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The Effects of a Professional Development Training Course on EFL Teachers' ChatGPT Literacy and Practices

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1. Introduction

The widespread use of generative artificial intelligence (GenAI) has rapidly expanded in modern society, with significant implications for the field of English as a Foreign Language (EFL) education (Lim et al., 2023). In EFL contexts, GenAI refers to the capacity of machines to create language-related content, such as example sentences, conversation simulations, and essay feedback, based on patterns learned from linguistic data (Dwivedi et al., 2023; Lim et al., 2023). Among the most widely discussed GenAI tools today is ChatGPT. This platform holds the potential to transform EFL teaching and learning practices through its ability to simulate natural conversations, generate contextualised language input, and provide instant feedback (Jeon & Lee, 2023; Kohnke et al., 2023; Tlili et al., 2023). Its integration into EFL classrooms offers opportunities for enhanced language learning personalisation, accessibility to authentic materials, and innovative pedagogical approaches.

ChatGPT literacy, defined as effectively utilising ChatGPT's educational potential while addressing its limitations, is becoming an essential skill for educators (Ma et al., 2024). For EFL teachers, this literacy involves critically evaluating ChatGPT's responses, designing precise prompts, incorporating them into teaching materials and assessments, and ensuring their ethical use (Ma et al., 2024). Research suggests that mastering these skills can significantly enhance teaching practices by enabling teachers to provide personalised learning experiences tailored to students' needs (Kohnke et al., 2023; Tlili et al., 2023). Integrating ChatGPT into the classroom has improved learners' critical thinking and autonomy by fostering interaction with AI-generated content (Jeon & Lee, 2023). Understanding the limitations and biases of tools like ChatGPT further equips teachers to create responsible and engaging language learning environments, aligning with the principles of ethical GenAI use in education (Dwivedi et al., 2023; Lim et al., 2023).

Professional development training courses are crucial to maximise the benefits of GenAI tools, especially ChatGPT, for EFL teaching (Bax, 2019). These courses equip EFL teachers with the skills to effectively integrate GenAI tools into their practice, addressing diverse learner needs, enhancing language instruction, and fostering critical thinking and digital literacy among students (Godwin-Jones, 2020; Reinders & White, 2016). Such training helps teachers design innovative, interactive lessons while ensuring AI's ethical and responsible use in education (Warschauer & Grimes, 2008; Selwyn, 2019). Yet, there is a lack of research that implements training to enhance EFL teachers' ChatGPT literacy. To fill this research gap, this study explores the effects of a professional development training course on EFL teachers' ChatGPT literacy and teaching practices. It seeks to examine how such training enhances teachers' understanding and application of GenAI tools more broadly, fostering innovative, student-centred learning environments (Puentedura, 2014).

2. Literature Review

2.1 EFL Teachers' GenAI Literacy

Generative AI (GenAI) tools, such as ChatGPT, have opened new possibilities in language education, prompting scholars to explore the concept of GenAI literacy among educators (Huang & Johnson, 2023). Ma et al. (2024), in their study *Exploring ChatGPT Literacy in Language Education: A Global Perspective and Comprehensive Approach*, propose a six-construct framework for ChatGPT literacy. This framework encompasses understanding benefits, recognising limitations, designing effective prompts, evaluating responses, utilising ChatGPT for assessments, and adhering to ethical considerations. Based on data collected from 492 language teachers across 41 countries, the study validates the framework using quantitative and qualitative methods (Ma et al., 2024).

This framework is significant as one of the earliest comprehensive models to address ChatGPT literacy, offering a structured approach to understanding its multifaceted applications in language education (Boulton, 2022). The study highlights the transformative potential of ChatGPT, which has been widely integrated throughout the instructional cycle, from material preparation to formative and summative assessments (Mishra & Mehta, 2023). It underscores educators' challenges, such as ethical concerns, biases in AI-generated content, and varying proficiency levels in designing effective prompts (Graham & Smith, 2023).

Importantly, Ma et al. (2024) reveal critical gaps in EFL teachers' ChatGPT literacy, particularly in recognising and mitigating biases, creating pedagogically sound prompts, and ensuring ethical use in classroom settings. These gaps underscore the necessity of targeted professional development training to equip educators with the skills required to navigate these challenges (Bax, 2019). While the framework offers valuable theoretical insights, its applicability to specific contexts, such as non-native EFL classrooms or under-resourced educational settings, remains underexplored (Godwin-Jones, 2020).

