

ESP Teachers' Perceptions of Generative AI in University ESP Writing Instruction between Technophobia and Technophilia

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Abstract

This qualitative phenomenological study examines how ESP instructors perceive and integrate Generative AI (GenAI) into university writing instruction, with a focus on the affective, social, and institutional factors that shape their practices. Data were collected through asynchronous, semi-structured, written interviews with 24 English for Specific Purposes (ESP) teachers working in Egyptian higher education contexts and analyzed using thematic analysis. The findings indicate that teachers' engagement with GenAI is not uniform, ranging from technophilic to technophobic orientations, reflecting both enthusiasm for its pedagogical potential and concerns about its implications. Key mediating factors include collegial influence, student expectations, and unclear institutional policies. While participants reported perceived benefits such as enhanced teaching efficacy, diversified writing instruction, and opportunities for professional development, these were accompanied by concerns related to ethics, student overreliance, and the impact on writing authenticity. The study suggests that the integration of GenAI in ESP writing pedagogy is shaped by context-dependent and socially negotiated factors, highlighting the need for clearer institutional guidelines and targeted professional support to facilitate its effective use.

Keywords: Generative Artificial Intelligence (GenAI), English for Specific Purposes (ESP), Academic Writing Instruction, Teacher Perceptions, Technophilia, Technophobia

1. Introduction

The rapid emergence of Generative Artificial Intelligence (GenAI) has introduced new possibilities and challenges in ESP writing instruction. Its flexibility, versatility, and ubiquity have made it widely used among learners, to the extent that some educational institutions have developed policies governing its use (Ali et al., 2024). As a result, significant research has examined its influence on other pedagogical, cognitive, and psychological variables to determine viable methods for incorporating it into language classes with ethical considerations. Recent studies have highlighted the growing role of GenAI in supporting language learning, particularly through feedback generation, writing support, and personalized instruction in EFL and ESP contexts (Ali et al., 2024; Li et al., 2025).

Generative Artificial Intelligence (GenAI) is a sub-term across the broader term Artificial Intelligence (Banh & Strobel, 2023), which became popularized by the name in the 1950s by Marvin Minsky and John McCarthy (Haenlein & Kaplan, 2019). AI can be referred to as machines or programs that can replicate and emulate human intelligence (Banh & Strobel, 2023). To be more precise, GenAI can be defined as the computational methods that are capable of generating content that can be described as ostensibly novel with meaning (text, images, or audio) based on training data (Feuerriegel et al., 2024). It can be enabled by models of different types, such as Generative Adversarial Networks (GANs), transformer-based models, such as GPT-4, Variational Autoencoders (VAE), Autoregressive Models (ARM), and Recurrent Neural Networks (RNN), each with different objectives of content creation in mind (Ali et al., 2024; Strobel et al., 2024).

Nevertheless, writing instruction is a unique opportunity and challenge in the specialized field of English for Specific Purposes (ESP). According to Hyland (2025), ESP approaches to writing emphasize developing learners' ability to produce specific genres required in academic and professional contexts, rather than teaching writing as a general skill. Hyland continues that writing in ESP is viewed as a social and communicative practice, shaped by context, purpose, and community expectations, drawing on concepts such as communicative competence, situated learning, and social constructionism. This perspective highlights that writing involves engaging with disciplinary norms and identities, not just mastering linguistic accuracy. The notion of needs remains central, as ESP focuses on meaningful

communication and the processes of text creation and use. Additionally, the concept of academic literacies frames writing as an active, socially situated practice, where students must navigate multiple genres across contexts. However, a key challenge is that these conventions are often implicit, making academic writing difficult for learners to understand and apply effectively.

While GenAI may assist people to learn, it also creates risks of inaccuracies in the provided content, plagiarism, and genre mismatch (Li et al., 2025; Nazari et al., 2021). Teachers' responses to GenAI often reflect varying degrees of technophobia and technophilia, influencing their willingness to integrate AI into writing instruction. On the affective and cognitive side of technological innovation resistance, known as technophobia (Brosnan, 1998, as cited in Verano-Tacoronte et al., 2025), may manifest as fear of role changes and pedagogical implications. On the other hand, technophilia has a positive attitude, interest, and willingness to use new technologies (Rosen, 2011, as cited in Ofem et al., 2025).

1.1 Problem of the Study

Recent research indicates that language teachers' use of GenAI in classrooms is shaped by a tension between technophilia and technophobia, rather than uniform acceptance. On one hand, studies report that teachers perceive GenAI as a valuable tool for enhancing writing instruction, providing immediate feedback, and supporting personalized learning; on the other hand, they express concerns about academic integrity, overreliance, data privacy, and the potential erosion of teacher agency. This duality suggests that teachers' engagement with GenAI exists between attraction and resistance, influenced by factors such as digital competence, prior experience, and institutional support (Dalyanci et al., 2025; Taheri et al., 2025). However, existing research has predominantly examined general attitudes toward AI in education, with limited focus on how ESP teachers navigate between acceptance and resistance toward GenAI in writing instruction, particularly within discipline-specific and academic writing contexts. As a result, there is still a limited understanding of how ESP teachers perceive and negotiate the opportunities and concerns associated with GenAI in university writing instruction.

1.2 Aim of the Study

This study aims to explore ESP teachers' perceptions and experiences with the use of Generative AI in university writing instruction, with particular attention to the opportunities, concerns, and contextual factors that influence its integration.

1.3 Research Questions

The study is guided by the following research questions:

- 1) How do ESP teachers describe their perceptions of Generative AI in university writing instruction in relation to technophobic and technophilic orientations?
- 2) What key factors influence ESP teachers' decisions to adopt or resist the use of Generative AI in writing instruction?
- 3) How do ESP teachers perceive the influence of Generative AI on their writing instructional practices?

