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METAPHORICAL AND TAM-BASED PERCEPTIONS OF GENERATIVE AI AMONG HIGH SCHOOL EFL TEACHERS IN VIETNAM: A MIXED-METHODS INVESTIGATION

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Abstract:
The rapid emergence of generative artificial intelligence (GenAI) tools has created both opportunities and challenges for teachers across educational contexts. While a growing body of research has examined GenAI integration in higher education and in Western settings, empirical evidence from secondary school teachers in Southeast Asia, particularly Vietnam, remains scarce. This study investigated high school English teachers' perceptions of integrating GenAI tools into teaching, focusing on three dimensions namely perceived usefulness, perceived ease of use, and ethical concerns. Employing a mixed-methods design, data were collected from English teachers at two public high schools in Ho Chi Minh City, Vietnam, through a single online questionnaire comprising a validated 15-item Likert-scale instrument and a metaphor elicitation task (N = 43). Quantitative data were analysed using descriptive statistics and reliability analysis, while qualitative data were subjected to Huang and Feng's (2019) three-stage metaphorical analysis. The study was grounded in Davis's (1989) Technology Acceptance Model (TAM) and drew on Lakoff and Johnson's (1980) conceptual metaphor theory as a complementary analytical lens. Findings revealed a differentiated perceptual pattern: teachers reported the highest agreement with perceived usefulness (M = 4.13), followed by ethical concerns (M = 3.97), and perceived ease of use (M = 3.72). Metaphor analysis identified five conceptual categories, of which GenAI as an assistant was dominant (55.9%), complemented by knowledge resource, adaptive instrument, companion, and double-edged sword framings. The study contributes empirical evidence from a Vietnamese secondary school context and offers practical implications for professional development and institutional policy regarding GenAI integration.

Keywords: GenAI, teacher perceptions, Technology Acceptance Model, metaphor, high school

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1. Introduction

The emergence of generative artificial intelligence (GenAI) tools (most notably ChatGPT, Google Gemini, and Microsoft Copilot) has profoundly changed educational practices worldwide. Since the public release of ChatGPT in late 2022, educators and policymakers have been confronted with a rapidly shifting technological landscape that demands new competencies, pedagogical adaptations, and institutional responses (Choi *et al.*, 2025; Shankar *et al.*, 2025). Unlike earlier generations of educational technology, GenAI tools are capable of producing coherent texts, generating lesson materials, providing personalised feedback, and engaging in open-ended instructional dialogue, thereby blurring the boundaries between human and machine-mediated pedagogy (Meishar-Tal *et al.*, 2025).

In the broader landscape of English as a Foreign Language (EFL) education, GenAI tools have attracted particular attention for their potential to support language learning, automate corrective feedback, and scaffold writing development (Jiang *et al.*, 2026). However, the effective integration of these tools ultimately depends on the perceptions and dispositions of the teachers who mediate their use in classrooms. Research consistently shows that teachers'perceived usefulness and ease of use of a technology are strong predictors of actual adoption behaviour (Davis, 1989; Granic & Marangunić, 2019), and that perceived ethical concerns (including fears of academic dishonesty, data privacy violations, and student overdependence) can constitute significant barriers to integration (Thong *et al.*, 2023; Shankar *et al.*, 2025).

Vietnam presents a particularly instructive context for this inquiry. As a lower-middle-income country undergoing rapid digital transformation, Vietnam faces structural constraints (including uneven infrastructure, variable teacher digital literacy, and limited institutional guidance) that shape how GenAI tools are perceived and used in schools (Xuan *et al.*, 2025). Although the Vietnamese government has begun promoting digital education reforms, empirical research examining how high school teachers perceive and conceptualise GenAI tools in their teaching remains largely absent from the literature.

Existing studies on teacher perceptions of GenAI have primarily been conducted in higher education settings (Nazim & Alzubi, 2025; Shankar *et al.*, 2025) or in well-resourced contexts such as Hong Kong, Israel, and Sweden (Choi *et al.*, 2025; Meishar-Tal *et al.*, 2025; Söderström *et al.*, 2024). High school teachers in developing countries face unique challenges related to limited resources, institutional constraints, and professional expectations. To explore how these teachers conceptualise and experience GenAI in their work, this study employed metaphor elicitation as a complementary research method. Unlike conventional question formats, metaphor elicitation enables researchers to access deeper conceptual structures and underlying beliefs that may otherwise remain hidden (Lakoff & Johnson, 1980; Huang & Feng, 2019; Nhung & Ha, 2025). This approach provided richer insights into teachers'perceptions and experiences of GenAI beyond what the Likert-scale instrument alone could yield.

2. Literature Review

2.1 Generative AI in Education

GenAI tools represent a significant advancement in educational technology due to their ability to generate novel and contextually relevant content in response to natural language prompts. Their adoption in education has increased rapidly since 2023, with applications ranging from lesson planning and formative assessment to personalised tutoring and writing support (Shankar *et al.*, 2025). Existing research indicates that teachers primarily use GenAI to support instructional preparation, such as developing teaching materials, designing differentiated learning activities, and producing model texts. By comparison, the integration of GenAI into student learning activities remains more limited and is generally implemented with greater caution (Meishar-Tal *et al.*, 2025).

In the EFL context specifically, GenAI tools have demonstrated potential for providing timely, detailed grammatical and lexical feedback, with studies from Chinese senior high schools showing that GenAI-supported feedback significantly improved the writing performance of lower-proficiency students (Jiang *et al.*, 2026). Similarly, research from Japan and Hong Kong highlights how pre-service and in-service EFL teachers are beginning to co-design instructional activities that integrate GenAI with conventional text-based approaches, though concerns about over-reliance and pedagogical alignment remain prominent (Choi *et al.*, 2025). In Vietnam, a small but emerging body of work suggests that GenAI tools are being adopted in university English teaching, but evidence from secondary schools is almost entirely absent (Xuan *et al.*, 2025; Ngoc *et al.*, 2025).

