benefits to the student's engagement (Amresh, 2023). GenAI has the potential to create a pool of learning environments that are interactive, responsive, and adaptable to any learning style (Petrovska et al., 2024). AI-driven simulations have become an option that can take students to any era of history

and cultural environment, allowing them to immerse themselves in the specificities of language use over time and space (Benmamoun, 2023).

B. Findings of Previous Studies on GenAI in Education

According to Ally (2019), the rapid transition of learning into the era of digital technology necessitates significant shifts in how lecturers perceive and implement technology in their lessons. To get a sense of the recommended abilities lecturers would need to fulfil the requirements of future-oriented education, Liu et al. (2023) surveyed 34 professionals in educational technology from six different nations and collected their written comments. These findings informed the development of the "Competency Profile for the Digital Teacher (CPDT) 2030," which comprises nine domains and 105 individual skills. The recommended qualities included proficiency in performing duties in virtual settings, digital literacy, exceptional interpersonal abilities, personality adaptability, open-mindedness, eagerness to learn about and utilize assistive multimedia technologies, and the capacity to produce and modify digital learning materials.

Artificial intelligence (AI) stands apart from other types of educational technology due to its intrinsic complexity, breadth of use, and novelty. Other kinds of technology often had specific, well-defined functions. Kaplan-Rakowski et al. (2023), based on their review of papers dating back to 2000, determined that the first study on lecturers' active engagement in GenAI usage for instructional purposes began in 2004, with the most significant increase in studies occurring in 2018.

Although studies on lecturers' perspectives on artificial intelligence in education have appeared since 2020, there still needs to be more research in this field, mainly in teaching and learning at the university level. Lan and Chen (2024) employed a modified version of the Technology Acceptance Model (TAM) to investigate how Chinese university professors feel about AI in the classroom. They augmented the initial TAM scale with two more components. According to Lan and Chen (2024), the updated scale retained the traits of perceived utility, perceived ease of use, attitudes towards usage, and behavioural intention to use while adding anxiety and self-efficacy as new components. Two critical results from the new scale were that attitudes towards use had the most deciding power among these factors and that nervousness, self-assurance, perceived value, perceived simplicity of utilization, and attitudes towards use predicted 70.4% of changes in behavioural intention to use. In order to change lecturers' attitudes regarding the use of AI and increase their tendencies toward AI technology adoption, Wang et al. (2021) suggested investing in professional development opportunities.

Diwan et al. (2023) surveyed Serbian foreign language lecturers to assess their knowledge of artificial intelligence (AI), how often they used AI in the classroom, and their expectations compared to their actual experiences with the technology. According to the results, a favourable relationship exists between lecturers' perceptions of artificial intelligence in education, their chances of encountering it, and their behavioral intentions to include AI in their lessons. Consistent with previous research, the internal impediments included a need for more knowledge of AI and its educational applications, differences of opinion on the best way to teach or incorporate AI into existing curricula, and a lack of self-assurance or interest in using AI.

C. Theoretical Framework for the Study

Mishra and Koehler's Technological Pedagogical and Content Knowledge (TPACK) framework (2006) provides a powerful tool for lecturers in linguistics to analyze the challenges and opportunities that are associated with the usage of Generative AI (GenAI) to improve their proficiency as lecturers and increase a student's engagement. TPACK is aligned with TK, PK, and CK by focusing on an exact concrete framework to explore more GenAI tools and sound teaching techniques. Various aspects of the theory form the basis for the adoption, as explained:

a) Technological Knowledge (TK) and GenAI Tools: When discussing the TPACK framework, TK comes as the first core domain. This component indicates the instructor's knowledge and skills in technology. In the context of TK and GenAI, this means knowing different generative AI applications and having the skills and the ability to choose from the many available AI tools that have different language-teaching capabilities. In this context, this study analyzes the features of various AI platforms, including automated pronunciation feedback systems, interacting grammar drills, or AI-powered live conversations. Lecturers with sufficient TK can only make the correct choice of GenAI tools that align with their way of teaching and prove to be productive as far as the condition of the linguistic concept of students is concerned (Chan, 2023).