2. Literature Review

2.1 Technophobia and Technophilia: A Duality in Teacher Technology Adoption

Teachers' psychological dispositions, which are mainly defined by technophobia and technophilia constructs, have a significant impact on the integration of any new technology in the educational practice. Technophobia refers to the emotional and cognitive objection to technological change, which is manifested in anxiety, fear, or unease when using the digital tool (Brosnan, 1998, as cited in Verano-Tacoronte et al., 2025). At the institutional level of higher education, it has since been redefined as a multidimensional construct of faculty anxiety, which includes anxiety about role changes, possible abuse and pedagogical implications of generative AI (Verano-Tacoronte et al., 2025). Empirical evidence shows that this anxiety negatively affects teachers' behavioral intentions to use AI-based tools, diminishing their perceived effort and performance (Verano-Tacoronte et al., 2025). Some of the major factors that have contributed to technophobic responses within universities are concerns about students' learning performance, ethical abuse, and perceived threats to teachers' professional roles (Osiceanu, 2015; Verano-Tacoronte et al., 2025).

On the other hand, technophilia presupposes a positive attitude, interest, and willingness on the part of an individual to implement new technologies (Rosen, 2011, as cited in Ofem et al., 2025). In education, teacher technophilia manifests as confidence, curiosity, and a desire to use technology to introduce novelty into lessons (Abbasi & Tabatabaee-Yazdi, 2021). Positively, Ofem et al. (2025) posit that technophilia comprises technological readiness and positive attitudes towards AI, which increase perceived ease of use and perceived usefulness, which are intermediates in technology acceptance models (Venkatesh et al., 2003). Technophilic teachers are more open to exploring AI tools, are less anxious, and more pedagogically and ethically conscious (Alers et al., 2024; Ofem et al., 2025). Conversely, Ali El Deen et al. (2026) found that teacher attitudes toward AI are significantly mediated by self-efficacy beliefs, with higher self-efficacy reducing technophobic responses.

Recent studies by Verano-Tacoronte et al. (2025) and Ofem et al. (2025) demonstrate that technophobia and technophilia operate as opposing yet interdependent affective and cognitive orientations and determine teachers' willingness to turn to generative AI. These contrasting orientations affect teachers' adoption decisions by incorporating such core variables as effort expectancy and performance expectancy. Whereas technophobia, which is expressed in anxiety, prevents adoption, technophilia, which occurs through confidence and positive attitudes, enables successful implementation, especially when supported by institutional and pedagogical structures (Ofem et al., 2025; Qadir & Omar, 2025).

Consequently, this study uses the concepts of technophobia and technophilia as analytical lenses for understanding ESP teachers' perceptions of Generative AI in writing instruction. In the analysis, technophobic orientations were reflected in concerns related to ethics, overreliance, and professional identity, whereas technophilic orientations were reflected in openness to experimentation, perceived usefulness, and pedagogical curiosity. These concepts were used to support the thematic interpretation of teachers' experiences and attitudes toward GenAI integration.

2.2 Frameworks for Understanding and Fostering AI Readiness

The idea of teacher preparedness for AI is a multi-layered phenomenon, which is connected to both technical and pedagogical alignment. To justify this preparation, several frameworks were designed. Previous research has proposed several approaches to support teachers' engagement with GenAI and reduce resistance toward AI integration in educational settings (Alers et al., 2024). Similarly, Han et al. (2023) discussed structured approaches for integrating ChatGPT into EFL writing instruction, in which students converse with ChatGPT, which also serves as an EFL writing teacher to write or edit essays. Based on their results, these pragmatic approaches can guide technophilia toward innovation and teach educators to harness AI as a source of feedback and brainstorming, rather than a threat.

General reviews support such results. Li et al. (2025) found in a systematic review of the empirical research on GenAI in language teaching that, although some educators are willing to apply AI and enhance writing quality and feedback, others are not ready to engage in this technology, which is striking evidence of ethical-related concerns and the absence of institutional support, which are the characteristic features of technophobia. This points to the fact that teacher preparation is a state of balance between technophobia that concerns anxiety and limits self-efficacy, and technophilia that explores and reflects (Verano-Tacoronte et al., 2025).

2.3 The Research Gap in ESP Writing Instruction

Nonetheless, despite this accumulating literature, there remains a large gap in research on technophobia and technophilia in the context of ESP writing classes in universities. The majority of existing research examines the general education (Ofem et al., 2025), pre-service teacher training (Alers et al., 2024), or general English as a Foreign Language (EFL) setting (Han et al., 2023; Alfaleh et al., 2025). Literature, however, tends to overlook the unique disciplinary and rhetorical requirements of writing in the ESP context, which is linked to professional writing genre and domain-specific discursive practices.

GenAI tools may not only be advantageous for learning in the ESP context but also pose additional threats, e.g., inaccurate content, plagiarism, and genre mismatch, which may be particularly concerning in professional-oriented ESP courses (Li et al., 2025). In turn, these disciplinary restrictions and assessment conventions might strengthen technophobia, and teachers' views on the use of AI to model specific writing genres might foster technophilia. In addition, although "there is a novelty effect which the introduction of new technology undoubtedly produces" (Woodrow, 2017, p. 245), "ESP instruction has its own methodology, and its research is interdisciplinary. Therefore, it is a fallacy to generalize the findings of the use of technology in EFL contexts to the field of ESP instruction." (Dashtestani & Stojkovic, 2015, p. 436). Thus, despite growing interest in GenAI in language education, limited research examines how ESP teachers perceive and negotiate opportunities and concerns related to GenAI in university writing instruction, particularly within discipline-specific and professionally oriented writing contexts.

