

EXPLORING EFL TEACHERS' GENAI-MEDIATED SELF-PROFESSIONALISM THROUGH THE TPACK LENS

SỰ TỰ PHÁT TRIỂN CHUYÊN MÔN CỦA GIÁO VIÊN TIẾNG ANH
SỬ DỤNG TRÍ TUỆ NHÂN TẠO TẠO SINH (GENAI) DƯỚI LĂNG KÍNH TPACK

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ABSTRACT

This paper explores EFL teachers' generative AI (GenAI)-mediated self-professionalism through the Technological Pedagogical Content Knowledge (TPACK) framework. In particular, it examines the frequency of GenAI-based self-professionalism activities and investigates teachers' attitudes on using GenAI for professional development, as well as the relationship between engagement and attitudes. A small-scale quantitative design was adopted, using a questionnaire survey administered to 34 EFL teachers at a Vietnamese university. The instrument consisted of three sections: demographic information, GenAI-mediated self-professionalism activities aligned with TPACK domains, and attitudes toward GenAI use for professional growth. Descriptive statistics and Pearson correlation were employed to provide exploratory insights into engagement patterns and relationships between variables. The preliminary results suggest varying engagement levels across TPACK domains, generally positive attitudes toward GenAI integration, and a strong connection between how often they engage in GenAI and their favorable attitudes. While the findings highlight the potential of GenAI as a valuable tool for EFL teacher professional growth, they are not generalizable and primarily serve as a pilot for refining the instrument and guiding future large-scale research.

Keywords: *Generative AI, self-professionalism, EFL teachers, TPACK, professional development.*

TÓM TẮT

Bài báo tìm hiểu về năng lực tự phát triển chuyên môn của giáo viên ngoại ngữ tiếng Anh (EFL) với sự hỗ trợ của trí tuệ nhân tạo sinh (GenAI), dựa trên khung lý thuyết Kiến thức Công nghệ - Sư phạm - Nội dung (TPACK). Cụ thể, bài báo xem xét tần suất các hoạt động tự phát triển chuyên môn có sử dụng GenAI, đồng thời khảo sát thái độ của giáo viên đối với việc sử dụng GenAI cho phát triển nghề nghiệp, cũng như mối liên hệ giữa mức độ tham gia và thái độ. Nghiên cứu được tiến hành theo phương pháp định lượng quy mô nhỏ với công cụ nghiên cứu là bảng hỏi khảo sát được phân phát cho 34 giáo viên EFL tại một trường đại học ở Việt Nam. Công cụ khảo sát gồm ba phần: thông tin cá nhân, các hoạt động tự phát triển chuyên môn qua GenAI gắn với các miền TPACK, và thái độ đối với việc sử dụng GenAI cho phát triển nghề nghiệp. Dữ liệu được phân tích bằng thống kê mô tả và tương quan Pearson để tìm hiểu mức độ tham gia, thái độ và mối quan hệ giữa các yếu tố. Kết quả sơ bộ cho thấy giáo viên có mức độ tham gia khác nhau ở từng miền TPACK, nhìn chung có thái độ tích cực đối với việc ứng dụng GenAI, và có mối liên hệ rõ ràng giữa tần suất tham gia và thái độ tích cực của giáo viên. Mặc dù kết quả chỉ ra tiềm năng của GenAI như một công cụ hỗ trợ hiệu quả cho phát triển chuyên môn của giáo viên tiếng Anh, nhưng chưa thể khái quát hóa và chủ yếu mang tính thử nghiệm, phục vụ cho việc điều chỉnh công cụ khảo sát cũng như định hướng các nghiên cứu quy mô lớn trong tương lai.

Từ khóa: *Trí tuệ nhân tạo sinh, tự phát triển chuyên môn, giáo viên ngoại ngữ tiếng Anh, TPACK, phát triển nghề nghiệp.*

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1. INTRODUCTION

The emergence of GenAI has opened new possibilities for innovation in education. GenAI tools such as ChatGPT,

Gemini, and Quillbot are increasingly used by teachers to support lesson planning, create teaching materials, design assessments, and engage in professional learning

[16, 17]. Within the EFL context, research indicates that GenAI can significantly enhance both teaching practices and teacher professional development. These tools can generate personalized resources, suggest interactive learning activities, and provide automated feedback, thereby fostering student engagement and supporting teachers in adapting their methods [19, 30]. Beyond classroom use, GenAI also contributes to continuous professional growth by enabling teachers to refine pedagogical strategies and better meet the learners' diverse needs [19].

Professional development (PD) in education has widely been recognized as a crucial way to maintain and enhance teaching quality, especially in times of continuous change. Ongoing PD activities help teachers strengthen both their pedagogical and professional skills, which in turn contribute to better educational outcomes [28]. In the context of foreign language teaching, self-directed professional development plays an especially important role. It is considered a key factor in helping English lecturers develop their expertise and serve as role models for learners [26]. Professional teachers are often seen as self-educators who address their own limitations through self-reflection and classroom practice [8]. This idea is tied to the concept of professional self, which emphasizes teachers' personal growth and career-long development [8]. Research highlights that self-directed PD can take many forms, whether individual, institutional, or non-institutional, depending on teachers' goals and contexts [28]. By setting objectives, choosing learning pathways, monitoring progress, and reflecting on outcomes, teachers cultivate a sense of self-professionalism, which strengthens their professional identity and teaching practices [24]. Practical examples also show that self-directed PD activities, such as watching Netflix series, can improve teachers' oral language proficiency and overall classroom effectiveness [3].