b) Pedagogical Knowledge (PK) and Designing Engaging Activities: In this domain, lecturers demonstrate their proficiency in various teaching approaches and efficiency in delivering learning outcomes. PK delivers powerful tools to the lecturers to create entertaining and interactive activities that best explain the functioning of the AI platform. For example, a student-centered interactive lecturer with developed PK may allow AI agents to interact with students in role plays, where communication skills can be practiced in simulated real scenarios (Weller, 2023). The technology has been used innovatively, guided by proven educational principles. This facilitates adopting new teaching approaches, allowing deeper engagement with the subject matter (Liu et al., 2023).

c) Content Knowledge (CK) and the Nuances of Linguistics: The last building block, CK, is a lecturer's profound comprehension of their instructional content. In linguistics, this comprises an understanding of linguistic theories, historical language development, sociolinguistics, and other applicable subfields. High-quality CK is essential for the lecturers to harvest the AI-generated content and ensure it is appropriate for the learning goals.

III. Study Methodology

A. Study Approach

This paper adopts a quantitative research approach to survey how linguistics lecturers can leverage GenAI to enhance teaching proficiency and improve learners' engagement. According to Creswell (2014), the quantitative study approach offers researchers the tools to evaluate a topic from an objective point of view using non-sentimental data that will be subjected to statistical treatment. To understand how leveraging GenAI can enhance the teaching proficiency of university lecturers in linguistics and increase the engagement skills of their students, there is a need to carry out a survey based on the various units of the TPACK theory, assessing the participants' views using statistical measures.

B. Study Questions

The following research question formed the basis for the data collection and analysis:
1. In what ways does linguistics lecturers' technological knowledge (TK) of the GenAI impact their teaching proficiency?
2. In what manner does linguistics lecturers' technological pedagogical knowledge (TCK) of the GenAI facilitate their appropriate integration of GenAI tools to enhance students' engagement and improve proficiency in teaching linguistics courses?

C. Study Sampling

Randomisation has become a common sampling strategy for scientific studies, wherein researchers select their sample population based on a random process. The sample was selected from forty universities offering linguistics courses in a separate department. The participants are lecturers who have been in the academic industry for at least four years and are mainly linguistics lecturers, although some teach foreign languages and translation. Through this process, a total of 293 lecturers participated in the study. The table below summarises their demographic information.

TABLE 1
DEMOGRAPHIC VARIABLES OF THE STUDY PARTICIPANTS

Variable	Group	Repetition	Percentile
Gender	Male	109	37.21%
	Female	184	62.79%
Age	30-39	52	17.74%
	40-49	114	38.91%
	50 years and above	127	43.35%
Academic Qualifications	Masters	54	18.44%
	PhD and above	239	81.56%
Academic Ranking	Graduate Assistant	47	16.05%
	Researcher	69	23.55%
	Senior Lecturer	98	33.44%
	Professor	79	26.96%

Table 1 offers a clear understanding of the demographic variables of the participants in the study of how GenAI impacts the teaching proficiency of lecturers in linguistics and influences students' engagement. The results in the table suggest that there are more female participants (62.79%) than male participants (37.21%). This percentile dominance by female lecturers can be attributed to different factors, including the fact that recruitment methods and discipline may influence gender distribution. The data also contains details about the age distribution of the participants. The data reveals that most participants are mid-career, with the largest groups within the age bracket of 50 years and above at about 43%, and those aged 40–49 fall within 39% of the study population. The participants below that bracket comprise about 17.74% of the total population.

Furthermore, the results revealed that the participants are highly experienced professionals in linguistics pedagogy, mostly PhD holders, senior lecturers, and professors. The demographic data offered a clear picture of the pool of participants with a strong foundation in linguistic content, technological, and pedagogical knowledge. The focus on senior lecturers and professors suggests a strong interest in analysing how GenAI can be leveraged to improve lecturers' teaching proficiency in linguistics. These demographic features have set the standard for applying TPACK in analysing and answering the research questions.