2.2 The Technology Acceptance Model and Teachers' Perceptions of GenAI

The Technology Acceptance Model (TAM), originally proposed by Davis (1989), posits that two core constructs, namely perceived usefulness (PU) and perceived ease of use (PEOU), are the primary determinants of individuals'intentions to adopt a technology. PU refers to the degree to which a user believes that a technology will enhance their task performance, while PEOU reflects the extent to which using the technology is perceived as effortless. Since its inception, TAM has been widely applied in educational technology research and has been validated across multiple contexts involving teachers and students (Granic & Marangunić, 2019; Xue *et al.*, 2026).

Recent meta-analyses confirm that both PU and PEOU remain central predictors of teachers'acceptance of AI-based educational tools (Xue *et al.*, 2026). Similarly, Saharuddin *et al.* (2025) examined primary school teachers'AI-TPACK levels and found that perceived competence in using AI tools was significantly influenced by prior training and professional development opportunities, reinforcing the role of institutional support as a moderating factor. Yim and Wegerif (2024) also reported that teachers who perceived AI tools as both useful and easy to use demonstrated more positive attitudes toward integrating AI literacy education for young students. These findings further validate the TAM framework for GenAI-specific contexts.

In teacher-specific studies, Meishar-Tal *et al.* (2025) found that among 102 Israeli high school teachers, personal use of GenAI was predicted by attitudes, PU, and perceived behavioural control, while classroom integration was shaped by a more complex interplay of professional confidence and institutional norms. Similarly, ElSayary *et al.* (2025) identified that teachers'perceptions of GenAI tools for lesson planning were closely tied to their AI literacy (particularly their ability to formulate effective prompts), underscoring the intersection between PEOU and technical self-efficacy. These findings indicate that without adequate professional development and institutional guidance, teachers are likely to maintain mixed views of GenAI tools, which may hinder their classroom integration.

2.3 Ethical Concerns as a Barrier to GenAI Integration

Alongside perceived usefulness and ease of use, ethical concerns constitute a third major dimension of teachers'perceptions of GenAI. These concerns cluster around three interrelated issues, namely academic integrity, critical thinking, and data privacy. Regarding academic integrity, studies consistently report that teachers fear students will use AI-generated content dishonestly, which may undermine learning and assessment validity (Tan & Maravilla, 2024; Bittle & El-Gayar, 2025). Studies from various countries indicate that teachers'concerns are justified. Specifically, Tan and Maravilla (2024) reported that over 58% of surveyed students admitted misusing AI tools, leading teachers to become more vigilant.

Regarding critical thinking, a recurring concern in the literature is that GenAI tools may cause student overdependence, eroding independent reasoning and problem-solving abilities (Söderström *et al.*, 2024; Shankar *et al.*, 2025). In their qualitative case study of in-service language teachers at a Hong Kong secondary school, Choi *et al.* (2025) found that even teachers who adopted GenAI at an early stage expressed mixed views about its use. While they acknowledged the instructional benefits offered by GenAI, they also consistently raised concerns that students might rely on AI-generated content instead of engaging in their own learning processes. Finally, data privacy and copyright concerns remain structurally underaddressed in secondary school contexts, where institutional policies on GenAI use are often absent or nascent (ElSayary *et al.*, 2025).

In the Vietnamese context, Nguyen *et al.* (2025) identified similar patterns, noting that teachers in Vietnamese universities recognised the pedagogical potential of GenAI tools but raised persistent concerns about information accuracy, critical thinking decline, and the absence of institutional guidelines. Using the Unified Theory of Acceptance and Use of Technology, a broader national survey of Vietnamese teachers (Nguyen *et al.*, 2025) revealed that positive attitudes toward GenAI strongly shaped teachers'intention to adopt the technology. However, concerns related to privacy and ethics reduced this acceptance, especially in contexts lacking adequate training on responsible AI use.

2.4 Metaphor Elicitation as a Methodological Lens

Metaphor analysis is based on Lakoff and Johnson's (1980) conceptual metaphor theory, which argues that people understand abstract ideas through more concrete experiences and concepts. From this perspective, human thinking is inherently metaphorical because individuals often use familiar experiences to make sense of complex or abstract phenomena. In educational research, metaphor elicitation has been widely employed to uncover teachers'and learners'underlying beliefs, emotions, and ways of thinking. These deeper perspectives are often difficult to capture through conventional question-and-answer methods alone (De Guerrero & Villamil, 2000; Wan & Low, 2015).

Methodologically, metaphor elicitation typically uses a prompt in the form of "*X is like Y because...*" to encourage participants to express their understanding of a concept through familiar images or experiences (Low, 2015; Fisher, 2017). This approach has been widely used in EFL research to explore teachers' and learners' perceptions of technology. For example, Aydogmus and Arslantas (2020) used metaphor elicitation to investigate pre-service teachers' views of Web 2.0 tools, while Hu *et al.* (2025) applied it to examine perceptions of AI education. Similarly, Nhung and Ha (2025) found that metaphor elicitation generated rich and multidimensional insights into EFL learners'understanding of ICT-mediated peer feedback, revealing perspectives that might not be fully captured through interviews or questionnaires alone. Given its ability to uncover deeper beliefs and perceptions, this method was adopted in the present study.