Building on these insights, the current study investigates how professional development training can enhance EFL teachers' GenAI literacy and help them effectively integrate GenAI tools into their instructional practices across diverse teaching contexts. By addressing existing gaps and tailoring training to the needs of EFL teachers, this research aims to contribute to a more effective and ethical integration of ChatGPT in language education (Reinders & White, 2016).

2.2 EFL Teacher Professional Development

Teacher professional development is critical for fostering effective teaching practices, especially in EFL contexts. As UNESCO (2015) notes, "An education system is only as good as its teachers," underscoring the importance of equipping educators with the skills and knowledge necessary for successful instruction. Glatthorn (1995) defines professional development as gaining experience and systematically reflecting on one's teaching. Similarly, Freeman (1989) emphasises reflection as a transformative process that enhances teacher awareness and drives pedagogical change. Day (1999) expands the concept by including emotional intelligence as a crucial aspect of professional growth, highlighting its multidimensional nature.

Research on EFL teacher professional development typically categorises training into organisational partnership models and small-group or individual approaches (Villegas-Reimers, 2003). Organisational partnership models, supported by institutions and often in collaboration with universities, provide structured, long-term opportunities such as workshops, mentoring, and certification programs. Conversely, small-group or individual approaches, including classroom observations, peer collaboration, and teaching conferences, offer more personalised learning experiences tailored to individual teacher needs and contexts.

Professional development offers immediate benefits by enhancing teachers' pedagogical skills and content knowledge, leading to noticeable improvements in classroom practices (Murray, 2010). It fosters teacher empowerment, collaboration, and reduced professional isolation, enabling sustained contributions to institutional growth (Rodríguez Bonces, 2014). However, to be effective, professional development programs must align with teachers' career stages, specific teaching contexts, and individual needs (Diaz-Maggioli, 2004).

Despite its established significance, research on EFL teacher professional development has several limitations. First, many studies fail to account for the unique needs of EFL teachers, often generalising findings across disciplines (e.g., STEM, humanities) and linguistic contexts (e.g., teaching in native-speaking versus non-native-speaking environments). This lack of specificity risks overlooking challenges unique to EFL classrooms, such as cultural nuances and second-language acquisition barriers (Borg, 2015). Second, research frequently prioritises immediate outcomes, such as skill acquisition, over the deeper integration of professional development into teachers' ongoing practices (Darling-Hammond, 2009). Finally, there is a limited exploration of how emerging technologies, such as GenAI tools, can be effectively integrated into professional development programs. This gap is particularly pressing as modern classrooms increasingly rely on digital tools to enhance teaching and learning (Chaudhury & Ali, 2021).

More research should adopt a more context-specific approach to address these limitations, focusing on the unique challenges EFL teachers face across diverse educational settings. Integrating innovative training methods, such as GenAI tools like ChatGPT, could significantly enhance teachers' digital literacy and preparedness for contemporary classroom demands. Empowering teachers to participate in the design of professional development programs ensures alignment with their needs and aspirations, fostering greater engagement and effectiveness (Rodríguez Bonces, 2014).

2.3 Research Questions

This project addresses the following research questions (RQs):

(1) How does teacher training affect EFL teachers' ChatGPT literacy?

(2) What concerns do EFL teachers express regarding using ChatGPT and GenAI more broadly, and how does training address these concerns?

(3) What are EFL teachers' perceptions of the training they receive on ChatGPT literacy and practices?

(4) What changes do EFL teachers make in their classroom practices after receiving training on ChatGPT literacy and practices?

3. Methodology

3.1 Research Design

This study adopts a mixed-methods approach to explore the impact of professional development training on EFL teachers' ChatGPT literacy and practices. By integrating quantitative and qualitative data, this approach provides a comprehensive understanding of how training influences teachers' knowledge, perceptions, and classroom behaviors (Creswell & Plano Clark, 2023; Johnson et al., 2007). A pre-post intervention study will serve as the primary design, enabling the measurement of changes in teachers' ChatGPT literacy and practices before and after the training.

The pre-intervention phase will assess teachers' baseline ChatGPT literacy and their initial perceptions and practices regarding the use of GenAI tools through a questionnaire. Following this, I will deliver the training intervention to the teachers with a focus on equipping them with the knowledge and skills outlined in the ChatGPT literacy framework proposed by Ma et al. (2024). Post-intervention assessments will measure improvements in ChatGPT literacy, shifts in perceptions, and changes in classroom practices using the same questionnaire. The qualitative component will further contextualize these findings by exploring teachers' experiences, challenges, and reflections through open-ended questions in the questionnaire, interviews and reflective journals.