D. Study Tools and Administration

A survey was administered to collect data from the study population through this quantitative study approach. Google Forms was used to design a questionnaire fully anchored on the three main models of the TPACK theory. The questionnaire was segmented into four main parts, wherein the first part included the relevant demographic features of the participants. The second part is based on six study questions derived from participants' technological knowledge (TK) in evaluating how they understand and use the GenAI models in academic activities. The third part of the survey contains five questions anchored on content knowledge (CK), while the fourth section includes five questions on technological content knowledge (TCK). A consent form to participate in the study was attached to the survey. The surveys used a four-point Likert scale (strongly agree, SA.; agree, A; disagree, D; and strongly disagree, SD) to explore

participants' attitudes. To ensure the validity and reliability of the survey items, the researchers engaged linguistics professors who were not part of the study population to evaluate the items' reliability to elicit data that could answer the research questions.

E. Data Treatment and Analysis

The choice of a survey questionnaire directly necessitates using statistical tools to analyse the collected data. As such, all the collected data were subjected to statistical measures, including calculating the percentile values of the Likert scales and the mean and standard deviation of the measuring items. All the results are presented in descriptive statistics tables and charts. The presentation is followed by a detailed analysis of the presented data, which includes an assessment of the implication of the findings about TPACK, which is the adopted theoretical framework in the study.

IV. RESULTS AND DISCUSSIONS

A. Results

The collected data results are presented and analysed in connection to the three TPACK models: the TK, CK, and TCK. As such, the presentation of the results is segmented into three sections, which also reflect the three research questions.

(a). Results of the Surveys on Technological Knowledge

The first research question is the basis for developing six survey questions that explore the technological knowledge of the lecturers who participated in the study, mainly regarding the usage and importance of GenAI models in enhancing teaching proficiency. The results are summarised in Figures 1 and 2 and Table 2 below.
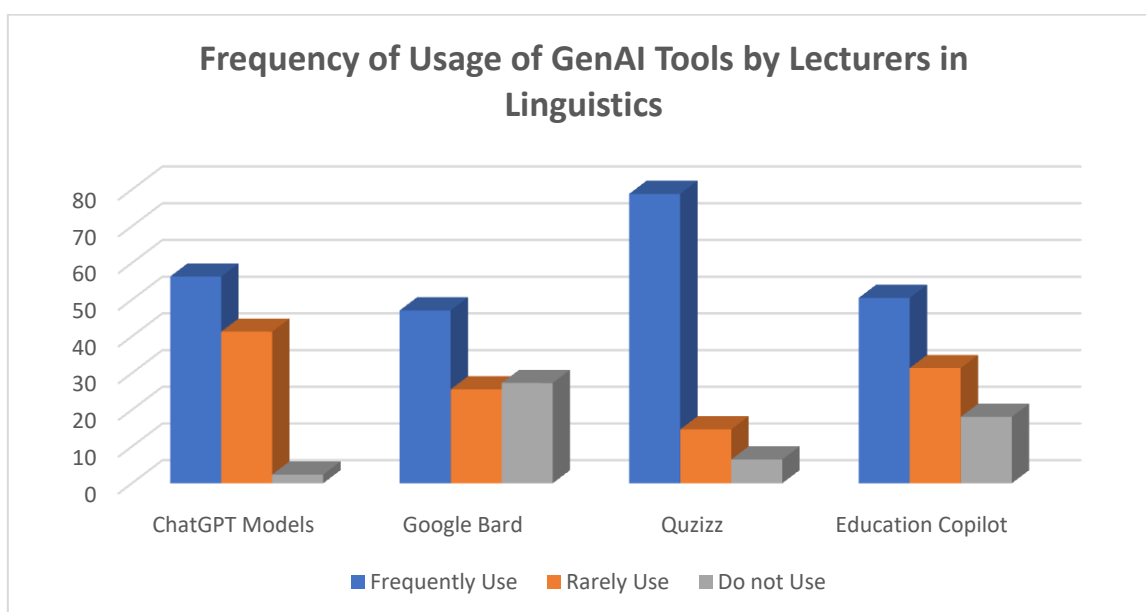

Figure 1. Results of the Survey Item "I Understand How to Use GenAI Models to Enhance Teaching Activities, Mainly in Developing Personalised Learning Materials, Customised Exercises, Tailored Quizzes, and Save Time"

Figure 1 summarises the frequency of usage of the GenAI tools employed by lectures. Over 78% of the lecturers accepted that they frequently use Quizizz to generate tests and exercises in linguistics. This is followed by more than 56% of the lecturers who admitted that they frequently use the ChatGPT series, including the main ChatGPT and ChatGPT-4, for enhancing the teaching and learning of linguistics courses without compromising academic integrity. Over 50% of the lecturers also agree that they frequently use Education Copilot, another GenAI, for lesson plans and tracing students' academic records to enhance teaching and learning. More than 47% further agreed that they frequently use Google Bard, recently renamed Geminin, to enhance teaching and improve student engagement. Most of these GenAI tools function as chatbots wherein lecturers can generate relatively accurate information for course plans and contents, tracking students' academic performance and other activities to enhance teaching proficiency.