Metaphor elicitation data are commonly analysed using Huang and Feng's (2019) three-stage framework, including labelling, sorting, and categorisation. This approach helps researchers identify genuine metaphors, distinguish them from literal descriptions, and group similar metaphors into broader conceptual categories. In the present study, this framework was used to analyse participants'metaphorical responses, enabling the qualitative findings to explain and enrich the patterns identified in the quantitative data.

2.5 Research Gap

A review of the literature identifies three key gaps. First, despite growing research on teachers' perceptions of GenAI, high school teachers in developing countries, including Vietnam, remain underrepresented. Second, most studies rely on either quantitative or qualitative methods, with few integrating TAM-based measures and metaphor elicitation within a mixed-methods design. Third, no study in the Vietnamese high school context has examined teachers' perceptions of GenAI across perceived usefulness, ease of use, and ethical concerns while also exploring their underlying conceptualisations through metaphor analysis. The present study addresses these three gaps.

This study therefore addresses the following research questions:

RQ1: What are high school English teachers' perceptions of integrating generative AI into teaching?

RQ2: How do high school English teachers metaphorically conceptualise generative AI in their teaching practice?

3. Material and Methods

3.1 Research Design

This study employed a mixed-methods design (Creswell & Creswell, 2018), integrating quantitative and qualitative data collection within a single instrument. The questionnaire comprised two components that were administered simultaneously. The first was a 15-item Likert-scale instrument measuring teachers' perceptions of GenAI integration across three constructs. The second was a metaphor elicitation task designed to explore the conceptual structures underlying those perceptions. Quantitative responses were analysed first to characterise the overall perceptual pattern, after which the qualitative metaphorical data were examined to elaborate and contextualise the quantitative findings. This approach is consistent with mixed-methods studies of teacher technology perceptions (Nazim & Alzubi, 2025; Shankar *et al.*, 2025) and is appropriate given the study's dual aim of measuring and explaining teachers' orientations toward GenAI.

3.2 Participants and Setting

The study was conducted at two public high schools in Ho Chi Minh City, Vietnam. Participants were recruited through purposive convenience sampling and included all in-service English teachers who agreed to participate. A total of 43 teachers completed the questionnaire and provided informed consent. Among them, 42 teachers (97.7%) reported having prior experience using GenAI tools for teaching purposes. Detailed demographic information is presented in Section 4.1.1 (Table 1).

3.3 Instruments

3.3.1 Perceptions of GenAI Integration Scale

The Perceptions of GenAI Integration (PGAI) Scale is a researcher-developed 15-item instrument rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The scale consists of three subscales, each containing five items. The first subscale, Perceived Usefulness (B1), was grounded in Davis's (1989) Technology Acceptance Model (TAM). The second subscale, Perceived Ease of Use (B2), was also derived from TAM and adapted to the context of GenAI tools. The third subscale, Ethical Concerns and Barriers (B3), was developed from themes identified in the literature (Tan & Maravilla, 2024; Shankar *et al.*, 2025; ElSayary *et al.*, 2025). The instrument was administered in English because all participants were English teachers.

3.3.2 Metaphor Elicitation Task

The metaphor elicitation task was adapted from the format employed by Nhung and Ha (2025) and Okyar (2023). Participants were asked to complete the prompt "*Generative AI tools in my teaching are like* _____ *because* _____.", providing both a metaphor and an explanation. Consistent with established metaphor research practices (Low, 2015; Fisher, 2017; Schmitt, 2005), the inclusion of the "because" component enabled participants to explain the reasoning behind their metaphors, thereby facilitating the interpretation of

their underlying conceptualisations (Wan *et al.*, 2011). The task was administered alongside the PGAI Scale within the same questionnaire.

3.4 Data Collection Procedures

The PGAI Scale and the metaphor elicitation task were administered simultaneously as a single online questionnaire using Google Forms. The survey was distributed to all English teachers at the two participating schools via their respective institutional communication platforms during one academic term. Participation was voluntary, anonymous, and conducted in compliance with ethical research principles. The questionnaire was administered in English, as all participants are English teachers. All 43 consenting responses were retained for analysis.

3.5 Data Analysis Procedures

3.5.1 Quantitative Analysis

Quantitative data were entered into SPSS (Version 26) and analysed in two stages. First, internal consistency was assessed using Cronbach's alpha for each of the three subscales. Second, descriptive statistics (mean, standard deviation) were computed for each subscale and for individual items to characterise the overall distribution of perceptions.

3.5.2 Qualitative Analysis

Metaphorical responses were analysed following Huang and Feng's (2019) three-stage framework. In Stage 1 (naming/labelling), metaphorical expressions were identified and separated from literal descriptions; responses that were illogical, devoid of a metaphorical vehicle, or unintelligible were excluded. In Stage 2 (sorting), valid metaphors were grouped by their target domain while attending to the semantic content of the "because" justification. In Stage 3 (categorisation), recurring metaphorical themes were assembled into conceptual categories using inductive labelling. Inter-rater reliability was established by having a second coder independently categorise a randomly selected 25% of the responses; Cohen's kappa was calculated at a satisfactory level above the minimum acceptable value of .75 (Landis & Koch, 1977).

Inter-rater reliability was established by having a second coder independently categorise a randomly selected 25% of the metaphorical responses (n = 9). Cohen's kappa was calculated at κ = .82, indicating almost perfect agreement (Landis & Koch, 1977) and confirming the reliability of the categorisation process.