Rapid changes in education have made it increasingly important to integrate emerging new technologies into teaching and learning. One useful framework for guiding this process is the Technological Pedagogical Content Knowledge (TPACK) model proposed by Mishra and Koehler [21]. Building on Shulman's idea of pedagogical content knowledge, TPACK highlights the dynamic interaction between technological, pedagogical, and content knowledge, as well as their overlaps [32]. Within language education, this framework is considered a valuable lens for incorporating GenAI tools into teaching [19].

By considering how technology interacts with pedagogy and subject content, TPACK enables teachers to use GenAI in ways that not only support instructional methods but also enhance student learning outcomes [19]. Moreover, TPACK provides a critical perspective for understanding how GenAI contributes to teachers' professional development and self-directed growth [19]. While earlier studies have explored teachers' use of digital tools within the TPACK framework, little attention has been paid to how GenAI specifically shapes teachers' self-professionalism activities, an area this study seeks to address.

Vietnam's educational context provides a particularly relevant setting for this investigation. As part of ongoing national education reforms, universities in Vietnam are increasingly encouraged to embed technology into teaching and learning practices. Recent studies highlight that GenAI has a pivotal role in English language teaching and teacher development, showing its potential to enhance pedagogy, support teachers' growth, and offer personalized learning resources [31, 14]. However, little is known about how Vietnamese EFL teachers specifically engage with GenAI for self-professionalism, particularly when viewed through the TPACK framework. While some studies have begun to explore AI-assisted professional development in other contexts, the application of GenAI to teacher professionalism in Vietnam remains underexplored.

To address this gap, the present pilot study investigates EFL teachers' engagement with GenAI-mediated self-professionalism using the TPACK framework. Specifically, it provides preliminary insights into the frequency of GenAI use across different TPACK components and teachers' attitudes toward GenAI as a tool for self-professionalism. Accordingly, the study addresses the following research questions:

1. *How frequently do EFL teachers embed GenAI for self-professionalism activities across TPACK components?*
2. *What are their attitudes toward GenAI-mediated self-professionalism?*

2. LITERATURE REVIEW

2.1. Teacher professional development

Professional development (PD) is widely recognized as a foundation for teacher growth and effectiveness. Avalos describes PD as a process of teachers learning, developing strategies for self-directed learning, and translating their

knowledge into classroom practices that benefit students [6]. In a similar vein, Guskey defines PD as a series of activities designed to enhance teachers' knowledge, expertise, and perspectives, thereby enabling them to better facilitate student achievement [13].

For English lecturers, active participation in professional development programs is crucial to becoming key agents of change and engaging in authentic, collaborative learning experiences [21]. Traditionally, PD has centered on structured activities including workshops, conferences, and peer coaching to strengthen teaching skills [1]. However, more recent approaches emphasize continuous, self-directed growth, highlighting the importance of teacher autonomy, professionalism, and ongoing learning [24]. The transformation from one-off training sessions to continuous, long-term professional development has been reinforced by the emergence of GenAI tools. These tools enable teachers to pursue self-directed learning, enhance pedagogical practices, and actively engage in professional growth [24].

Self-professionalism, often referred to as teacher professionalism, extends beyond pedagogy to include lesson planning, addressing learners' needs, managing classroom discipline, and adhering to ethical principles [29]. Nurhayati further identifies key elements in developing professionalism: professional identity, career development needs, theoretical and practical knowledge, and engagement in research. In the field of English language teaching, self-professionalism plays a particularly central role [26].

2.2. GenAI-Mediated Self-Professionalism

In November 2022, ChatGPT was released to the public, creating a strong impact on education worldwide. Since then, many other generative artificial intelligence (GenAI) tools have been developed. GenAI is a branch of artificial intelligence that creates new content based on patterns in large datasets. Unlike earlier AI tools, which mainly focused on limited tasks, GenAI can generate a wide range of outputs, such as text, images, audio, and video [7, 20, 22]. In language education, GenAI tools can be classified according to their capabilities. For example, some tools generate text and ideas (e.g., ChatGPT, Gemini), while others focus on paraphrasing and summarizing (e.g., QuillBot). Certain tools provide translation (e.g., DeepL, Google Translate), and some act as tutors by giving feedback on learner output (e.g.,

Grammarly, ELSA Speak). This variety makes GenAI more powerful than older AI tools in language education [22].

In English language education, GenAI offers considerable potential for both learners and teachers. For students, GenAI chatbots have been shown to increase engagement, motivation, and learning outcomes by delivering personalized feedback and adaptive materials aligned with their proficiency levels, learning styles, and individual interests [15]. GenAI also democratizes English language teaching through the provision of affordable, customized learning materials while addressing ideological constraints [30]. For teachers, GenAI tools such as ChatGPT can assist in generating lesson plans, quizzes, and interactive tasks, thereby streamlining material design and curriculum development [11, 30]. Beyond content creation, GenAI supports pedagogical innovation by integrating with strategies like gamification or storytelling, thus boosting student engagement [30]. At the professional level, GenAI contributes to teachers' self-professionalism by offering personalized learning resources, automated feedback, and opportunities for reflective practice [19, 27]. These affordances can strengthen teachers' instructional adaptability and promote continuous professional growth [4]. Despite these benefits, GenAI use in education also raises challenges, particularly concerning data privacy, academic integrity, and the risk of teachers' over-reliance on AI-generated outputs [19].

Many studies have explored the potential role of GenAI in ELT settings, focusing on its potential benefits for teaching and learning practices, teachers' attitudes, and its impact on professional development. For example, Nazim and Alzubi found that while EFL teachers generally engage in self-professional activities at a moderate level, they expressed positive attitudes toward these practices with GenAI [24]. Similarly, Shrestha et al. reported that GenAI fosters student engagement and teacher adaptability by providing dynamic classroom activities and automated feedback [19]. In the Vietnamese context, Tran et al. studied how GenAI supports EFL teachers in enhancing their professionalism [31], but there isn't much research on this topic yet.