Interestingly, over 27% of the lecturers affirm that they never used Google Bard for any activity to enhance teaching. Only 2.39% of the lecturers said they never used ChatGPT, 6.49% said they never used Quizizz, and 18.09% said they never used Education Copilot. Generally, most lecturers have technological knowledge (TK) of using GenAI models to enhance and improve teaching proficiency.
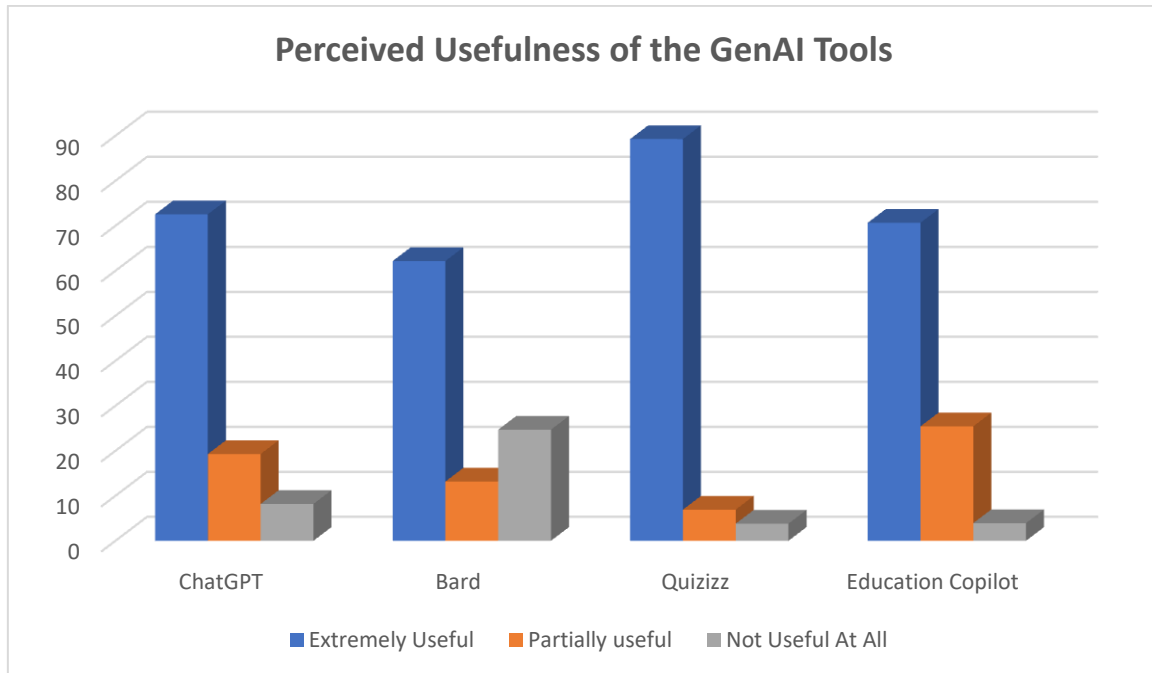
Figure 2. Results of the Question "These GenAI Tools Are Very Helpful in Enhancing Teaching Proficiency"

Figure 2 summarises the results of the usefulness of the GenAI tools in enhancing the teaching proficiency of the lecturers in linguistics. The results suggest that the most useful GenAI, according to the lecturers, is Quizizz, wherein about 89.27% of the study population affirmed that it is instrumental in enhancing teaching proficiency. This is closely followed by ChatGPT at 72.54%, Education Copilot at 70.66%, and Bard at 62.15%. These results generally indicated that the lecturers affirm how useful the GenAI tools have been in enhancing their teaching proficiency in linguistics. The results also indicated that the negative attitude in the academic circle towards the adoption and usage of AI tools by university lecturers is gradually changing.