3. Methodology

3.1 Study Design

The current study adopted a qualitative phenomenological research design to explore how ESP educators conceptualize Generative AI and its role in ESP writing instruction, with particular attention to technophilic and technophobic orientations. A phenomenological approach was deemed appropriate because it enables an in-depth examination of participants' lived experiences, focusing on how they perceive, interpret, and make meaning of their interactions with GenAI in their professional contexts. Although the study relied on asynchronous written interviews rather than synchronous interaction, participants were encouraged to provide detailed reflective responses regarding their experiences and perceptions of GenAI use in ESP writing instruction. Cohen et al. (2017) verify that "phenomenology is suited to small-scale research, descriptive detail of authentic experiences and sympathy to humanistic research which focuses on 'lived experiences'" (p. 301). Thus, this design enabled an in-depth exploration of teachers' cognitive, emotional, and pedagogical perceptions of the use of emerging AI tools in ESP writing instruction.

3.2 Study Procedures

The research procedures were carried out in a logical and chronological order in order to guarantee the reliability and validity of the data collection process. The important stages are presented in Figure 1 below and explained in detail.



Figure 1. Study Procedures

1. Formulation of the Interview Protocol: The interview protocol was carefully formulated during the first stage of the study.

These six questions were aimed at addressing the complex nature of the experience of ESP teachers, including TPACK, technological confidence, perceived usefulness and ease of use, social and institutional factors, emotional orientations (technophilia/technophobia), and the effect of these factors on teacher cognition and practice. The questions were also designed to allow detailed, reflective answers without prompting participants.

2. Participant Recruitment and Ethical Assurance: Potential participants were recruited based on purposive sampling in major Egyptian universities, after receiving institutional approvals. They were approached and given an information sheet that covered the objectives of the study, that their participation is voluntary, and that measures are in place to guarantee anonymity and confidentiality. Informed consent before the interview was signed in writing. These ethics were also repeated on the first page of the digital interview platform, and participants signed an electronic version by clicking the “I Agree” button on the opening page before continuing.

3. Data Collection through Asynchronous Written Interviews: data were collected through asynchronous written interviews with twenty-four participants ($N = 24$). The semi-structured format ensured consistent coverage of all key research areas while allowing participants to elaborate on issues they considered relevant or to introduce new perspectives from their experiences. The interview questions were distributed electronically using a secure online platform, enabling participants to respond at their own pace and convenience. As highlighted by Amri et al. (2021), asynchronous written interviews are beneficial in many ways such as 1) the inclusion of wider population in different locations, 2) affordability, 3) accurate and thoughtful answers as participants take their time thinking, 4) automatic transcript as data are typed, saving the time and cost of transcription, and 5) easier participants’ anonymity and recruitment. All responses were submitted in written form, ensuring confidentiality and anonymity. Participation was voluntary, and informed consent was obtained prior to data collection.

4. Thematic Data Analysis: Thematic analysis was undertaken in the phases of systematic thematic analysis as discussed by Braun and Clarke (2006). It started with creating the first codes from the transcripts (e.g., “feels excited” “saves time” “pressure of colleagues”). Then this set of codes was compiled and combined into possible sub-themes (e.g., “Excitement & Curiosity” “Perceived Usefulness” “Social Pressure”). These sub-themes were classified into four consistent and broad themes that directly answered the research queries: 1) Technophilia toward GenAI, 2) Technophobia and Concerns, 3) Social and Institutional Influences, and 4) Impact on Teaching Practices. This also ensured the findings were well rooted in the participants’ words and experiences.

3.3 Participants

The interview participants consisted of twenty-four higher education English teachers (T1–T24) with diverse demographic, academic, and professional backgrounds (see Table 1). The sample was predominantly female, including twenty-three female teachers and one male teacher. Participants’ ages ranged from under 25 to 54 years, with the majority clustered in the 35–44 age group, indicating a largely mid-career cohort. In terms of academic qualifications, most participants held master’s degrees, while a substantial number held doctoral degrees (PhD/EdD); three participants held bachelor’s degrees, and one held a diploma, reflecting variation in academic preparation. The participants’ fields of study included English Language and Literature, Applied Linguistics, English for Specific Purposes (ESP), Teaching English to Speakers of Other Languages (TESOL), and Education with a specialization in Curriculum Design and Pedagogy. Teaching experience ranged from 2 to 21 years, representing both early-career and highly experienced educators. Institutionally, participants were affiliated with a range of Egyptian and international higher education institutions, including the British University in Egypt, Ain Shams University, Cairo University, the American University in Cairo, Sphinx University, Al-Azhar University, Nile University, and the Arab Academy for Science, Technology and Maritime Transport, while some participants preferred not to report their institutional affiliation for privacy considerations. This heterogeneous sample provided a contextually rich basis for exploring teachers’ perceptions and practices related to the integration of Generative AI in English and ESP writing instruction.

Although participants came from different academic specializations, all participants were involved in teaching English courses related to academic, professional, or ESP-oriented writing instruction in higher education contexts.

3.4 Study Tool and Data Collection

These interview questions were created to examine ESP teachers’ perceptions and experiences with Generative AI across various interrelated dimensions that affect technology use. The first question examines the current use of GenAI by teachers in ESP writing instruction, with an emphasis on understanding how technology interacts with content and pedagogy. The second and third questions explore teachers’ technological confidence and perceptions of the usefulness and ease of use of GenAI, including the main aspects of technology acceptance and how much of the hesitation is reduced or increased by technological confidence. Question four addresses the social and institutional context, discussing how colleagues, students, and organizational expectations shape decisions to use GenAI. The fifth question addresses the emotional orientations of teachers - excitement, curiosity, hesitation, or anxiety - to learn about the affective factors that influence technophilia or technophobia. Lastly, the sixth question examines the impact of experiences with GenAI on teachers’ belief systems and decision-making, as well as their classroom performance, revealing changes in teacher cognition and professional conduct due to the introduction of AI. A combination of these questions provides a holistic picture of the cognitive, emotional, social, and pedagogical influences on teachers’ attitudes towards GenAI in ESP writing instruction.

Data were collected through asynchronous written interviews with all participants ($N = 24$). Teachers were encouraged to describe real

classroom practices, the emotions accompanying their experimentation with AI tools, and the institutional and social contexts in which their teaching decisions were situated.