3.2 Participants

Participants will be selected using purposive sampling to ensure a diverse representation of EFL teachers with varying levels of teaching experience. The sample will include novice teachers (1–3 years of experience), mid-career teachers (4–10 years of experience), and experienced teachers (10+ years of experience). This diversity aims to capture how teachers at different career stages engage with and benefit from the training (Cohen et al., 2018). The target sample size will be approximately 10–15 participants per experience level, resulting in a total of 30–45 participants. This size ensures sufficient data for both quantitative and qualitative analysis while maintaining feasibility for conducting in-depth interviews and focus groups (Flick, 2018).

Participants will be recruited through my professional networks, teacher associations, and online platforms such as educational forums and social media groups dedicated to EFL teaching. Recruitment will involve distributing an invitation letter outlining the study's purpose, procedures, and potential benefits. Interested participants will be asked to complete a brief screening questionnaire to confirm their eligibility and willingness to participate (Robson & McCartan, 2016).

Ethical issues will be addressed to ensure the study complies with research standards and respects participants' rights. Informed consent will be obtained from all participants, who will receive detailed information about the study's objectives, procedures, and potential risks (Israel & Hay, 2006). Participants will have the right to withdraw from the study at any point without penalty. Confidentiality will be maintained by anonymizing all data, and findings will be reported in aggregate form to prevent identification of individual participants (Babbie, 2017). Data storage will comply with institutional and legal guidelines to ensure security and privacy (Steneck, 2006). By adhering to these ethical practices, the study aims to foster trust and ensure participants feel respected and valued throughout their involvement.

3.3 Data Collection

To comprehensively assess the impact of professional development training on EFL teachers' ChatGPT literacy and practices, the study employs three primary data collection methods: questionnaires, semi-structured interviews, and reflective journals.

3.3.1 Questionnaire on ChatGPT Literacy

To answer RQ1, participants will complete a pre-and post-intervention questionnaire designed to measure their ChatGPT literacy, adapted from Ma et al. (2024). The questionnaire will evaluate participants' understanding of ChatGPT benefits and limitations, prompt design skills, response evaluation abilities, and awareness of ethical considerations. Administering the questionnaire at both stages allows for identifying changes in participants' knowledge and confidence levels resulting from the training (Cohen et al., 2018). Pre- and post-questionnaires are common methods in educational research that assess the impact of interventions on knowledge acquisition and skill development (Mertens, 2014). The questions will ensure validity and reliability, drawing on existing literature on GenAI tools in education (Chaudhury & Ali, 2021). The questionnaire will include quantitative and qualitative elements to capture a range of responses and comprehensively analyse the training's effects (Flick, 2018). To answer RQ2, there will also be an open-ended question in the pre-questionnaire for teachers to express their concerns before the training and another open-ended question in the post-questionnaire for teachers to express whether and how training addresses these concerns.

3.3.2 Semi-Structured Interviews

To answer RQ3, Based on their questionnaire responses, a subset of participants will be invited to participate in semi-structured interviews to gain deeper insights into their experiences with ChatGPT post-training. These interviews will explore:

- The perceived challenges and benefits of integrating ChatGPT into language teaching.
- Shifts in beliefs or attitudes toward ChatGPT following the training.
- Teachers' perceptions of whether and how ChatGPT enhances or hinders learners' language learning outcomes.

The semi-structured format provides flexibility, enabling the interviewer to probe participants' responses further and capture nuanced perspectives (Kallio et al., 2016). This approach is particularly useful for exploring complex issues such as integrating new technologies into education (DiCicco-Bloom & Crabtree, 2006).

3.3.3 Reflective Journals

To answer RQ4, participants will be asked to maintain reflective journals documenting their practices and experiences with ChatGPT during and after completing the training. These journals will serve as a valuable source of qualitative data, offering insights into how the participants have or have not integrated ChatGPT into their lesson planning, classroom activities, and assessments before, during or after the training. Teachers will also reflect on challenges encountered, strategies to overcome them, and observed impacts on student engagement and learning (Moon, 2013). Reflective journaling is widely used in educational research to gain insights into teachers' personal experiences, beliefs, and professional growth (Jay & Johnson, 2002).