Furthermore, over 24% of the lecturers affirm that Bard could be more useful in enhancing their teaching proficiency. The result is surprising as both Bard and ChatGPT are primarily chatbots. Although more than 25% of the study population affirmed that Education Copilot is not very useful in enhancing teaching proficiency, only 3.92% affirmed that this GenAI is not applicable.

TABLE 2
RESULTS OF OTHER QUESTIONS ON THE LECTURERS' TECHNOLOGICAL KNOWLEDGE OF GENAI

Survey Items	A %	SA %	N %	D %	SD %	Mean	Std. Dev
My knowledge of the usage and usefulness of the GenAI tools have improved by teaching capability	76.95	7.33	4.37	10.18	5.54	4.93	0.86
Using the GenAI tools have helped me to tailor academic activities to specific students' needs	80.11	6.85	5.22	6.13	1.69	4.99	0.81
GenAI tools have enabled me to have digital teaching assistants, which help in assessments, setting quizzes, and marking papers.	83.64	9.22	1.17	3.57	2.4	5.32	0.61
Embracing the technological knowledge of GenAI has enhanced my teaching proficiency, even in lesson planning	76.36	15.33	2.06	4.14	2.11	5.29	0.68

Table 2 clearly explains the growing importance of GenAI tools in academia. The results indicated that the lecturers clearly understood the usage and usefulness of these tools in enhancing their academic activities. More than 84% of the lecturers who participated in the survey affirm that their knowledge of the usage and usefulness of the GenAI tools has improved through teaching skills. Only 15.72% of the participants disagreed and strongly disagreed that their knowledge of the application and usefulness of these tools enhanced their teaching skills, indicating that some academics still have a negative attitude towards adopting and using these tools for academic engagement. Similarly, more than 86% of the study participants accepted that using the GenAI tools has helped them tailor academic activities to specific students' needs. One of the challenges of the traditional teaching method is the inability to design academic systems and activities that cater to the specific needs of different students. The lecturers generally accepted that GenAI has helped them overcome this limitation, enhancing their teaching proficiency.

Interestingly, more than 92% of the lecturers agreed that GenAI tools have enabled them to have digital teaching assistants, which aid in assessments, quizzes, and paper marking. Assessment of academic activities, developing quizzes, and marking papers are core academic activities that consume lecturers' time. As such, through the knowledge and usage of these GenAI tools, the teaching proficiency of the lecturers has improved. Only 5.97% refuted this statement,

indicating strong acceptance of the statement with a mean value and standard deviation of 5.32 and 0.61, respectively. Finally, almost 92% of the lecturers agreed that embracing GenAI's technological knowledge has improved their teaching proficiency, even in lesson planning. They indicated that GenAI tools such as Educational Copilot facilitated the planning, development, and integration of lesson activities, which help lecturers develop lesson plans and tailor academic activities to the needs of individual students.

(b). Results of the Research Question on Technological Content Knowledge (TCK)