The interview protocol was reviewed by two specialists in applied linguistics and educational technology to ensure clarity and relevance to the study objectives. Minor linguistic revisions were made before data collection. The interview questions focused on teachers' experiences with GenAI use, perceived usefulness, emotional responses, institutional influences, and perceived impact on writing instruction.

Table 1. Demographic Information about the Study's Participants (n=24)

Pseudonym	Age Range	Gender	Highest Qualification	Field of Study	Teaching Experience (Years)	University
T1	35–44	Female	Master's Degree	English Language and Literature	18	British University in Egypt
T2	35–44	Female	Master's Degree	English Language and Literature	11	British University in Egypt
T3	35–44	Female	Master's Degree	English Language and Literature	17	Ain Shams University
T4	35–44	Female	Doctorate (PhD/EdD)	Applied Linguistics	17	British University in Egypt
T5	45–54	Female	Master's Degree	English Language and Literature	20	British University in Egypt
T6	35–44	Male	Master's Degree	English for Specific Purposes (ESP)	19	Arab Academy for Science, Technology, and Maritime Transport
T7	35–44	Female	Bachelor's Degree	English Language and Literature	20	Cairo University
T8	35–44	Female	Master's Degree	English Language and Literature	15	Not reported
T9	35–44	Female	Doctorate (PhD/EdD)	English Language and Literature	15	British University in Egypt
T10	45–54	Female	Doctorate (PhD/EdD)	English Language and Literature	10	Not reported
T11	45–54	Female	Doctorate (PhD/EdD)	Education, Curriculum Design and Pedagogy	14	Ain Shams University
T12	35–44	Female	Master's Degree	English Language and Literature	20	American University in Cairo (AUC)
T13	35–44	Female	Doctorate (PhD/EdD)	English Language and Literature	21	Sphinx University
T14	Under 25	Female	Master's Degree	English Language and Literature	2	Not reported
T15	35–44	Female	Doctorate (PhD/EdD)	English Language and Literature	15	British University in Egypt
T16	35–44	Female	Doctorate (PhD/EdD)	Teaching English to Speakers of Other Languages (TESOL)	13	German International University (GIU)
T17	25–34	Female	Diploma	English Language and Literature	2	Faculty of Education, Ain Shams University
T18	35–44	Female	Master's Degree	Applied Linguistics	15	Cairo University
T19	25–34	Female	Bachelor's Degree	English Language and Literature	6	Not reported
T20	35–44	Female	Doctorate (PhD/EdD)	English Language and Literature	20	Not reported
T21	35–44	Female	Bachelor's Degree	English Language and Literature	15	Nile University
T22	25–34	Female	Master's Degree	Education, Curriculum Design and Pedagogy	14	Ain Shams University
T23	35–44	Female	Master's Degree	English Language and Literature	15	Cairo University
T24	35–44	Female	Master's Degree	English Language and Literature	16	Al-Azhar University

3.5 Data Analysis

The thematic analysis method was used to study the data of the interviews. The study aimed at finding patterns that were common across the samples and which indicated the presence of technophilic and technophobic inclinations among ESP teachers. The coding procedure commenced with intensive reading of the interview transcripts to derive meaningful units regarding the teachers' experiences, beliefs, emotions, and contextual influences. The codes were refined in a cyclic manner to form sub-themes and broad themes. Some of the technophilic themes identified in the analysis encompassed excitement and curiosity, perceived usefulness and efficiency, and pedagogical

improvement, which were represented in the codes, which included enjoyment of experimentation, time-saving value, improved performance, and expanded pedagogical possibilities. Themes of slight anxiety and pressures of external influences due to the demands of the institution, the coworkers, and students became the sources of technophobic orientations. Other themes included the effects of social and institutional factors, such as the influence of professional community, students' responses, and considerations of workload, as well as the overall effect of GenAI on professional development, decision-making, and teachers' classroom performance.

The coding process was conducted in two iterative rounds. During the first round, initial open codes were generated from repeated readings of the responses. In the second round, related codes were grouped into broader sub-themes and themes through constant comparison. To enhance credibility, a second researcher independently reviewed a subset of the coded responses, and minor differences in interpretation were resolved through discussion until agreement was reached. For example, responses referring to “fear of plagiarism,” “student dependence,” and “loss of originality” were initially coded separately before being grouped under the broader sub-theme of anxiety and hesitation toward GenAI use.

3.6 Validity and Credibility

To ensure methodological rigor, this study adhered to established qualitative research criteria of trustworthiness, including credibility, transferability, dependability, and confirmability, as proposed by Lincoln and Guba (1985). Credibility was enhanced through the use of asynchronous written interviews, which allowed participants sufficient time to reflect on their responses, as well as the inclusion of rich, verbatim excerpts to accurately represent participants' perspectives. Transferability was addressed by providing detailed descriptions of the research context, participant characteristics, and the ESP higher education setting, enabling readers to assess the applicability of the findings to similar contexts. Dependability was ensured through a transparent and systematic research process, including clearly documented data collection and thematic analysis procedures, supported by a consistent coding framework. Confirmability was established by grounding interpretations in participants' actual responses and maintaining a clear linkage between raw data, codes, and emerging themes, alongside efforts to minimize researcher bias through reflexive consideration. Together, these strategies strengthen the credibility and overall reliability of the study's findings. In addition, peer review of the coding process and detailed documentation of analytical decisions were maintained to support dependability and confirmability.

3.7 Ethical Considerations

This study followed the Declaration of Helsinki. Ethical approval and research facilitation were granted through the relevant institutional procedures prior to data collection. Participants received a digital informed consent form on the online platform detailing the study's aim, anonymity, confidentiality, voluntary participation, and withdrawal rights. Consent was obtained electronically by clicking an “I Agree” button before participation. All responses were anonymized through participant codes (T1–T24) and securely stored by the researchers for research purposes only.