4. Results and Discussion

4.1. RQ1: What are high school English teachers' perceptions of integrating generative AI into teaching?

4.1.1 Participant profile

A total of 43 in-service English teachers from two public high schools in Ho Chi Minh City completed the PGAI Scale. All 43 participants consented to participation. As

presented in Table 1, the sample was predominantly female (n = 29, 67.4%), with 14 male respondents (32.6%). In terms of age, the largest group was aged 30-39 (n = 17, 39.5%), followed by 40-49 (n = 13, 30.2%), under 30 (n = 10, 23.3%), and 50 or above (n = 3, 7.0%). Teaching experience was distributed relatively evenly across four bands: less than five years (n = 8, 18.6%), five to ten years (n = 12, 27.9%), eleven to twenty years (n = 12, 27.9%), and twenty or more years (n = 11, 25.6%). Regarding educational qualifications, 24 participants held a bachelor's degree (55.8%), and 19 held a master's degree (44.2%). Notably, 42 of the 43 teachers (97.7%) reported prior experience using a GenAI tool for teaching purposes, indicating near-universal prior exposure within this sample.

Table 1: Demographic Profile of Participants (N = 43)

Variable	**Category**	**n (%)**
Gender	Female	29 (67.4%)
	Male	14 (32.6%)
Age	Under 30	10 (23.3%)
	30-39	17 (39.5%)
	40-49	13 (30.2%)
	50 or above	3 (7.0%)
Teaching experience	Less than 5 years	8 (18.6%)
	5-10 years	12 (27.9%)
	11-20 years	12 (27.9%)
	More than 20 years	11 (25.6%)
Highest qualification	Bachelor's degree	24 (55.8%)
	Master's degree	19 (44.2%)
Prior GenAI use	Yes	42 (97.7%)
	No	1 (2.3%)

4.1.2 Reliability analysis

Internal consistency was assessed using Cronbach's alpha. Reliability coefficients were high across all three subscales, with alpha values of .960 for Perceived Usefulness (PU), .921 for Perceived Ease of Use (PEU), and .902 for Ethical Concerns and Barriers (EC). These values exceeded the recommended threshold of .70 (George & Mallery, 2003), indicating strong internal consistency and supporting the reliability of the instrument.

Table 2 presents the overall results for the three PGAI subscales. Teachers reported the highest level of agreement for Perceived Usefulness (M = 4.13), followed by Ethical Concerns and Barriers (M = 3.97) and Perceived Ease of Use (M = 3.72). This pattern suggests that teachers generally recognised the benefits of GenAI while remaining attentive to ethical issues, whereas perceptions of ease of use were comparatively less positive. Overall, the findings indicate a favourable orientation toward GenAI integration, accompanied by awareness of its potential risks and challenges.

Table 2: Summary of Subscale Means and Internal Consistency (N = 43)

Subscale	No. of items	M	SD	Cronbach's α
Perceived Usefulness (PU)	5	4.13	0.71	.960
Perceived Ease of Use (PEU)	5	3.72	0.79	.921
Ethical Concerns and Barriers (EC)	5	3.97	0.75	.902

Note: M = mean; SD = standard deviation. Scale: 1 = Strongly Disagree, 5 = Strongly Agree.

4.1.3 Perceived Usefulness

Descriptive statistics for the Perceived Usefulness subscale are presented in Table 3. The subscale yielded a mean of 4.13 (SD = 0.71), falling within the 'Agree'range on the five-point scale (i.e., 3.41-4.20) and approaching the 'Strongly Agree'threshold. This indicates a broadly positive evaluation of GenAI tools'professional utility among the participating teachers.

At the item level, perceived time-saving in daily teaching tasks (PU4) and overall benefit to professional practice (PU5) received the highest ratings (both M = 4.21, SD = 0.77), with 90.7% of respondents choosing each at the 'Agree'or 'Strongly Agree'level. Perceived efficiency in lesson plan preparation (PU1) and perceived enhancement of teaching material quality (PU2) received near-identical ratings (M = 4.09, SD = 0.72 and 0.75, respectively), with over 88% of participants agreeing or strongly agreeing. The lowest-rated item in the subscale concerned perceived support for providing personalised feedback to students (PU3), which still obtained a mean of 4.05 (SD = 0.82), with 86.1% of respondents in agreement. The consistently high means across all five items suggest that English teachers in this sample perceived GenAI tools as substantively useful across a range of pedagogical functions.

Table 3: Descriptive Statistics for the Perceived Usefulness Subscale (N = 43)

Item	M	SD	Agree/Strongly Agree (%)	Neutral (%)	Disagree/Strongly Disagree (%)
PU1. Using GenAI tools helps me prepare lesson plans more efficiently.	4.09	0.72	90.7%	7.0%	2.3%
PU2. GenAI tools enhance the quality of my teaching materials.	4.09	0.75	88.4%	9.3%	2.3%
PU3. GenAI tools help me provide more personalised feedback to students.	4.05	0.82	86.1%	9.3%	4.6%
PU4. Using GenAI tools saves me significant time in my daily teaching tasks.	4.21	0.77	90.7%	7.0%	2.3%
PU5. Overall, GenAI tools are beneficial for my professional practice.	4.21	0.77	90.7%	7.0%	2.3%
Subscale mean	**4.13**	**0.71**			

Note: M = mean; SD = standard deviation. Scale: 1 = Strongly Disagree, 5 = Strongly Agree.

4.1.4 Perceived Ease of Use

The Perceived Ease of Use subscale produced a mean of 3.72 (SD = 0.79), indicating a moderate level of agreement that falls within the 'Agree'range but notably lower than the Perceived Usefulness subscale. Item-level data are presented in Table 4.