The second research question explores how the lecturers' technological content knowledge facilitates the effective integration of GenAI tools to enhance students' engagement and improve proficiency in teaching linguistics courses. To address the second research question, we thoroughly examined TK's concerns. Findings revealed that lecturers possess a solid understanding of GenAI tools, actively utilize them, and acknowledge their effectiveness in improving teaching quality and fostering student engagement. There is a need to investigate further how the lecturers' TK impacts their content knowledge. In other words, how does their knowledge of the GenAI tools impact their teaching of linguistics courses and affect students' engagement in those courses? The focus was on grammar (morphology, phonology, and syntax), discourse analysis, and translation. The chart and table below summarise the results.
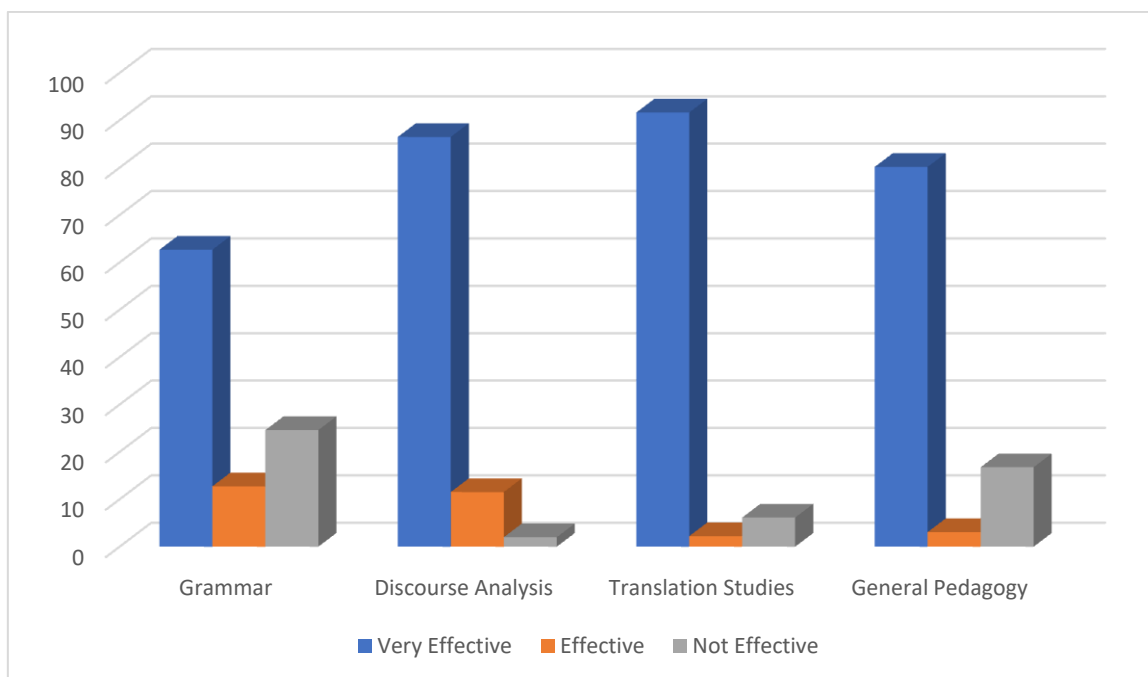

Figure 3. Results of the Efficiency of GenAI Tools in Teaching Linguistics Courses

The results in Figure 3 indicate that the GenAI tools, according to the 293 lecturers who participated in the study, are very effective in all the linguistics courses in the study survey. About 91.63% of the study population accepted that ChatGPT, Bard, Quizizz, and Educational Copilot are very effective in translation courses. This implies that these GenAI tools effectively enhance lecturers' proficiency and students' engagement in translation courses. This is closely followed by discourse analysis courses, including pragmatics, wherein 86% of the lecturers affirm that these tools are very effective. More than 80% agreed that the tools are very effective in enhancing teaching proficiency and students' engagement in general pedagogy, while 62.66% accepted that these tools are effective in grammar. It is important to emphasize that more than 24% of the participants think these tools are ineffective in enhancing grammar teaching.

In comparison, 16.77% stated that the tools are ineffective in general pedagogical concerns. Only 1.99% stated that these tools do not enhance lecturers' proficiency and students' engagement in discourse analysis courses. In comparison, 6.15% noted that the GenAI tools are ineffective in translation courses.

TABLE 3
RESULTS OF OTHER SURVEY ITEMS IN RELATION TO TCK

Survey Items	A %	SA %	N %	D %	SD %	Mean	Std. Dev
My knowledge of GenAI tools have facilitated teaching linguistics courses	85.29	4.63	1.37	5.28	3.43	5.07	0.74
When I began to utilise GenAI tools, my proficiency in different pedagogical practices in linguistics improved	80.11	4.85	5.22	8.13	1.69	5.02	0.84
Through the use of GenAI tools, my students' systems of engagement began to improve.	63.64	29.22	1.18	3.56	2.4	5.31	0.76
It is generally important to consider ethical issues and academic integrity when leveraging GenAI tools to enhancing teaching proficiency	56.36	35.33	2.06	4.14	2.11	5.29	0.78

Table 3 offers an understanding of the importance of technological content knowledge in assessing the importance of GenAI in enhancing lecturers' teaching proficiency and improving students' engagement. The results indicated that over 89% of the lecturers accepted that their knowledge of GenAI tools has facilitated teaching linguistics courses, and over 84% think that when they began to utilize GenAI tools, their proficiency in different pedagogical practices in linguistics improved. Also, almost 93% of the participants agreed and strongly agreed that through the using of GenAI tools, their students' systems of engagement began to improve. In comparison, more than 91% accepted that it is generally necessary to consider ethical issues and academic integrity when leveraging GenAI tools to enhance teaching proficiency. Generally, it could be seen that linguistics lecturers' technological pedagogical knowledge (TCK) of GenAI facilitates their effective integration of GenAI tools to enhance students' engagement and improve proficiency in teaching linguistics courses.