4. Results

The thematic analysis was structured around three research questions, each generating a distinct overarching theme and related sub-themes (see Table 2). In response to research question 1, which examined ESP teachers' technophilic and technophobic orientations toward Generative AI, the analysis identified affective and cognitive orientations toward GenAI as a central theme. This theme encompassed two contrasting yet coexisting sub-themes: teachers' curiosity, enthusiasm, and openness, reflecting technophilic tendencies, and anxiety, hesitation, and resistance, indicating technophobic concerns.

Addressing to research question 2, the findings revealed social and institutional mediation of GenAI use as a key theme, highlighting how teachers' adoption and integration of AI were shaped by colleague influence, student expectations, and broader institutional factors, including policies, workload, and ethical considerations. Finally, in relation to research question 3, the analysis identified pedagogical impact and professional development as a major theme, with sub-themes focusing on changes in writing instruction practices, perceived teaching efficacy, and ongoing professional growth. Collectively, these themes illustrate that ESP teachers' engagement with Generative AI is multidimensional, influenced by affective dispositions, social and institutional contexts, and perceived pedagogical and professional outcomes. Participants did not position themselves as entirely technophilic or technophobic; rather, many described conditional, shifting, or ambivalent attitudes depending on instructional goals, disciplinary writing requirements, and institutional expectations.

Table 2. Distribution of the Study's Themes in Relation to Research Questions

Research Question	Theme	Sub-themes
RQ1: Technophilic and Technophobic Orientations	Affective and Cognitive Orientations toward GenAI	1. Curiosity, enthusiasm, and openness (technophilia) 2. Anxiety, hesitation, and resistance (technophobia)
RQ2: Social and Institutional Influences	Social and Institutional Mediation of GenAI Use	1. Colleague Influence 2. Student Expectations 3. Institutional Policies and Ethical Expectations
RQ3: Impact on Instructional Practices and Professional Growth	Pedagogical Impact and Professional Development	1. Writing Instruction Practices 2. Teaching Efficacy 3. Professional Growth

4.1 Technophilic and Technophobic Orientations toward GenAI

Table 3 illustrates a dual affective–cognitive orientation among participants toward the use of Generative AI in writing instruction, reflecting both technophilic and technophobic tendencies. On the one hand, several participants expressed curiosity and enthusiasm toward Generative AI, viewing it as a tool that enhances engagement, creativity, and pedagogical innovation. Statements such as feeling “excited and curious” (T5) and perceiving AI as opening “new pedagogical possibilities” (T2) indicate a positive emotional disposition accompanied by cognitive openness to experimentation. These excerpts suggest that Generative AI is perceived as a motivational catalyst that makes writing instruction more interactive and encourages teachers to explore innovative classroom practices.

Table 3. Distribution of Technophilic and Technophobic Sub-themes

Main Theme	Sub-themes	Illustrative Excerpts
Affective and Cognitive Orientations toward Generative AI	Curiosity & Enthusiasm (Technophilia)	“I feel excited and curious to explore what AI can offer in writing classes.” (T5) “Using AI opens new pedagogical possibilities for me.” (T2) “It makes teaching writing more enjoyable and interactive.” (T18) “I enjoy experimenting with AI tools at different writing stages.” (T12) “AI motivates me to try innovative classroom practices.” (T20)
	Anxiety & Hesitation (Technophobia)	“I worry students might depend on AI too much.” (T9) “There is always concern about plagiarism.” (T7) “I still hesitate to use AI extensively.” (T15) “I am cautious because it may reduce students’ critical thinking.” (T14) “Sometimes AI generates content that sounds fluent but does not fully match the disciplinary expectations of ESP writing tasks.” (T11)

Of the 24 participants, 18 expressed clear technophilic tendencies, while 20 voiced at least one technophobic concern, with many teachers exhibiting both orientations simultaneously. On the other hand, the theme also captures anxiety and hesitation, highlighting underlying concerns that moderate participants’ willingness to fully integrate Generative AI into their teaching. Participants expressed apprehensions about overreliance on AI, plagiarism, the accuracy of outputs, and the potential erosion of students’ critical thinking skills (T7, T9, T14). Such concerns reflect a cautious cognitive stance, where educators recognize the potential benefits of AI but remain wary of its pedagogical risks. The coexistence of enthusiasm and anxiety suggests that participants’ orientations toward Generative AI are not polarized but ambivalent, shaped by a continuous negotiation between innovation and pedagogical responsibility.

Several participants simultaneously expressed enthusiasm and caution toward GenAI use, reflecting more ambivalent positions rather than purely positive or negative orientations. For example, some teachers described AI as useful for brainstorming and feedback generation while also expressing concerns regarding disciplinary accuracy, plagiarism, and students’ overreliance on AI-generated responses. These findings suggest that teachers’ perceptions were often context-dependent and negotiated in accordance with the specific requirements of ESP writing tasks and institutional expectations.

Generally, this theme indicates that educators’ engagement with Generative AI is influenced by a dynamic interplay between affective responses (interest vs. fear) and cognitive evaluations (opportunities vs. risks), which ultimately informs the extent and manner of AI adoption in writing instruction.

4.2 Social and Institutional Influences on GenAI Adoption

Table 4 highlights the significant role of social and institutional contexts in shaping participants’ engagement with Generative AI in teaching practices. The findings indicate that educators’ use of AI is not solely an individual decision but is strongly influenced by collegial dynamics, student expectations, and institutional conditions.