By triangulating data from questionnaires, interviews, and reflective journals, this study aims to comprehensively understand the training's effects on EFL teachers' ChatGPT literacy, beliefs, and classroom practices. This multi-method approach ensures a balanced examination of both the measurable outcomes and the participants' lived experiences (Creswell, 2014). Triangulation helps enhance the validity of the findings by cross-checking data from different sources to identify patterns and discrepancies (Fetters et al., 2013).

3.4 Procedure

The study will be conducted over seven weeks. In Week 1, there will be an overview of the training. Participants will also

complete the ChatGPT literacy questionnaire, including the open-ended question for expressing concerns about ChatGPT and GenAI in Week 1. Then, in the following six weeks, each week's training will focus on one construct in Ma et al.'s (2024) ChatGPT literacy framework. Table 1 shows the complete schedule, topic and objectives for each week. Every week, participants will engage in various reading and discussing activities to develop their ChatGPT literacy and integrate this tool into their teaching practices. After each week's training, they will also be asked to write a short reflection as part of their reflective journals. At the end of Week 7, participants will again complete the same ChatGPT literacy questionnaire and the open-ended question about whether and how the training addresses their concerns about ChatGPT and GenAI.

Table 1: The procedure of the training

Week	Topic	Objectives
Week 1	Introduction	• Introduce GenAI and ChatGPT in education. • Provide an overview of Ma et al.'s six-construct framework for ChatGPT literacy. • Discuss the role of AI in modern language teaching.
Week 2	Benefits	• Explore the potential benefits of using ChatGPT in EFL teaching. • Identify how ChatGPT can enhance lesson planning, content delivery, and learner engagement. • Discuss examples of successful GenAI integration in classrooms.
Week 3	Limitations	• Examine the limitations of ChatGPT, including biases, inaccuracies, and contextual appropriateness. • Discuss strategies to address these limitations.
Week 4	Prompts	• Learn how to design clear, effective prompts for ChatGPT to achieve desired educational outcomes. • Understand the impact of prompt design on the quality of AI-generated responses. • Practice creating prompts for different teaching scenarios.
Week 5	Evaluation	• Develop skills in evaluating ChatGPT's responses' accuracy, relevance, and usefulness. • Learn how to guide students in critically analysing AI-generated content. • Discuss methods for integrating AI responses into teaching materials and lessons.
Week 6	Assessment	• Explore how ChatGPT can be used to design and conduct assessments. • Learn how to use AI to provide feedback on student performance. • Discuss the advantages and challenges of AI-based assessments in language learning.
Week 7	Ethics	• Understand the ethical implications of using ChatGPT in education, including privacy, fairness, and transparency. • Develop strategies for ensuring responsible and ethical AI use in the classroom. • Create guidelines for ethically integrating ChatGPT into language teaching.

3.5 Data Analysis

3.5.1 Quantitative Data Analysis

The data from the pre- and post-intervention questionnaires will be analyzed using paired-samples t-tests in statistical software such as SPSS or R. This statistical test will assess whether there is a significant difference in teachers' ChatGPT literacy scores before and after the training intervention. A paired-samples t-test is particularly suitable for this study as it compares measurements taken from the same individuals at two different time points, effectively controlling for individual differences (Field, 2018). This method is commonly used in educational research to assess the effects of interventions or training programs on participants' knowledge and skills (Tavakol & Dennick, 2011). To enhance reliability, descriptive statistics such as means, standard deviations, and effect sizes will also be reported (Cohen, 1988). Reporting effect sizes, in particular, will provide insight into the magnitude of the observed differences, beyond statistical significance, offering a more nuanced interpretation of the results (Lakens, 2013).

3.5.2 Qualitative Data Analysis

Qualitative data from the open-ended questions, semi-structured interviews and reflective journals will be analyzed using thematic analysis in NVivo to identify patterns and themes related to EFL teachers' experiences with GenAI tools. The interviews will be audio-recorded, transcribed, and analyzed thematically (Braun & Clarke, 2006). Thematic analysis allows for the identification of patterns and themes within qualitative data, providing a rich understanding of participants' experiences and perceptions (Guest et al., 2012).