B. Discussion of Findings

Generative Artificial Intelligence (GenAI) tools have the potential to effectively enhance the teaching proficiency of lecturers in linguistics and increase students' engagement. The analysis results indicated that the lecturers understand the technological knowledge required to use GenAI tools to enhance their teaching proficiency and improve students' engagement. The results indicated that over 78% of the lecturers accepted that they frequently use Quizizz for generating tests and exercises in linguistics. This is followed by more than 56% of the lecturers who admitted that they frequently use the ChatGPT series, including the main ChatGPT and ChatGPT-4, for enhancing the teaching and learning of linguistics courses without compromising academic integrity. These findings are similar to those of Kohnke et al. (2023), who indicated that academics extensively utilize ChatGPT to enhance teaching proficiency. Over 50% of the lecturers also agree that they frequently use Education Copilot, another GenAI, for lesson plans and tracing students' academic records to enhance teaching and learning. More than 47% further agreed that they frequently use Google Bard, recently renamed Geminin, to enhance teaching and improve student engagement. Most of these GenAI tools function as chatbots, wherein lecturers can generate relatively accurate information for course plans and contents, track students' academic performance, and engage in other activities to enhance teaching proficiency. According to Hwang and Chen (2023), using chatbots powered by AI models has helped lecturers improve the quality of assessments and enhance their teaching skills, mainly by saving time and effort. Dai et al. (2023) also summarized that GenAI tools have become essential for lecturers in their day-to-day tasks.

Interestingly, over 27% of the lecturers affirm that they never used Google Bard for any activity to enhance their teaching. Only 2.39% of the lecturers said they never used ChatGPT, 6.49% said they never used Quizizz, and 18.09% said they never used Education Copilot. Overall, it is evident that most lecturers possess technological expertise in using GenAI models to enhance their teaching proficiency and improve student learning outcomes.

These findings further offered clear insights into the first research question, indicating that technological knowledge (TK) is fully required to explore the advantages of GenAI in enhancing linguistics lecturers' teaching proficiency. The data further indicated that more than 84% of the lecturers who participated in the survey affirmed that their knowledge of the usage and usefulness of the GenAI tools has improved through teaching skills. Only 15.72% of the participants disagreed and strongly disagreed that their precise knowledge of the application and usefulness of these tools enhanced their teaching capability, indicating that some academics still have a negative attitude towards adopting and using these tools in academic engagement. Similarly, more than 86% of the study participants accepted that using the GenAI tools has helped them tailor academic activities to specific students' learning needs. One of the challenges of the traditional teaching method is the inability to design academic approaches and activities that cater to the specific needs of different students. The lecturers generally accepted that GenAI has helped them overcome this limitation, enhancing their teaching proficiency.

Applying the TPACK theory in this study has provided a valuable tool to evaluate how Gen AI can enhance lecturers' proficiency in teaching linguistics courses. This is more evident in response to the second research question. The results expressly indicated that 91.63% of the study population generally accepted that ChatGPT, Bard, Quizizz, and Educational Copilot are very effective in translation courses. This implies that these GenAI tools effectively enhance lecturers' proficiency and students' engagement in translation courses. This is closely followed by discourse analysis courses, including pragmatics, wherein 86% of the lecturers affirm that these tools are very effective. More than 80%

agreed that the tools are very effective in enhancing teaching proficiency and students' engagement in general pedagogy, while 62.66% accepted that these tools are effective in grammar. It is important to emphasize that more than 24% of the participants think these tools are ineffective in enhancing grammar teaching. In comparison, 16.77% stated that the tools are ineffective for general pedagogical concerns. Only 1.99% stated that these tools do not enhance lecturers' proficiency or students' engagement in discourse analysis courses. In comparison, 6.15% noted that the GenAI tools are ineffective in translation courses.