Table 4. Distribution of Social and Institutional Influences Sub-themes

Main Theme	Sub-themes	Illustrative Excerpts
Social and Institutional Mediation of Generative AI Use	Colleague Influence	“Seeing colleagues use AI encouraged me to try it.” (T12) “Discussions with colleagues shaped how I use AI.” (T6)
	Student Expectations	“Some colleagues resist AI, which affects the teaching culture.” (T7) “Students expect AI-supported feedback now.” (T6) “Students are more engaged when AI is integrated.” (T3)
	Institutional Policies and Ethical Expectations	“Some students misuse AI, which worries me.” (T9) “The institution sometimes restricts the use of AI.” (T14) “There are no clear institutional policies yet.” (T22) “AI helps me manage workload and time pressure.” (T16) “Ethical responsibility is strongly emphasized.” (T11) “We still do not have clear departmental guidelines explaining acceptable AI use in ESP writing assignments.” (T18)

With regard to colleague influence, participants reported that observing peers using AI and engaging in professional discussions encouraged experimentation and informed pedagogical choices (T6, T12). At the same time, resistance from some colleagues was perceived as a limiting factor, contributing to a mixed teaching culture in which AI adoption remains uneven (T7). This suggests that peer norms and shared professional beliefs play a mediating role in either facilitating or constraining AI integration.

The findings further suggest that social and institutional influences did not operate uniformly. While supportive colleagues and positive student engagement encouraged experimentation with GenAI, uncertainty regarding ethical boundaries and institutional expectations contributed to hesitation among some participants. In this sense, social influence functioned both as a facilitator of adoption and as a source of professional anxiety.

The student expectations sub-theme reveals growing pressure on educators to incorporate AI into feedback and instructional practices. Participants noted increased student engagement when AI tools were used (T3), indicating perceived pedagogical benefits. However, concerns about student misuse of AI (T9) reflect ongoing tensions between responsiveness to learners' expectations and the maintenance of academic integrity.

Furthermore, institutional factors emerged as both enabling and restrictive. While some participants highlighted institutional constraints and the absence of clear AI-related policies (T14, T22), others emphasized institutional emphasis on ethical responsibility and workload management benefits facilitated by AI use (T11, T16). This duality suggests that institutional frameworks currently operate in a state of transition, simultaneously encouraging cautious adoption while lacking comprehensive regulatory guidance.

By and large, this theme underscores that educators' AI practices are socially negotiated and institutionally mediated, shaped by collective professional norms, evolving student demands, and organizational structures that both support and limit innovation.

4.3 Perceived Influence on Instructional Practices and Teaching Efficacy

Table 5 illustrates the perceived instructional and professional implications of Generative AI use in writing instruction, emphasizing its role in shaping teaching practices, enhancing teaching efficacy, and supporting continuous professional growth. The findings suggest that Generative AI functions not only as an instructional aid but also as a catalyst for pedagogical reflection and development.

Table 5. Distribution of Instructional Practices and Teaching Efficacy Sub-themes

Main Theme	Sub-themes	Illustrative Excerpts
Pedagogical Impact and Professional Development	Writing Instruction Practices	"AI helps students structure their writing more effectively." (T3) "It supports brainstorming and outlining before drafting." (T1) "AI helps students organize technical reports and professional ESP assignments more clearly." (T6) "It supports students in understanding discipline-specific terminology and genre conventions." (T8)
	Teaching Efficacy	"It improved my overall teaching performance." (T2) "I can provide clearer feedback in less time." (T16) "It reduces stress when correcting assignments." (T13)
	Professional Growth	"The more I use AI, the more confident I become." (T17) "Workshops helped me integrate AI more effectively." (T20) "AI pushed me to rethink how I teach writing." (T23) "It supports my continuous professional development." (T5)

Within the writing instruction practices sub-theme, participants reported that AI supports multiple stages of the writing process, particularly brainstorming, outlining, and structuring written texts (T1, T3). The ability of AI tools to clarify genre conventions in ESP writing (T8) further highlights their perceived value in making disciplinary expectations more explicit to learners. These excerpts indicate that AI is viewed as a scaffolding mechanism that enhances students' writing organization and preparedness prior to drafting.

The teaching efficacy sub-theme reflects educators' perceptions of improved instructional efficiency and emotional well-being. Participants emphasized that AI-assisted feedback enabled them to provide clearer, more timely responses while reducing cognitive and emotional strain associated with assessment (T2, T13, T16). This suggests that Generative AI contributes to both instructional effectiveness and workload management, thereby positively influencing teachers' sense of efficacy.

Despite these perceived benefits, several participants also emphasized potential pedagogical limitations associated with GenAI use in ESP writing instruction. Concerns were raised regarding formulaic writing, reduced student authorship, and the possibility that AI-generated responses may not fully reflect discipline-specific conventions or specialized terminology required in ESP contexts.

Additionally, the professional growth sub-theme reveals that sustained engagement with Generative AI fosters increased confidence, reflective practice, and ongoing professional development. Participants described a progressive learning trajectory in which increased AI use enhanced confidence (T17), stimulated pedagogical rethinking (T23), and was reinforced through formal professional development opportunities such as workshops (T20). Collectively, these accounts suggest that Generative AI acts as a driver of continuous professional learning, encouraging educators to reassess and refine their approaches to writing instruction.

This theme demonstrates that the integration of Generative AI has a multidimensional impact, influencing classroom practices, teaching

efficacy, and long-term professional development in interconnected ways.

5. Discussion

This research aimed to provide a deeper insight into the perceptions and practices of ESP educators who integrate Generative AI into their writing pedagogy. The findings reveal a complex interaction between emotional attitudes, social influences, and perceived pedagogical adjustments. These results are interpreted in light of the research questions and relevant theoretical frameworks, particularly the TAM and the TPACK framework, while also drawing on Simon Borg's (2003) model of teacher cognition to explain how teachers' beliefs, knowledge, and practices are dynamically shaped through engagement with emerging technologies.

5.1 How Do ESP Teachers Perceive and Position Their Use of Generative AI in Writing Instruction Along Technophilic and Technophobic Orientations?