Thematic analysis is a flexible yet systematic approach to analyzing qualitative data, involving six stages: familiarization, generating initial codes, searching for themes, reviewing themes, defining themes, and writing up (Braun & Clarke, 2006). In the first step, familiarization, I will read and re-read interview transcripts and journal entries to gain an overall understanding of the content. This step is crucial for developing an in-depth understanding of the data before proceeding with further analysis (Ritchie et al., 2014).

Next, in the generating initial codes step, key segments of text will be coded using a coding scheme developed based on both the research questions and emergent data. Codes may include categories such as challenges in integration, ethical concerns, pedagogical benefits, and perceived impact on student learning. These initial codes serve as a foundation for organizing the data and identifying meaningful patterns (Saldana, 2016).

In the searching for themes stage, related codes will be grouped into broader themes, such as teachers' evolving perceptions of ChatGPT, strategies for ChatGPT integration, and barriers to effective use. This stage involves organizing the codes into coherent clusters that represent key aspects of the participants' experiences (Nowell et al., 2017). Once the themes are identified, they will be reviewed and refined to ensure that they accurately represent the data. During the reviewing and refining themes step, themes will be cross-checked against the data to ensure their relevance and accuracy (Braun & Clarke, 2006).

Following this, each theme will be clearly defined, with representative quotes to illustrate key points. This step, defining and naming themes, ensures that the themes are both clear and meaningful, providing a comprehensive understanding of the participants' experiences (Terry et al., 2017). To facilitate the analysis, a coding scheme will use a hybrid approach of deductive coding, based on pre-existing constructs such as those in Ma et al. (2024), and inductive

coding, emerging from the data. Deductive codes will include constructs of ChatGPT literacy (e.g., prompt design, ethical considerations) and qualitative data categories relevant to professional development (e.g., teacher empowerment). Inductive codes will capture novel insights specific to participants' unique experiences (Fereday & Muir-Cochrane, 2006).

To ensure rigor and validity, data from different sources, including questionnaires, interviews, and reflective journals, will be triangulated to identify converging evidence or discrepancies. This triangulation process strengthens the findings by providing a broader perspective on the data (Creswell & Poth, 2018). Multiple coders will review and cross-check a subset of qualitative data to establish inter-coder reliability (Creswell & Poth, 2018). Finally, member-checking will be conducted, allowing participants to review and validate the themes derived from their contributions, further enhancing the credibility of the analysis (Lincoln & Guba, 1985).

4. Timeline

This project will be completed according to Table 2.

Table 2: Research timeline

Time	Activity
Year 1	• Complete essential training. • Complete the literature review. • Obtain ethical approval for the study.
Year 1-Q1	• Initiate training on research methodology, ethics and so on. • Begin drafting the literature review.
Year 1-Q2	• Refine the literature review. • Begin the ethical approval process.
Year 1-Q3	• Finalize the literature review. • Complete the ethical approval process. • Prepare data collection instruments.
Year 1-Q4	• Test and refine data collection instruments (e.g., questionnaires, interview protocols). • Recruit participants and obtain consent. • Complete first-year transfer.
Year 2	• Finalize data collection instruments. • Recruit participants and obtain consent. • Collect data. • Begin data analysis in the latter half of the year.
Year 2-Q1	• Test and finalize data collection instruments. • Recruit participants and obtain consent.
Year 2-Q2	• Begin data collection.
Year 2-Q3	• Complete data collection. • Begin preliminary data analysis.
Year 2-Q4	• Finalize data analysis. • Draft initial findings.
Year 3	• Focus on writing the dissertation. • Revise drafts based on feedback. • Prepare the dissertation for submission.
Year 3-Q1	• Begin writing the dissertation. • Start revising based on feedback from supervisors or peers.
Year 3-Q2	• Continue writing and revising the dissertation. • Address any gaps or weaknesses identified in drafts.
Year 3-Q3	• Final revisions and polishing of the dissertation. • Seek final feedback from advisors.
Year 3-Q4	• Final proofreading and editing. • Submit the dissertation for review.

5. Significance of the Research

This research will provide valuable evidence and insights into how professional development training can enhance EFL teachers' ChatGPT literacy and classroom practices. The study will offer evidence on whether such tools should be integrated into teacher professional development programs by evaluating the impact of GenAI-focused training. The findings will be particularly relevant to teacher educators, trainers, and EFL teachers themselves, offering guidance on how ChatGPT and GenAI, more broadly, can be effectively incorporated into language teaching. This research will contribute to the broader discussion on integrating emerging technologies in educational practices, potentially shaping future training approaches.

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