The item addressing interface user-friendliness (PEU8) received the highest rating in this subscale (M = 3.86, SD = 0.86), with 76.7% of respondents agreeing or strongly agreeing. Perceived adaptability of GenAI tools to specific teaching needs (PEU10) obtained a mean of 3.79 (SD = 0.91), while perceived speed of learning to operate new GenAI tools (PEU7) and confidence in effective classroom use (PEU9) both yielded means of 3.72 (SD = 0.93 and 0.85 respectively). The lowest-rated item in this subscale concerned ease of use without extensive prior training (PEU6; M = 3.51, SD = 0.98), which also recorded the highest proportion of disagreement within the subscale (18.6%). The relatively greater dispersion observed on PEU items compared to PU items suggests more varied individual experiences with GenAI tool interfaces and self-efficacy, which may be partly attributable to differences in age, experience, or prior digital training.

Table 4: Descriptive Statistics for the Perceived Ease of Use Subscale (N = 43)

Item	M	SD	Agree/Strongly Agree (%)	Neutral (%)	Disagree/Strongly Disagree (%)
PEU6. I find GenAI tools easy to use without extensive training.	3.51	0.98	53.5%	27.9%	18.6%
PEU7. I can quickly learn how to operate new GenAI tools for teaching.	3.72	0.93	69.8%	18.6%	11.6%
PEU8. The interface of GenAI tools I have used is user-friendly.	3.86	0.86	76.7%	16.3%	7.0%
PEU9. I feel confident in my ability to use GenAI tools effectively in the classroom.	3.72	0.85	65.1%	25.6%	9.3%
PEU10. GenAI tools are flexible enough to adapt to my specific teaching needs.	3.79	0.91	72.1%	18.6%	9.3%
Subscale mean	**3.72**	**0.79**			

Note: M = mean; SD = standard deviation. Scale: 1 = Strongly Disagree, 5 = Strongly Agree.

4.1.5 Ethical Concerns and Barriers

The Ethical Concerns and Barriers subscale yielded a mean of 3.97 (SD = 0.75), placing it within the 'Agree'band and indicating that teachers, on average, concurred with the ethical issues and institutional barriers described in the items. Item statistics are presented in Table 5.

The item addressing concern about GenAI-induced erosion of students'critical thinking skills (EC13) received the highest mean in this subscale (M = 4.21, SD = 0.77), with 90.7% of participants agreeing or strongly agreeing. The item recognising that

GenAI use raises ethical issues requiring careful attention (EC12) was also highly endorsed (M = 4.12, SD = 0.76; 88.4% agreeing or strongly agreeing), as was concern about potential student misuse of GenAI for academic dishonesty (EC11; M = 4.09, SD = 0.92). These three items collectively suggest that concerns about the risks of GenAI for student learning are pervasive and strongly felt.

By contrast, the two items addressing institutional dimensions yielded comparatively lower means. The item concerning perceived insufficiency of school-level guidance on ethical GenAI use (EC14) was rated at M = 3.58 (SD = 1.01), with the largest within-subscale proportion of neutral or negative responses (37.3% combined). Uncertainty about how to handle copyright and data privacy issues when using GenAI (EC15) obtained a mean of 3.86 (SD = 0.94). The higher standard deviations on EC14 and EC15 indicate greater individual variability, reflecting differences in the guidance policies operative across the two participating schools.

Table 5: Descriptive Statistics for the Ethical Concerns and Barriers Subscale (N = 43)

Item	M	SD	Agree/Strongly Agree (%)	Neutral (%)	Disagree/Strongly Disagree (%)
EC11. I am concerned that students may misuse GenAI tools for academic dishonesty.	4.09	0.92	83.7%	9.3%	7.0%
EC12. Using GenAI in teaching raises ethical issues that need to be carefully addressed.	4.12	0.76	88.4%	9.3%	2.3%
EC13. I worry that over-reliance on GenAI may weaken students'critical thinking skills.	4.21	0.77	90.7%	7.0%	2.3%
EC14. My school does not provide sufficient guidance on the ethical use of GenAI.	3.58	1.01	60.5%	23.3%	16.3%
EC15. I am uncertain about how to address copyright and data privacy issues when using GenAI.	3.86	0.94	74.5%	16.3%	9.3%
Subscale mean	**3.97**	**0.75**			

Note: M = mean; SD = standard deviation. Scale: 1 = Strongly Disagree, 5 = Strongly Agree.

The overall pattern of subscale means (PU: M = 4.13; EC: M = 3.97; PEU: M = 3.72) reveals that teachers in this sample most strongly endorsed GenAI tools'professional utility while acknowledging substantial ethical concerns, and expressed a more qualified but still positive evaluation of usability. This ordering is consistent with the meta-analytic findings of Xue *et al.* (2026), who identified PU as the strongest predictor of AI adoption intention in educational settings, and with Meishar-Tal *et al.*'s (2025) observation that secondary school teachers were more confident about the benefits of GenAI than about their own capacity to use it effectively.

The particularly high endorsement of time-saving and overall professional benefit items (PU4 and PU5, both M = 4.21) is consistent with the broader literature on teacher use of GenAI, which consistently identifies lesson preparation efficiency as the primary reported benefit (Shankar *et al.*, 2025). The relatively lower mean on PU3 (personalised feedback; M = 4.05) suggests that teachers are somewhat less confident about GenAI's capacity to support student-facing applications, a finding consonant with Choi *et al.*'s (2025) observation that even enthusiastic early adopters hesitate to deploy GenAI directly with students.