Despite increasing global attention to AI-assisted teacher development, limited research has addressed how GenAI facilitates EFL teachers' self-professionalism in Vietnam. In particular, little is known about how frequently Vietnamese teachers engage with GenAI tools,

or how they perceive their contribution to their professional growth.

2.3. TPACK Framework with GenAI for teacher professional development

2.3.1. The TPACK framework and its knowledge components

In today's fast-changing, GenAI-driven educational environment, EFL teachers are expected not only to stay updated with technological innovations but also to adapt and embed them efficiently into their pedagogical practices. The TPACK framework offers a useful lens for examining how teachers integrate technology, pedagogy, and content knowledge into their language instruction [19]. In this sense, it helps evaluate whether instruction is both pedagogically sound and technologically enhanced [21]. For this reason, TPACK has been increasingly utilized in teacher development to equip educators with competencies needed for 21st-century classrooms [10].

In addition to distinct domains, which are content knowledge (CK), pedagogical knowledge (PK), and technological knowledge (TK), the TPACK emphasizes that true effectiveness lies in their intersections. These overlaps generate four additional knowledge areas: Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and the integrated Technological Pedagogical Content Knowledge (TPACK) [21].

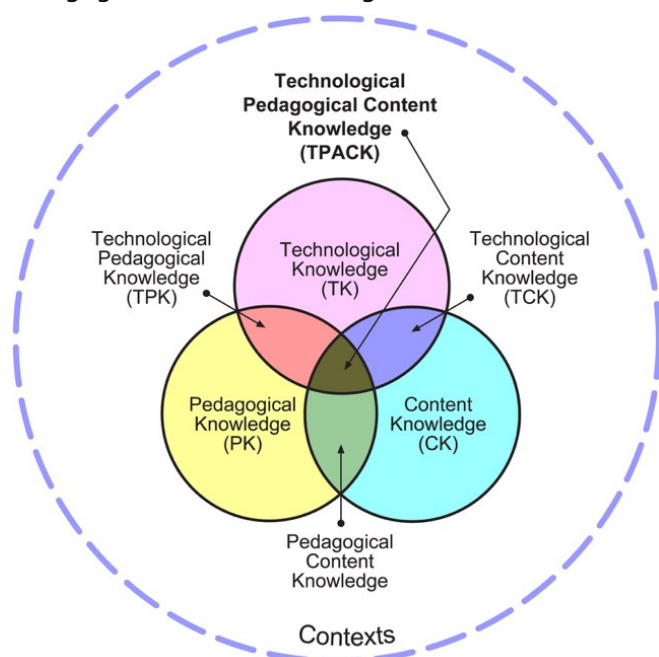


Figure 1. The TPACK framework [21]

The framework highlights the complex relationships among these domains, showing that teachers must not only know their subject and teaching methods but also understand how technology reshapes both content delivery and pedagogy [2], as shown in Figure 1.

The TPACK framework encompasses seven interconnected domains that together capture the knowledge required for effective technology integration in teaching [21]. Specifically, Content Knowledge (CK) concerns teachers' command of subject matter within a specific discipline, which is essential for disciplinary thinking and effective teaching. Pedagogical Knowledge (PK) involves general teaching practices such as lesson planning, classroom management, assessment, and strategies to support learning. Technological Knowledge (TK) encompasses teachers' ability to use and adapt digital tools, hardware, and emerging technologies for educational purposes like communication, research, or classroom presentations. At the intersections, Pedagogical Content Knowledge (PCK) emphasizes that different subjects demand specific teaching approaches, such as student-centered methods for language learning. Regarding Technological Content Knowledge (TCK), it reflects how technology reshapes subject matter and opens new possibilities for knowledge representation. In addition, Technological Pedagogical Knowledge (TPK) refers to selecting and adapting tools to support pedagogical goals, including online or blended learning. Finally, Technological Pedagogical Content Knowledge (TPACK) integrates three domains, enabling teachers to design meaningful, context-appropriate, and technology-enhanced learning experiences [2, 21].

2.3.2. TPACK framework for teacher professional development

The TPACK framework has become a widely adopted model for teacher professional growth, since it highlights dynamic interplays between content, pedagogy, and technology that characterize professional teaching [23]. In EFL contexts, it has been used extensively to design training programs that support teachers in adapting to technology-rich classrooms. Recent studies have employed this framework to explore how GenAI can be incorporated into ELT and teacher development. Findings show that GenAI can enrich pedagogical practices by offering personalized resources, interactive classroom tasks, and automated feedback, which in turn enhances student participation and increases teacher adaptability [19]. Moreover, teachers reported that GenAI