These findings are similar to those of Kaplan-Rakowski et al. (2023), who highlighted the unique areas of language study in which GenAI can facilitate teaching and learning. However, the results, in general, contradict the findings of the study conducted by Chan (2023), Chan and Hu (2023), Law (2024), and Lim et al. (2023). These studies directly suggested that most lecturers at various universities exhibited absolute negative attitudes towards the use of GenAI tools in both teaching and learning. Sogut (2024) summarized that integrating any of the features of GenAI in the education system impacts academic honesty and requires clear usage policies and guidelines for faculty and students. On the contrary, the findings by Baidoo-Anu and Ansah (2023) concluded that embracing GenAI tools and other technological tools by lecturers has been revolutionary, providing solutions to almost all the limitations of traditional teaching methods and tools.

V. CONCLUSIONS

This paper focused on how lecturers in linguistics can leverage GenAI to enhance their teaching proficiency and student engagement. The aim was to analyze the importance of accepting generative artificial intelligence tools as significant instruments for enhancing teaching skills and increasing students' engagement. The paper used a quantitative approach, including 293 university lecturers teaching linguistics courses across different universities in a survey. The TPACK theoretical model was adopted, wherein two main segments of the theory, namely technological knowledge (TK) and technological content knowledge (TCK), were used to explore the importance of leveraging GenAI to enhance linguistics lecturers' teaching skills.

The results indicated that these tools greatly enhanced the linguistics lecturers' teaching skills. Findings are consistent with Alshraah et al. (2024), who stated that "in educational landscapes where students possess differing levels of language proficiency, lecturers must adeptly manage this heterogeneity in order to provide equal learning opportunities" (p. 656). It showed that over 78% of the lecturers agreed that they frequently use Quizizz to generate tests and exercises in linguistics. This is followed by more than 56% of the lecturers who admitted that they frequently use the ChatGPT series, including the main ChatGPT and ChatGPT-4, for enhancing the teaching and learning of linguistics courses without compromising academic integrity. Over 50% of the lecturers also agree that they frequently use Education Copilot, another GenAI, for lesson plans and tracing students' academic records to enhance teaching and learning. More than 47% further agreed that they frequently use Google Bard, recently renamed Geminin, to enhance teaching and improve student engagement. Most of these GenAI tools function as chatbots, wherein lecturers can generate relatively accurate information for course plans and contents, track students' academic performance, and engage in other activities to enhance teaching proficiency.

An array of implications is evident in the study. First, the results showed that lecturers gradually accepted the positive impacts of GenAI in the educational system with recommendations to maintain academic integrity. The results indicated that the lecturers openly accept and adopt these technological tools in different areas of their pedagogical engagements. Second, the results indicated that these GenAI tools are revolutionizing the patterns of language teaching at the university level. Several limitations of traditional methods and tools have been mitigated by integrating these AI systems into teaching and learning. Thus, these tools can enhance teaching and learning at the university level and students' engagement when the lecturers have the TK and the TCK.

The study on using generative AI (GenAI) tools by linguistics lecturers presents several implications and recommendations for future practice and research. First, it establishes the impact of these resources on teaching effectiveness and student involvement, turning pedagogy into practices that are more interactive and reactive. Lecturers' widespread utilization points to a growing tendency to expand their application in educational settings, thus confirming the need for strong technological abilities as emphasized by TPACK.

To this end, institutions should consider implementing digital literacy training programs for all faculty members so that all can access these advancements equally. Furthermore, GenAI education can be included in the teaching practice as another way in which teachers can strengthen their integration of these systems into teaching approaches. Additional studies should investigate how GenAI affects teaching with reference to long-term development via longitudinal studies as well as qualitative analyses aimed at capturing the subtler aspects of this process.

Nonetheless, limitations such as its exclusive focus on language learning and specific forms of artificial intelligence software, among others, have been faced by this study, which relied solely on quantitative data, with the need for future studies to include control groups or possible biases found in self-reported measures. Moreover, future research should extend across disciplinary boundaries, involving multiple AI technologies and using both qualitative and quantitative research strategies to fully explore how academia is impacted by GenAI tools. Further still, since there is a higher incorporation of these tools within teaching and learning systems, creating guidelines on the ethical use of AI within educational contexts becomes essential to maintaining academic integrity.

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