The Perceived Ease of Use subscale's lower mean and greater variability are theoretically significant. Item PEU6 (ease without extensive training; M = 3.51) recorded the lowest mean across all fifteen items and the highest proportion of disagreement (18.6%), implying that a non-trivial minority of teachers perceive a meaningful learning barrier associated with GenAI tools. This finding reinforces ElSayary *et al.*'s (2025) argument that prompt engineering literacy, rather than mere interface familiarity, constitutes the primary competence teachers need to develop, and supports the call for structured professional development as a prerequisite for confident GenAI integration.

Ethical concerns were broadly and strongly shared, with EC13 (critical thinking erosion; M = 4.21) and EC12 (ethical complexity; M = 4.12) receiving among the highest endorsements in the entire instrument. This pattern mirrors findings from diverse national contexts: Shankar *et al.* (2025) identified critical thinking concerns as a recurring theme among teachers globally, while Tan and Maravilla (2024) and Bittle and El-Gayar (2025) document the persistence of academic integrity concerns across educational levels. The comparatively lower mean on EC14 (institutional guidance; M = 3.58) and its higher variance suggest heterogeneity in the institutional contexts of the two participating schools, a finding that warrants attention from school leadership and policymakers.

4.2. RQ2: How do high school teachers metaphorically conceptualise generative AI in their teaching practice?

4.2.1 Conceptual metaphor categories

Following Huang and Feng's (2019) three-stage framework, the 43 responses were screened to identify valid metaphorical expressions. Nine responses were excluded from further analysis because they did not contain interpretable metaphors. These included responses that merely named GenAI tools (e.g., "Gemini," "ChatGPT"), provided uninformative statements (e.g., "I don't know"), or described functional attributes without a conceptual comparison (e.g., "a powerful support tool"). This process resulted in a final dataset of 34 valid metaphorical expressions generated by 33 participants, with some participants producing more than one metaphorical vehicle.

Analysis of the metaphorical vehicles and their accompanying explanations revealed five conceptual metaphor categories, as summarised in Table 6. Three dominant categories portrayed GenAI as professional human support, a source of knowledge, and a creative or adaptive tool. A smaller category emphasised the conditional or double-

edged nature of GenAI, highlighting teachers'awareness of its potential risks and limitations.

Table 6: Summary of Metaphor Categories (N = 34 valid metaphors)

Conceptual metaphor	**Vehicle terms (examples)**	**n (%)**	**Underlying meanings**
GenAI as an assistant	assistant, capable aide, teaching assistant, personal assistant	19 (55.9%)	Supports lesson preparation, idea generation, time-saving; always available; follows instructions
GenAI as a companion or friend	friend, companion	3 (8.8%)	Offers professional advice; accompanies daily teaching; provides collegial support
GenAI as a knowledge resource	library, key, bridge	5 (14.7%)	Provides access to knowledge and materials at any time; connects creativity, knowledge, and technology
GenAI as an adaptive instrument	left hand, means/instrument, kaleidoscope	5 (14.7%)	Flexible, versatile, and indispensable for teaching; generates fresh perspectives on familiar content
GenAI as a double-edged sword	double-edged sword, teacher/colleague	2 (5.9%)	Beneficial when used correctly and ethically; harmful if misused
Total		**34 (100%)**	

4.2.2 GenAI as an assistant

The most pervasive conceptual metaphor structure was GenAI as an assistant, present in 19 of the 34 valid responses (55.9%). The vehicle terms employed across this category, including assistant, capable aide, teaching assistant, and personal assistant, all shared a common mapping: GenAI tools are conceptualised as a subordinate human agent that supports, executes, and augments the teacher's professional work. Three sub-mappings were discernible within this overarching structure.

The most frequent sub-mapping positioned GenAI tools as a teaching assistant specialised in lesson preparation, material generation, and pedagogical idea sourcing. Multiple participants articulated the metaphor in near-identical terms.

T25 wrote:

> *"Generative AI tools in my teaching are like a teaching assistant because they help me prepare materials quickly and give me new ideas for classroom activities."*

T28 also expressed:

> *"Like a teaching assistant, helping me prepare lessons faster and more effectively, with more creative ideas."*

These accounts emphasise the dual function of speed and quality: GenAI tools are perceived as accelerating a time-intensive professional task (lesson preparation) while simultaneously enhancing its creative and pedagogical output.

A second sub-mapping emphasised the temporal and spatial availability of GenAI tools as a defining feature of their assistant-like character. T1 explicitly employed the image of *"A full-time capable aide because I can use them anywhere, at any time."* T12 similarly described GenAI as, *"My assistant because it can support me at any time I need."*

The emphasis on constant accessibility distinguishes this sub-mapping from conventional human assistant relationships, which are bounded by time.

A third, less frequent but conceptually distinct sub-mapping characterised the assistant as subordinate and responsive to the teacher's directives. T18 expressed this most explicitly: *"An assistant because it follows my commands."* This framing positions the teacher as the principal decision-maker and GenAI as an executor with no autonomous agenda, a conceptualisation that both affirms teacher authority and implicitly addresses concerns about over-reliance. T40 similarly described GenAI as an assistant that "*transforms my ideas into more visual and effective products*", casting the teacher as the creative originator and GenAI as the implementing instrument.

4.2.3 GenAI as a companion or friend

Three participants (8.8%) conceptualised GenAI tools through a relational metaphor: GenAI as a companion or friend. Unlike the assistant metaphor, which posits a hierarchical relationship (teacher as principal, GenAI as subordinate), the companion metaphor implies a more horizontal, collaborative bond. Vehicle terms included companion and friend. T7 wrote:

> *"A companion because it supports me greatly in my professional work and in many other areas."*

T20 described it as:

> *"A friend because it contributes suggestions and comments on my teaching activity design, helping it become more complete."*

The rationale underlying T20's metaphor is particularly nuanced: the friend does not simply execute tasks but actively contributes opinions and gives feedback, implying dialogue and co-refinement.