Table 1. Development of questionnaire items based on the TPACK framework

TPACK domain	Description of competence on TPACK	Source	Items on GenAI-mediated self-professionalism activities
Technological Knowledge (TK)	- Ability to use digital tools and GenAI - Understanding software, hardware, and online platforms	[2]	- use GenAI tools to explore new educational technologies - experiment with AI-generated tools to enhance my digital literacy - learn to troubleshoot AI-related issues in teaching - keep updated on emerging GenAI features relevant to language teaching
Pedagogical Knowledge (PK)	- Knowledge of instructional methods & strategies - Classroom management, motivation, assessment - Designing effective lesson plans	[2, 11, 30]	- use GenAI to design interactive classroom activities - adapt AI-generated lesson plans to fit different learning styles - use GenAI to improve my classroom management strategies - use GenAI to create assessment strategies for my students
Content Knowledge (CK)	- Mastery of subject matter	[21]	- use GenAI to generate and refine subject-specific teaching materials - consult AI tools to update my knowledge of language structures and usage - explore AI-generated content to expand my domain expertise - verify AI-generated information with academic sources to ensure content accuracy
Pedagogical Content Knowledge (PCK)	- Selecting methods that best match content - Adapting pedagogy to teach specific EFL areas	[2]	- adapt AI-generated teaching materials to match learners' proficiency levels - use GenAI to create subject-specific practice tasks - modify AI-suggested activities for better student comprehension - design assessments based on AI-generated item banks
Technological Pedagogical Knowledge (TPK)	- Applying technology to pedagogy - Choosing tools suited to teaching strategies - Designing online/interactive learning	[21]	- use GenAI to design technology-enhanced teaching strategies - adapt AI-recommended tools for active learning - explore AI suggestions for blended or flipped learning models - assess the effectiveness of AI-integrated teaching methods
Technological Content Knowledge (TCK)	- Using technology to represent content - Understanding how technology changes content delivery	[21]	- use GenAI to find technology tools suitable for specific language topics - integrate AI-suggested apps or software to present subject content effectively - adapt AI recommendations for content delivery in my subject area - explore AI-based simulations or games to enhance content learning
Technological Pedagogical Content Knowledge (TPACK)	- Integrating technology, pedagogy, and content effectively - Teaching context-specific content with appropriate tools	[21]	- use GenAI to create integrated lesson plans combining pedagogy, content, and technology - evaluate AI-generated teaching ideas for holistic classroom integration - customize AI tools to address specific teaching challenges in EFL - reflect on AI-assisted lessons to improve future teaching practice

contributes to their professional growth by offering real-time content to refine teaching strategies and fit the learners' needs, although concerns about ethics and over-dependence remain [19]. Research further indicates that TPACK-based development programs boost teachers' efficacy and competence related to using technology [12, 33], with novice teachers often excelling in technological knowledge while more experienced teachers demonstrate stronger pedagogical expertise [23]. Similarly, Ansyari found that professional

development grounded in TPACK and supported by authentic practice, collaboration, and ongoing feedback significantly improved teachers' technology integration skills [5].

Taken together, this evidence suggests that the TPACK framework ensures a more balanced integration of technology, particularly GenAI tools, by helping teachers consider practical applications, potential challenges, and strategies for meaningful use. As Ning et al. emphasize, aligning digital tools with pedagogical

aims and content needs is crucial, and the TPACK framework provides a valuable perspective for guiding this process [25]. Therefore, it provides a strong theoretical foundation for examining EFL teachers' professional development and self-professionalism in technology-enhanced contexts.

The review of literature was utilized for the adaptation of various items of the questionnaire. This table outlines the key characteristics of each TPACK domain alongside examples of professional development activities, thereby serving as a basis for designing the questionnaire items for this pilot study.

3. METHODOLOGY

3.1. Research Design

This paper employed a pilot quantitative design, using a questionnaire survey as the primary tool for data collection. The pilot study was employed due to the limited number of participants, to test the clarity of the instrument, explore initial trends, and identify potential issues before expanding to larger-scale research. This approach allowed the author to obtain initial insights into how EFL teachers engage in self-professionalism activities mediated by GenAI, the frequency of such activities, and their attitudes toward GenAI in professional development. The design also suggested the correlation between teachers' engagement levels and their attitudes toward GenAI-mediated self-professionalism.

3.2. Participants

The pilot study involved 34 EFL teachers from a Vietnamese university. This number represents the total sample actually obtained during the data collection. A convenience sampling technique was employed to recruit respondents who were currently teaching English at the tertiary level. The limited sample size was due to practical constraints related to time, access, and availability of participants. The study ensured that participants were clearly informed about its purpose and procedures, and their involvement was both voluntary and anonymous to uphold research ethics. Because the study was limited to a single institution and a small sample ($N = 34$), the findings are exploratory and not generalizable.

3.3. Research Instrument

The pilot study employed a structured questionnaire as its primary instrument, adapted from the TPACK framework [21] and prior studies on teacher

professionalism and GenAI integration. The questionnaire was designed not only to collect data but also to test the clarity, reliability, and feasibility of the items for future large-scale use. It consisted of three sections: (1) demographic information including gender, age, teaching experience, and academic qualifications; (2) engagement and frequency of GenAI-mediated self-professionalism activities, organized under TPACK domains and measured on a 5-point Likert scale ranging from 1 ("Never") to 5 ("Always"); and (3) attitudes toward GenAI-mediated self-professionalism, assessed through statements rated on a 5-point Likert scale from 1 ("Strongly disagree") to 5 ("Strongly agree").

The draft questionnaire was first reviewed by two experts in applied linguistics and educational technology to check for clarity and content validity. After that, a small pre-test was carried out with five EFL teachers to see if the wording, order of items, and instructions were easy to follow. Based on their feedback, some small changes were made to make the language clearer and avoid confusion. In the pilot test, the reliability of the questionnaire was checked using Cronbach's alpha. All domains showed good to high internal consistency (overall $\alpha = 0.957$). These steps helped improve the questionnaire and gave early evidence that it can be used to study GenAI-mediated self-professionalism. However, further testing with larger and more diverse samples is still needed.

3.4. Data collection and analysis

The questionnaire was administered online via Google Forms to facilitate convenient and efficient data gathering. An invitation link was shared through institutional emails and professional networks. Data were collected over two weeks.