Regarding the first research question, which explored ESP teachers' positioning in relation to technophilic and technophobic orientations, the findings indicate that teachers are not situated in a binary opposition but rather exhibit emotional ambivalence. Many participants demonstrated technophilic tendencies characterized by excitement, curiosity, and recognition of pedagogical value, which aligns closely with core TAM constructs, particularly perceived usefulness. Teachers' beliefs that GenAI enhances efficiency and improves lesson design reinforce TAM's proposition that perceived usefulness is a primary determinant of technology acceptance (Venkatesh et al., 2003). Moreover, the intuitive ease with which some teachers engaged with AI tools suggests the presence of perceived ease of use, further strengthening their adoption intentions.

From a teacher cognition perspective, these findings reflect the central role of teachers' beliefs in shaping their engagement with innovation. In line with Borg's framework, teachers' prior experiences, professional knowledge, and contextual realities interact to form belief systems that influence how new technologies are perceived and adopted. In this study, technophilic tendencies can be interpreted as belief-driven openness to innovation, grounded in perceived pedagogical benefits and prior positive experiences with technology.

At the same time, technophobic tendencies emerged not as outright rejection but as mild anxiety and cognitive overload. From a TAM perspective, this may reflect lower perceived ease of use or increased effort expectancy, particularly in the context of rapid technological change. From a teacher cognition standpoint, such anxiety can be understood as a tension between existing pedagogical beliefs and the demands of integrating unfamiliar tools. This emotional ambivalence supports the notion that technology adoption is not purely rational but is mediated by affective, cognitive, and contextual factors. This finding is consistent with Ali El Deen et al. (2026), who reported that teachers' self-efficacy beliefs play a crucial role in moderating technophilic and technophobic tendencies toward AI integration.

These findings indicate that ESP teachers' technophilic and technophobic orientations are not fixed or dichotomous but context-dependent and dynamically constructed. Technophilia reflects teachers' recognition of GenAI as a practical solution to ESP-specific demands, while technophobia emerges from tensions related to professional identity, instructional control, and the cognitive demands of evaluating AI-generated content. Within Borg's model, this coexistence represents an ongoing process of cognitive negotiation, where teachers continuously reconstruct their beliefs in response to new pedagogical realities.

In ESP writing contexts, these concerns were particularly associated with genre accuracy, discipline-specific terminology, and the need to maintain professional and academic writing standards.

5.2 What Key Factors Influence ESP Teachers' Decisions to Adopt or Resist the Use of Generative AI in Writing Instruction?

With regard to the second research question, which examined social and institutional influences, the findings strongly support TAM's extension into social contexts (as seen in UTAUT). Peer collaboration and the sharing of experiences significantly enhanced adoption, reflecting the role of social influence in shaping behavioral intention. Teachers' engagement in communities of practice reduced uncertainty and fostered experimentation, reinforcing the collective dimension of technology integration.

From a teacher cognition perspective, these social interactions serve as mediating forces that shape and reshape teachers' cognitions. Engagement with peers and learners contributes to the evolution of teachers' knowledge and beliefs, highlighting the socially situated nature of cognition. Interestingly, ESP learners also emerged as influential agents, as their expectations and feedback encouraged teachers to adopt GenAI, further illustrating how cognition is co-constructed within the teaching context. However, institutional pressures functioned as a double-edged sword. Participants particularly noted the absence of clear institutional guidelines for acceptable AI use, assessment practices, and academic integrity in ESP writing assignments. While intended to promote innovation, top-down mandates sometimes intensified anxiety and resistance. This suggests that contextual constraints may conflict with teachers' existing belief systems, leading to cognitive dissonance. Thus, teacher cognition is not only shaped by individual factors but also by institutional environments that can either support or constrain pedagogical change.

5.3 How Do ESP Teachers Perceive the Influence of Generative AI on Their Writing Instructional Practices?

In relation to the third research question, which focused on the impact of GenAI on teaching practices, the findings reveal perceived pedagogical adjustments in teachers' writing instructional practices.

Teachers reported improvements in instructional design, increased variety in writing activities, and more targeted feedback. These changes go beyond basic technology use and reflect a deeper integration of technological, pedagogical, and content knowledge, as conceptualized in the TPACK framework.

Importantly, from a teacher cognition perspective, these pedagogical shifts represent the translation of evolving beliefs and knowledge into practice. As teachers develop new understandings of GenAI and its affordances, their instructional practices are reconfigured accordingly. This aligns with Borg's assertion that teacher cognition is reflected in classroom practices, which are continuously shaped by both internal beliefs and external contextual factors.

Elements of the TPACK framework were reflected in how some teachers described integrating GenAI into writing instruction through the interaction of technological tools, pedagogical practices, and ESP content-related writing tasks. This shift suggests that effective GenAI adoption is not merely a function of acceptance (as explained by TAM) but also of teachers' evolving cognitive frameworks and their ability to integrate technology meaningfully into instruction.

Furthermore, engagement with GenAI triggered a continuous cycle of professional development, as teachers actively participated in training and self-directed learning. This process can be interpreted through the lens of teacher cognition as ongoing cognitive restructuring, where new knowledge, experiences, and reflections contribute to the refinement of beliefs and practices. The resulting increase in self-efficacy further reinforces both frameworks.

At the same time, participants also expressed concerns regarding formulaic writing patterns, reduced student authorship, and possible overdependence on AI-generated content in ESP writing contexts.

Ultimately, the findings suggest a complementary relationship between TAM, TPACK, and teacher cognition. While TAM accounts for teachers' acceptance of GenAI and TPACK explains the nature of its pedagogical integration, Borg's model provides a deeper explanatory lens for understanding how teachers' beliefs, knowledge, and practices are dynamically reconfigured. Together, these frameworks offer a comprehensive interpretation of ESP teachers' engagement with GenAI, highlighting that successful adoption depends not only on positive perceptions and technical competence but also on the ongoing evolution of teacher cognition.