4.2.4 GenAI as a knowledge resource

Five participants (14.7%) conceptualised GenAI as a source of knowledge and information. Their metaphors included a library, a key, and a bridge, all of which highlighted GenAI's role in providing access to knowledge and supporting learning.

Three participants compared GenAI to a library, emphasising its ability to provide a large amount of information and ideas whenever needed. T8 described it as:

"Like a huge library because it always gives me new knowledge and new understanding."

Similarly, T26 stated:

"Generative AI tools in my teaching are like a library because I can search information for my lessons."

T9 also viewed GenAI as a library but highlighted the need for teachers to evaluate and select information carefully. Although GenAI provides access to a wide range of resources, the participant noted that not all information should be accepted uncritically. This perspective positions teachers as active evaluators of AI-generated content.

A different metaphor was provided by T23, who described GenAI as *"A key because it opens many useful pieces of knowledge."* This metaphor suggests that GenAI helps teachers access information that may otherwise be difficult or time-consuming to obtain. T29 offered another perspective by comparing GenAI to a bridge:

"Generative AI tools in my teaching are like a bridge because they connect creativity, knowledge, and technology to make learning more engaging and effective."

Unlike the library and key metaphors, which focus primarily on accessing information, the bridge metaphor highlights GenAI's ability to connect different ideas and resources. This view suggests that GenAI not only provides knowledge but also helps teachers combine information, creativity, and technology in ways that support more engaging learning experiences.

4.2.5 GenAI as an adaptive instrument

Five participants (14.7%) described GenAI through tool- or instrument-related metaphors, highlighting its flexibility and practical value in teaching. Unlike the assistant and companion metaphors, which portray GenAI as a human-like helper, these metaphors position it as a tool that supports teachers in carrying out professional tasks. T6, for example, compared GenAI to a "*left hand because it is very useful*", suggesting that it is viewed as a reliable and helpful aid in everyday teaching activities.

The choice of non-dominant hand suggests an indispensable secondary support that enables fuller performance. T35 employed the more abstract vehicle of flexible means/instrument, explicitly linking this to the tool's adaptability: *"A flexible means/instrument because it is diverse and rich."*

The most conceptually distinctive metaphor in this category was produced by T37:

> *"Generative AI in my teaching is like a kaleidoscope because every time I turn to it with a new prompt, it rearranges information to give me a completely fresh, colourful perspective on a topic I've taught for years."*

This metaphor is notable for several reasons. First, it introduces the concept of teacher input (the "new prompt") as the mechanism that activates transformation, foregrounding human-AI co-creation rather than passive tool use. Second, it highlights the aesthetic and affective dimension of GenAI's output ("fresh, colourful perspective"), which is absent from other metaphors. Third, it positions GenAI as a means of refreshing professional vision on familiar, potentially routinised content, a use case with particular relevance for experienced teachers.

4.2.6 GenAI as a double-edged sword

Two participants (5.9%) used metaphors that highlighted both the benefits and potential risks of GenAI, leading to the category GenAI as a double-edged sword. These metaphors reflected the view that GenAI can be highly useful when used appropriately but may also have negative consequences if misused. T17 expressed this idea through the metaphor of a double-edged sword, emphasising that the impact of GenAI depends largely on how it is used:

> *"Generative AI tools in my teaching are like a double-edged sword because if used incorrectly they will lead to unintended consequences."*

T14 approached a similar conceptual space from a different angle, characterising GenAI as resembling a useful teacher and colleague, but crucially subordinating the metaphor to two explicit conditions:

> *"A useful teacher and colleague, if we know how to use it correctly and uphold ethical values."*

The conditional structure of T14's metaphor positions pedagogical benefit as contingent rather than inherent.

The metaphor analysis identified five conceptual metaphor structures, of which GenAI as an assistant accounted for over half of all valid responses (55.9%). The prevalence and internal diversity of this metaphor structure (encompassing sub-mappings of a teaching assistant, an always-available aide, and a command-following subordinate) reflect a pragmatic and hierarchical conceptualisation of GenAI that positions the teacher as the principal decision-maker. This framing is consistent with Hu *et al.*'s (2025) analysis of 265 pre-service teachers' AI metaphors in China, which similarly documented a predominance of tool and assistant conceptualisations. It also resonates with De Guerrero and Villamil's (2000) broader observation that teachers tend to

conceptualise technological support through frames that preserve rather than diminish professional agency.

The GenAI as a knowledge resource category (14.7%), encompassing library, key, and bridge vehicles, positions GenAI as a structural enabler of access to information and pedagogical resources. The library metaphor qualified by T9 with an explicit epistemic caveat (users must know how to filter appropriate information) introduces a critical AI literacy orientation that aligns with the emphasis of Nazim and Alzubi (2025) and ElSayary *et al.* (2025) on discriminating habits of AI use. The GenAI as an adaptive instrument category (14.7%) introduced the most conceptually creative metaphors, most strikingly T37's kaleidoscope, which foregrounds teacher agency as the activating mechanism and frames GenAI's value in terms of epistemic renewal for experienced practitioners. This is a distinctively affirmative and generative vision of human-AI collaboration that is underrepresented in the broader literature.