Data were analyzed using SPSS 31.0. The pilot study used descriptive statistics (mean, standard deviation, frequency, percentage) to gain insights into demographic information and the levels of engagement, frequency, and attitudes toward GenAI-mediated self-professionalism activities. Cronbach's alpha was computed to examine internal consistency across the questionnaire domains. Pearson correlation analysis was also conducted to provide initial indications of the correlation between EFL teachers' engagement in and their attitudes toward such practices. A simple linear regression was also performed to explore whether engagement could predict attitudes toward GenAI use for professional development.

4. RESULTS

4.1. Demographic information

The demographic characteristics of the 34 EFL teachers involved in this pilot study are shown in the Figures 2 ÷ 5. These data provide an overview of the participants' age, gender, teaching experience, and academic qualifications.

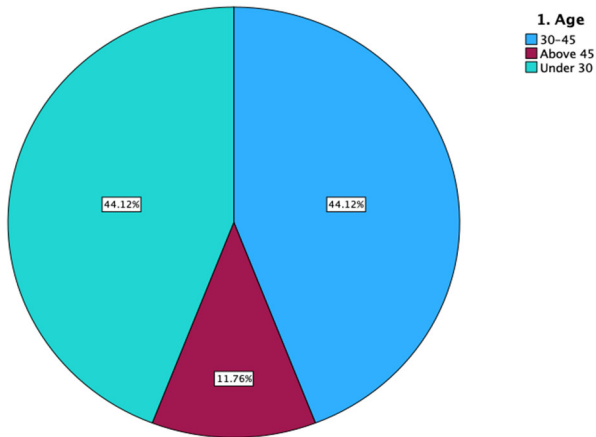


Figure 2. Age

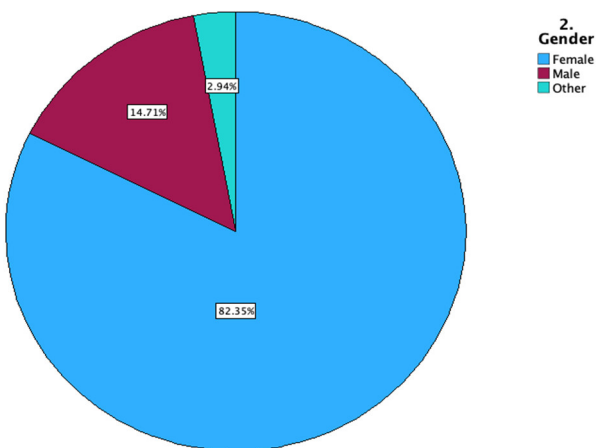


Figure 3. Gender

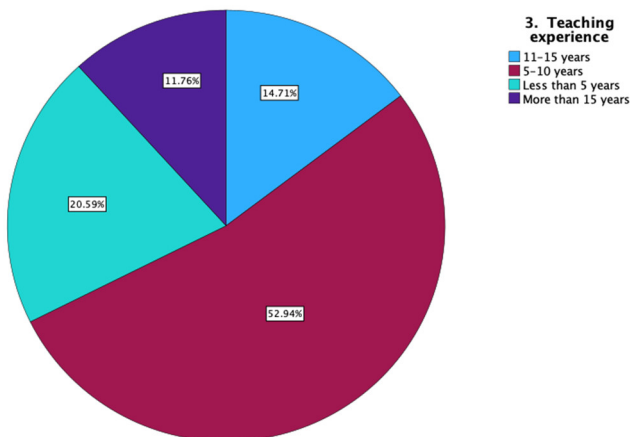


Figure 4. Teaching experience

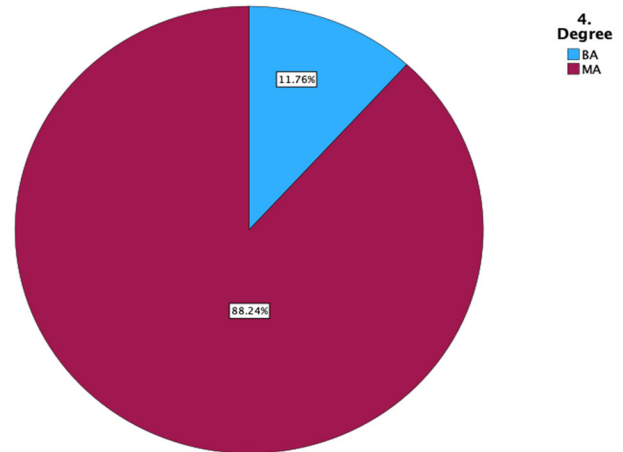


Figure 5. Academic qualifications

There were 34 EFL teachers participating in the study. Regarding age, the distribution was balanced, with 44.1% of respondents under 30 years old ($n = 15$) and an equal proportion between 30-45 years old (44.1%, $n = 15$), as shown in Figure 2. Only a small group (11.8%, $n = 4$) was above 45 years old. In terms of gender, as illustrated in Figure 3, the sample was predominantly female (82.4%, $n = 28$), while male teachers accounted for 14.7% ($n = 5$), and one participant identified as "Other" (2.9%). With respect to teaching experience, the majority had 5-10 years of teaching (52.9%, $n = 18$). Fewer participants reported less than 5 years (20.6%, $n = 7$) or 11-15 years (14.7%, $n = 5$), while 11.8% ($n = 4$) had more than 15 years of teaching (see Figure 4). For academic qualifications, most participants held Master's degrees (88.2%, $n = 30$), while a smaller proportion held Bachelor's degrees (11.8%, $n = 4$) (see Figure 5).

4.2. Main findings

4.2.1. Reliability statistics results

The validity of the instrument was confirmed by testing internal consistency through Cronbach's Alpha for each questionnaire domain. Table 2 presents the reliability statistics for each domain of the TPACK framework and the attitude scale.