5.4 Pedagogical Implications

The findings suggest several potential directions that may inform ESP teaching practice and professional development in relation to Generative AI. First, the presence of emotional ambivalence indicates that professional development initiatives may benefit from acknowledging teachers' affective experiences, in addition to technical training. While the data do not allow for generalizable recommendations, creating reflective spaces where teachers can articulate both positive and negative perceptions of GenAI could support more balanced engagement with the technology. Second, the reported influence of colleagues highlights the potential value of informal or emerging collaborative practices among ESP teachers. Rather than prescribing formal structures, the findings suggest that peer exchange and shared experimentation may play a role in shaping teachers' engagement with GenAI, particularly in reducing uncertainty and facilitating context-sensitive use.

Third, the findings highlight the importance of context-sensitive GenAI integration within ESP settings, particularly in Arab higher education environments (Emran et al., 2026). Consistent with Mohamed et al. (2026), AI tools appear most effective when applied to discipline-specific language tasks, including genre analysis, feedback design, prompt evaluation, and the teaching of specialized writing conventions. Teachers' concerns about discipline-specific accuracy and pedagogical appropriateness suggest that future initiatives may need to consider the specific demands of ESP writing, rather than relying solely on general AI guidelines. However, the study does not provide sufficient evidence to advocate for specific models or frameworks. Finally, the results indicate a shift in how teachers perceive their roles when using GenAI, particularly in terms of evaluating and adapting AI-generated content. This suggests that ESP teachers may increasingly engage in reflective and selective use of AI tools, although further research is needed to understand how such practices develop across different contexts.

6. Conclusion

This study offers an exploratory perspective on how ESP teachers experience and interpret the integration of Generative AI in writing instruction. The findings suggest that teachers' engagement with GenAI is characterized by emotional ambivalence, where technophilic motivations coexist with elements of concern and uncertainty, shaped by contextual factors such as social interactions, institutional expectations, and the evolving demands of ESP teaching. While the data indicate that GenAI may support certain aspects of pedagogical practice, including instructional design and feedback, these insights should be interpreted cautiously due to the study's limited scope and reliance on self-reported experiences. Rather than presenting definitive conclusions, the study highlights emerging patterns that point to the potential of GenAI as a supportive, context-dependent resource when used critically and reflectively. The study's main contribution lies in providing qualitative insight into how ESP teachers negotiate opportunities and concerns related to GenAI within university writing instruction contexts. At the same time, the findings underscore the need for further research with broader samples and multiple data sources to better understand how teachers' practices and perceptions develop over time. The findings should be interpreted as teachers' self-reported perceptions and experiences rather than direct observations of classroom practices.

6.1 Limitations and Recommendations for Future Research

These findings have several limitations to consider when applying them. To begin with, the fact that the study was conducted only in Egyptian universities restricts the transferability of the findings to other cultural and educational settings. Second, the sample of highly experienced teachers may not have been a fair representation of early-career teachers' views. Third, the sample was predominantly female (23 females, 1 male), which may limit the transferability of findings to contexts with different gender distributions. Fourth, although all

participants taught ESP-oriented writing courses, their formal academic specializations varied (e.g., English Literature, TESOL, Education), which may have influenced their technophilic or technophobic orientations. Fifth, AI technologies are evolving rapidly, suggesting that teachers' perceptions and practices can change rapidly, potentially reducing the long-term applicability of the findings. Finally, the research was primarily based on self-reported data, which is susceptible to social desirability bias.

Based on these limitations, it is suggested that future research pursue a number of avenues. The next step, which is essential, is to conduct large, cross-national studies with an even larger and more varied sample of ESP teachers. It would permit validating the suggested model of readiness and making comparative studies between various educational systems. Second, longitudinal research should be conducted to monitor teacher attitudes and practices in response to the maturation and increased adoption of AI technologies in the educational system. Third, effective professional development models grounded in AI literacy and encompassing both technical and pedagogical aspects should be developed and tested through research. Fourth, empirical research examining students' attitudes and practices regarding AI use in ESP writing instruction would provide an important complement to the present findings. Finally, the assessment frameworks of AI-assisted writing need to be studied urgently in order to resolve the issue of academic integrity and evaluation impartiality.

AI Disclosure Statement

During the preparation of this manuscript, the authors used Grammarly and DeepSeek for language refinement and readability support. These tools were not used for data analysis, interpretation of findings, reference generation, or scholarly decision-making. All content was critically reviewed and verified by the authors, who take full responsibility for the accuracy and integrity of the final manuscript.

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Author contributions

MA was responsible for the study design, theoretical framework development, funding acquisition, and manuscript revision. AAK contributed to the study design, supervision of the research process, and critical revision of the manuscript. AMMAE contributed to manuscript revision, theoretical refinement, and review of the final draft. SMAN contributed to data interpretation and manuscript review. ASW contributed to manuscript editing and language revision. AMM was responsible for data collection, thematic analysis, drafting the manuscript, managing the revision process, and responding to reviewers' comments. All authors read and approved the final version of the manuscript and agreed to its submission for publication.

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Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Obtained.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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Appendix A

Interview Questions

- 1- How do you currently integrate Generative AI tools into your ESP writing instruction, and how do you perceive their role in supporting both content and pedagogy?
(Assesses technological–pedagogical–content synergy.)
- 2- How does your level of technological confidence influence your willingness to use Generative AI in ESP writing instruction?
- 3- How do your beliefs about how useful or easy Generative AI is — and the kind of support or encouragement you get from your institution or colleagues — affect whether you feel positive or negative about using it in your writing classes?
(Explores perceived usefulness and ease of use.)
- 4- How do your colleagues, students, or institution influence your decision to adopt or avoid Generative AI in ESP writing classes?
(Examines social and organizational factors.)
- 5- What personal feelings do you have toward using Generative AI in your teaching—such as excitement, curiosity, hesitation, or anxiety—and how do these emotions affect your willingness to experiment with it?
(Captures emotional orientation and openness to innovation.)
- 6- How has your experience with Generative AI influenced your beliefs, decision-making, and overall performance as an ESP writing teacher?
(Explores shifts in teacher cognition—beliefs, knowledge, and classroom behavior—resulting from AI integration.)