The GenAI as a double-edged sword category (5.9%), while quantitatively minor, carries theoretical weight as the only metaphor structure that explicitly encodes risk and conditionality. The conditional structure of T14's formulation (useful only if we know how to use it correctly and uphold ethical values) is noteworthy precisely because it positions ethical practice not as an external constraint but as a prerequisite for educational benefit. This aligns closely with the high Ethical Concerns subscale scores and suggests that, for a minority of teachers, ethical concern is not a passive worry but an active cognitive frame structuring their orientation to GenAI.

5. Recommendations

The findings carry several implications for professional development and institutional policy in the Vietnamese secondary school context. The substantial endorsement of GenAI's usefulness, combined with the perception that many tools are accessible without extensive training, suggests a broadly receptive user base. However, the minority of teachers reporting confidence deficits and ease-of-use concerns indicates that universal access and institutional support cannot be assumed. Professional development initiatives should therefore address two complementary domains: building prompt engineering literacy to address PEU barriers, and cultivating critical AI literacy to address EC concerns, particularly those relating to academic integrity and critical thinking erosion.

At the institutional level, the high mean and variance on EC14 (institutional guidance) signal that policy frameworks for GenAI use in secondary schools remain underdeveloped. This is consistent with the broader Vietnamese and Southeast Asian context documented by Xuan *et al.* (2025) and Nguyen *et al.* (2025). Schools would benefit from co-developing clear, contextually appropriate guidelines on ethical GenAI use in collaboration with teachers, drawing on the practitioner knowledge that this study's metaphor data reveal.

6. Conclusion

This study investigated high school EFL teachers' perceptions of integrating GenAI tools across three dimensions (perceived usefulness, ease of use, and ethical concerns) and examined the conceptual metaphors through which they make sense of these tools. Using a mixed-methods online questionnaire administered to 43 teachers at two public high schools in Ho Chi Minh City, the study found that teachers perceive GenAI tools as highly useful for professional practice (M = 4.13), moderately easy to use (M = 3.72), and as posing significant ethical challenges (M = 3.97), particularly in relation to students' critical thinking and academic integrity. Metaphor analysis revealed that the dominant conceptualisation of GenAI in this sample is as a professional assistant (55.9% of valid metaphors), supplemented by epistemic, relational, and instrumental framings, and qualified by a minority conditional frame emphasising responsible use.

These findings contribute to the growing empirical literature on teacher perceptions of GenAI in three respects. First, they extend the knowledge base to a secondary school context in Vietnam, a setting that has been largely absent from the published literature. Second, they demonstrate the added analytical value of metaphor elicitation as a complement to Likert-scale measurement within a mixed-methods framework. Third, they suggest that the TAM constructs of perceived usefulness and perceived ease of use, when supplemented by an ethical concerns dimension and a metaphorical analysis lens, afford a richer account of teacher perceptions than any single measure provides.

Future research should consider longitudinal designs to track changes in perceptions as teachers gain more experience with GenAI tools, and should include student perspectives to examine how teacher orientations shape classroom implementation. Studies incorporating larger and more geographically diverse samples will be needed to assess the generalisability of the patterns identified here. In the meantime, the present findings provide actionable insights for school leaders, professional development designers, and policymakers working to support responsible and effective GenAI integration in Vietnamese secondary education.

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Conflict of Interest Statement

The author declares no conflicts of interest.

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Appendix

PGAI Scale and Metaphor Elicitation Task (English Version)

Section A: Demographic Information

1. **Gender:** □ Male □ Female
2. **Age:** □ Under 30 □ 30-39 □ 40-49 □ 50 or above
3. **Teaching experience:** □ Less than 5 years □ 5-10 years □ 11-20 years □ More than 20 years
4. **Highest qualification:** □ Bachelor's degree □ Master's degree □ PhD
5. **Have you used any GenAI tools (e.g., ChatGPT, Gemini, Copilot) for teaching?** □ Yes □ No

Section B: Perceptions of GenAI Integration (PGAI) Scale

Instructions: Please indicate your level of agreement with each statement using the scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

Item	**Scale (1–5)**
B1. Perceived Usefulness	
PU1. Using GenAI tools helps me prepare lesson plans more efficiently.	1 2 3 4 5
PU2. GenAI tools enhance the quality of my teaching materials.	1 2 3 4 5
PU3. GenAI tools help me provide more personalised feedback to students.	1 2 3 4 5
PU4. Using GenAI tools saves me significant time in my daily teaching tasks.	1 2 3 4 5
PU5. Overall, GenAI tools are beneficial for my professional practice.	1 2 3 4 5
B2. Perceived Ease of Use	
PEU6. I find GenAI tools easy to use without extensive training.	1 2 3 4 5
PEU7. I can quickly learn how to operate new GenAI tools for teaching.	1 2 3 4 5
PEU8. The interface of GenAI tools I have used is user-friendly.	1 2 3 4 5
PEU9. I feel confident in my ability to use GenAI tools effectively in the classroom.	1 2 3 4 5
PEU10. GenAI tools are flexible enough to adapt to my specific teaching needs.	1 2 3 4 5
B3. Ethical Concerns and Barriers	
EC11. I am concerned that students may misuse GenAI tools for academic dishonesty.	1 2 3 4 5
EC12. Using GenAI in teaching raises ethical issues that need to be carefully addressed.	1 2 3 4 5
EC13. I worry that over-reliance on GenAI may weaken students' critical thinking skills.	1 2 3 4 5
EC14. My school does not provide sufficient guidance on the ethical use of GenAI.	1 2 3 4 5
EC15. I am uncertain about how to address copyright and data privacy issues when using GenAI.	1 2 3 4 5

Section C: Metaphor Elicitation Task

Instructions: Please complete the following prompt. There are no right or wrong answers.
"Generative AI tools in my teaching are like _____ *because* _____*".*