Table 2. Reliability statistics of the questionnaire

TPACK Domains	N of items	Cronbach's Alpha
Technological Knowledge (TK)	4	0.888
Content Knowledge (CK)	4	0.876
Pedagogical Knowledge (PK)	4	0.863
Pedagogical Content Knowledge (PCK)	4	0.883
Technological Content Knowledge (TCK)	4	0.830

Technological Pedagogical Knowledge (TPK)	4	0.832
Technological Pedagogical Content Knowledge (TPACK)	4	0.909
Attitude (A)	8	0.859
Total	36	0.957

As shown in Table 2, all domains demonstrated strong reliability, with coefficients well above the acceptable threshold of 0.70. Specifically, the subscales of Technological Knowledge (TK, $\alpha = 0.888$), Content Knowledge (CK, $\alpha = 0.876$), Pedagogical Knowledge (PK,

$\alpha = 0.863$), Pedagogical Content Knowledge (PCK, $\alpha = 0.883$), Technological Content Knowledge (TCK, $\alpha = 0.830$), Technological Pedagogical Knowledge (TPK, $\alpha = 0.832$), and Technological Pedagogical Content Knowledge (TPACK, $\alpha = 0.909$) all indicated high levels of internal consistency.

In addition, the Attitude scale (A, $\alpha = 0.859$) also achieved high reliability. The overall instrument, consisting of 36 items, yielded an excellent Cronbach's Alpha of 0.957, confirming that the entire questionnaire demonstrated excellent reliability and was suitable for further statistical analyses.

Table 3. EFL teachers' engagement in self-professionalism activities mediated by GenAI

Items	Statements	N	Mean	Std. Deviation
TK1	I use GenAI tools to explore new educational technologies.	34	3.47	0.992
TK2	I experiment with AI-generated tools to enhance my digital literacy.	34	3.50	1.052
TK3	I learn to troubleshoot AI-related issues in teaching.	34	3.47	0.861
TK4	I keep updated on emerging GenAI features relevant to language teaching.	34	3.47	0.961
CK1	I use GenAI to generate and refine subject-specific teaching materials.	34	3.76	0.781
CK2	I consult AI tools to update my knowledge of language structures and usage.	34	3.74	0.898
CK3	I explore AI-generated content to expand my domain expertise.	34	3.56	0.786
CK4	I verify AI-generated information with academic sources to ensure content accuracy.	34	3.56	0.991
PK1	I use GenAI to design interactive classroom activities.	34	4.00	0.816
PK2	I adapt AI-generated lesson plans to fit different learning styles.	34	3.91	0.830
PK3	I use GenAI to improve my classroom management strategies.	34	3.53	0.961
PK4	I use GenAI to create assessment strategies for my students.	34	3.26	1.053
PCK1	I adapt AI-generated teaching materials to match learners' proficiency levels.	34	3.71	0.906
PCK2	I use GenAI to create subject-specific practice tasks.	34	3.62	0.888
PCK3	I modify AI-suggested activities for better student comprehension.	34	3.79	0.914
PCK4	I design assessments based on AI-generated item banks.	34	3.35	0.981
TCK1	I use GenAI to find technology tools suitable for specific language topics.	34	3.29	1.060
TCK2	I integrate AI-suggested apps or software to present subject content effectively.	34	3.32	0.976
TCK3	I adapt AI recommendations for content delivery in my subject area.	34	3.50	0.961
TCK4	I explore AI-based simulations or games to enhance content learning.	34	3.47	0.896
TPK1	I use GenAI to design technology-enhanced teaching strategies.	34	3.24	0.923
TPK2	I adapt AI-recommended tools for active learning.	34	3.41	0.957
TPK3	I explore AI suggestions for blended or flipped learning models.	34	3.59	0.743
TPK4	I assess the effectiveness of AI-integrated teaching methods.	34	3.35	0.884
TPACK1	I use GenAI to create integrated lesson plans combining pedagogy, content, and technology.	34	3.68	0.727
TPACK2	I evaluate AI-generated teaching ideas for holistic classroom integration.	34	3.50	0.749
TPACK3	I customize AI tools to address specific teaching challenges in EFL.	34	3.68	0.727
TPACK4	I reflect on AI-assisted lessons to improve future teaching practice.	34	3.74	0.751
Valid N (listwise)		34		

4.2.2. EFL teachers' engagement in self-professionalism activities mediated by GenAI

The preliminary findings indicate that all participating teachers (100%, $n = 34$) reported having used Generative AI tools (e.g., ChatGPT, Grammarly, Quillbot) in their teaching or professional development. The extent to which EFL teachers are involved in these self-professionalism activities was examined through descriptive statistics across the TPACK domains. Table 3 summarizes teachers' responses to 28 items, reflecting their practices in technological, content, pedagogical, and integrative knowledge when using GenAI tools for professional development.

The descriptive statistics indicate that EFL teachers demonstrate moderate to high levels of engagement with GenAI across the TPACK constructs. In the Technological Knowledge (TK) domain, teachers showed consistent engagement in exploring new educational technologies, enhancing digital literacy, and keeping updated on GenAI features, all with mean scores around 3.47 - 3.50. However, troubleshooting AI-related issues received a relatively lower score, suggesting teachers may feel less confident in handling technical challenges. In the Content Knowledge (CK) domain, engagement was slightly higher, with means ranging from 3.56 to 3.76. The strongest agreement was observed in generating and refining subject-specific materials ($M = 3.76$), while verifying AI-generated content for accuracy ($M = 3.56$) reflected a cautious and critical approach. Similarly, in the Pedagogical Knowledge (PK) domain, teachers reported strong engagement, particularly in designing interactive classroom activities ($M = 4.00$) and adapting AI lesson plans ($M = 3.91$). Nevertheless, the relatively lower score for using AI in assessment design ($M = 3.26$) highlights an area of more limited application. For Pedagogical Content Knowledge (PCK), teachers reported moderate-to-high use of GenAI ($M = 3.35 - 3.79$). They frequently modified AI-suggested activities for better student comprehension ($M = 3.79$), though reliance on AI-generated item banks for assessment ($M = 3.35$) was again limited. In the Technological Content Knowledge (TCK) domain, engagement was modest ($M = 3.29 - 3.50$), with teachers more willing to adapt AI recommendations for content delivery but less engaged in exploring AI-based simulations and games. The Technological Pedagogical Knowledge (TPK) domain also reflected moderate engagement ($M = 3.24 - 3.59$), particularly in exploring AI suggestions for blended or flipped learning

($M = 3.59$). Still, designing technology-enhanced strategies ($M = 3.24$) appeared less frequently practiced. Finally, in the integrated TPACK domain, teachers reported relatively high engagement ($M = 3.50 - 3.74$). They particularly valued reflecting on AI-assisted lessons to improve future teaching practices ($M = 3.74$), which indicates a developing habit of integrating AI critically into their pedagogy.

Overall, the pilot results suggest that teachers are actively incorporating GenAI into their professional practice, especially in areas related to lesson design, interactivity, and content creation. However, engagement is more limited when it comes to AI-assisted assessment and troubleshooting technical issues, pointing to areas where further support and training may be needed.

4.2.3. EFL teachers' attitudes toward GenAI use for professional development

To gain further insights into teachers' perceptions of GenAI, the pilot study also investigated their attitudes toward using such tools for self-professionalism. The descriptive statistics are presented in Table 4.

Table 4. EFL teachers' attitudes toward self-professionalism mediated by GenAI

Items	Statements	N	Mean	Std. Deviation
A1	I believe GenAI can effectively support my professional development as a teacher.	34	3.97	0.797
A2	I feel confident in my ability to use GenAI to enhance my TPACK skills.	34	3.47	0.825
A3	I trust the information and suggestions provided by GenAI tools for teaching purposes.	34	3.06	0.736
A4	I am motivated to explore new ways to integrate GenAI into my self-professionalism activities.	34	3.82	0.673
A5	I believe GenAI will become an essential tool for future teacher professional development.	34	3.97	0.797
A6	I am concerned about possible ethical or academic issues when using GenAI for teaching.	34	4.18	0.758
A7	I am ready to spend time and effort to learn how to use GenAI efficiently.	34	3.79	0.687

A8	Using GenAI increases my creativity and innovation in lesson planning.	34	3.65	0.849
Valid N (listwise)		34		

The descriptive statistics suggest that EFL teachers generally hold positive attitudes toward generative AI (GenAI) in their professional development, though their perceptions vary across specific aspects. Teachers strongly acknowledged the potential of GenAI for future teacher development (A5, $M = 3.97$) and its current role in supporting their professional growth (A1, $M = 3.97$). They also expressed high motivation to explore new integration methods (A4, $M = 3.82$) and a willingness to invest effort in learning GenAI (A7, $M = 3.79$). These preliminary findings point to the potential of GenAI. Concerns about ethics and academic integrity (A6, $M = 4.18$) received the highest mean, showing that while teachers recognize GenAI's benefits, they remain cautious about issues related to plagiarism, data privacy, and overreliance on AI-generated outputs. Confidence in using GenAI to enhance TPACK skills (A2, $M = 3.47$) was moderate, suggesting that some teachers may feel they still lack the expertise or training to maximize its potential. Similarly, trust in AI-generated information (A3, $M = 3.06$) was the lowest-rated item, reflecting a healthy skepticism and the urge for critical appraisals of AI content. Interestingly, teachers reported that using GenAI stimulates creativity and innovation in lesson planning (A8, $M = 3.65$), aligning with their motivation to explore AI for pedagogical purposes. However, this enthusiasm is tempered by their concerns about ethical implications and doubts about the reliability of AI-generated suggestions.

4.2.4. The correlation between teachers' engagement in such activities and their attitudes

To further explore the relationship between teachers' engagement in and their attitudes toward GenAI use for professional development, correlation and regression analyses were performed as shown in Tables 5, 6, and 7.

The Pearson correlation analysis demonstrated a strong positive association between EFL teachers' engagement (Section 2) and their attitudes toward using GenAI for professional development (Section 3), $r = 0.679$, $p < 0.001$. This finding suggests that teachers who engage more frequently with GenAI tend to hold more favorable attitudes toward their role in professional growth. The correlation, which is statistically significant at

the 0.01 level, indicates that the observed relationship is highly unlikely to have occurred by chance.

Table 5. Correlation Between Engagement and Attitudes

		Engagement _Total	Attitude _Total
Engagement_Total	Pearson Correlation (r)	1	0.679**
	Sig. (2-tailed)		<0.001
	N	34	34
Attitude_Total	Pearson Correlation (r)	0.679**	1
	Sig. (2-tailed)	<0.001	
	N	34	34
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 6. Model Summary of Simple Linear Regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.679 ^a	0.460	0.444	0.40635
a. Predictors: (Constant), Engagement_Total				

Table 7. Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.526	0.429		3.556	0.001
	Engagement_Total	0.623	0.119	0.679	5.226	<0.001
a. Dependent Variable: Attitude_Total						

A simple linear regression was also conducted to examine whether engagement predicted attitudes toward GenAI use for professional development. Results indicated that engagement was a significant predictor of attitudes ($R = 0.679$, $R^2 = 0.460$, $F(1, 32) = 27.31$, $p < 0.001$). The regression equation was significant, Attitudes = $1.526 + 0.623 \times \text{Engagement}$. The standardized coefficient ($\beta = 0.679$, $p < 0.001$) suggested that higher engagement was strongly associated with more positive attitudes.

5. DISCUSSION & IMPLICATIONS

5.1. Discussion

The preliminary results showed that teachers engaged with GenAI-mediated self-professionalism across the TPACK domains at a moderate to moderately high level. They reported the highest engagement in pedagogical use, especially for preparing classroom activities, while lower engagement appeared in technological and content-related integration. This

suggests that teachers are confident in using GenAI for general teaching support but still need more experience in applying it meaningfully to subject-specific instruction. Teachers expressed generally positive attitudes toward GenAI, particularly in recognizing its potential to enhance professional development and future teaching practices. However, a cautious stance was also evident, as some participants questioned the accuracy and reliability of AI-generated outputs. This balance of optimism and caution reflects teachers' critical awareness of both opportunities and limitations when adopting GenAI. The findings align closely with those of Nazim and Alzubi, who explored EFL teachers' perceptions of self-professionalism activities with GenAI [24]. Their study, which surveyed 278 teachers across eight public universities, similarly revealed that the teachers involved self-professionalism at a medium level but demonstrated highly positive attitudes toward GenAI [24]. Both studies highlight teachers' willingness to adopt GenAI while simultaneously pointing to barriers such as limited technological competence, insufficient AI literacy, ethical concerns, and doubts about content reliability.

Furthermore, this pilot study indicated that there was a strong connection between engagement and attitudes ($r = 0.68$, $p < 0.001$). Regression results further indicated that engagement significantly predicted attitudes, explaining nearly half of the variance ($R^2 = 0.46$). This means that teachers who actively integrate GenAI into their practice tend to develop more favorable attitudes toward its role in education, supporting the idea that experience fosters acceptance and confidence in technology use. These results provide a foundation for refining the instrument and expanding to a multi-institutional study with a larger sample.

As part of this pilot study, the questionnaire was also evaluated for reliability and clarity. The internal consistency of the scales was assessed using Cronbach's alpha, with all domains showing high reliability (overall $\alpha = 0.957$). These findings suggest that the instrument is feasible for use in larger-scale studies, though further validation with broader samples is still needed.

5.2. Implications

Several implications for EFL teacher development and educational practice can be offered from this pilot study. First, since teachers' engagement with GenAI was found to be positively linked with their attitudes, institutions should create more opportunities for hands-on practice with AI tools in teacher training programs. Providing guided workshops, peer-sharing sessions, and ongoing

support could help teachers gain confidence and deepen their integration of AI into pedagogy. Second, the generally positive yet cautious attitudes observed highlight the need for critical digital literacy training. Teachers should be equipped not only to use GenAI effectively but also to evaluate its outputs critically and ethically, particularly in relation to accuracy, bias, and academic integrity. There is still a considerable gap in how well teachers are trained and prepared to integrate these technologies into their practice [30]. According to Moorhouse and Kohnke, without adequate institutional support and well-structured professional development, teachers may struggle to maximize the potential of GenAI applications [22]. Finally, policymakers and curriculum designers should consider how GenAI can be systematically embedded into language education in ways that support both teachers' self-professionalism and students' learning. By doing so, GenAI can move beyond being an optional tool toward becoming a meaningful component of sustainable teaching practice.

5.3. Limitations

Although this study provides preliminary insights into EFL teachers' engagement with and attitudes toward GenAI, several limitations should be acknowledged. First, the relatively small sample ($n = 34$), drawn from a single institution, limits the extent to which the findings can be generalized to broader contexts or larger populations. However, as a pilot study, it offers useful preliminary evidence and highlights the feasibility of applying the TPACK framework to GenAI-mediated self-professionalism. Second, the reliance on self-reported questionnaire data raises the possibility of social desirability bias or varied interpretations of survey items. In addition, this study relied mainly on Cronbach's alpha to assess the internal consistency of the instrument. While the results showed high reliability, further statistical analyses such as item-total correlations, factor analysis (EFA/CFA), and composite reliability (CR/AVE) were not feasible due to the small sample size. To address these issues, future research should therefore include larger and more diverse samples across multiple institutions to enhance representativeness and provide stronger evidence for the reliability and validity of the survey instrument. Longitudinal studies would be valuable to examine how teachers' engagement and attitudes toward GenAI change over time. In addition, adopting a mixed-methods design that integrates surveys with in-depth interviews could provide richer insights into actual practices rather than self-reported behaviors.

6. CONCLUSION

Overall, this article provides preliminary insights into how EFL teachers engage with GenAI tools in their self-professionalism and how they perceive such tools. The participants reported active use of GenAI, particularly for pedagogical applications, with generally positive attitudes tempered by concerns about trust, ethics, and responsible use. Importantly, the exploratory findings suggest a strong association between engagement and attitudes, indicating that hands-on experience with AI may foster more favorable perceptions and greater acceptance in EFL settings. This study also tested the reliability and feasibility of the survey instrument, with high internal consistency across domains, suggesting that the tool is suitable for further research. While the results cannot be generalized due to the limited sample size, they nonetheless highlight the potential of GenAI as a valuable resource for EFL teacher professional growth. These findings point to the need for PD programs that go beyond raising awareness of GenAI to providing structured opportunities for teachers to experiment with and reflect on AI-enhanced practices across TPACK domains. Future studies with larger, multi-institutional samples and mixed-methods designs will be essential to validate these trends and build a more comprehensive understanding of GenAI-mediated self-professionalism in language education.

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