Artificial Intelligence Integration for Teaching and Learning English Writing: A Systematic Review on Strategies (2021-2025)

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ABSTRACT

In today's digital era, English education landscape has been profoundly reshaped by the growing presence of Artificial Intelligence (AI) across schools and higher education institutions. AI has quickly become a valued tool among educators and learners, particularly for English writing, a skill often perceived as laborious and complex. Writing is often viewed as the most challenging between reading, speaking, and listening as it requires active language production. Although AI tools offer personalised support and instant feedback to improve English writing instruction, their use in ESL classrooms and English for elementary and high school levels remains limited. Educators often face obstacles such as limited training, experience and clear guidance on integrating AI effectively. Despite growing interest for AI use in education, there remains a shortage of in-depth reviews exploring application of these tools to support English writing instruction in these specific contexts. By reviewing 25 past papers from the year 2021 to 2025, this systematic literature review paper provides fresh insights into AI integration in teaching and learning of English writing, instead of traditional teaching models, to foster learner-centred and autonomous learning, enhances writing skills, improves engagement, motivation and self-efficacy among students while reducing teachers' workload. Drawing insights from Scopus, Web of Science and ERIC databases, this systematic literature review paper sheds light on the range of AI tools integrated and strategies of AI tool integration according to roles, for English writing lessons. For English writing instruction, ChatGPT emerged as the most popularly used whereas the most common strategy of AI use was as automated feedback tool, followed by as assessment tool and paraphrasing tool. Building on these findings, future research should further explore AI-supported English writing instruction in Malaysia, investigate gamebased learning and gamification with AI for English writing, and develop online English writing modules with integrated AI features.

Keywords: Artificial intelligence; writing; English teaching and learning; AI tools; strategies

LITERATURE REVIEW

Artificial Intelligence and English Education

Artificial Intelligence (AI) refers to the technology that allows computers and machines to perform tasks that typically require human intelligence by mimicking abilities such as learning, understanding, decisionmaking, problem-solving, independence, and creativity (University of Illinois Chicago, 2024). The widespread adoption and integration of AI in education have led to its recognition as a valuable pedagogical tool, enhancing advanced teaching in and beyond the classrooms (Zainuddin et al., 2024) to empower teachers and students during teaching and learning process. AI, namely human intelligence displayed by machines, includes machine learning, which are AI systems learning from historical data (Stryker & Kavlakoglu, 2024). Next, deep learning, a subset of machine learning, are machine learning models that copies functions of the human brain. Generative AI, also known as GenAI, is a branch of deep learning that involves models capable of creating new and original content (Stryker & Kavlakoglu, 2024).

Moving on to AI tools, they are software applications or systems that utilise AI technologies to perform tasks that require human intelligence traditionally. These tools utilise algorithms, machine learning, natural language processing, and data analytics to automate processes, improve decision-making, and increase efficiency for various fields including education. Instances of AI tools available for education are Grammarly (Higgs & Stornaiuolo, 2024), ChatGPT (Octavio et al., 2024), Wordtune (Rad et al., 2023), Gemini AI (Kotmungkun et al., 2024) and so on.

In English education, AI has demonstrated significant potential to support and enhance the four essential skills, namely reading, listening, speaking and writing. A systematic review by Kundu and Bej (2025) analysed 22 empirical studies and found that AI tools such as Intelligent Tutoring Systems (ITS), Natural Language

Processing (NLP) applications, and speech recognition software led to measurable improvements in learners' English proficiency across all four language skills. These tools provided personalised, adaptive learning experiences, enabling students to receive real-time feedback and practice in low-stakes environments.

Besides, AI-powered chatbots and speech recognition tools have been shown to improve English speaking and listening skills by offering interactive, conversational practice and pronunciation feedback (Kristiawan et al., 2024). Similarly, grammar checkers and writing assistants like Grammarly and Wordtune support English writing development by offering contextual suggestions and enhancing learners' syntactic accuracy and coherence (Higgs & Stornaiuolo, 2024; Rad et al., 2023). Reading comprehension for English has also benefited from AI-driven platforms that adapt texts to learners' proficiency levels and provide vocabulary support (Huda & Roistika, 2025).

English Writing

According to Ahmad Ghulamuddin et al. (2021), English language mastery is evaluated based on the learner's four skills, reading, writing, speaking and listening. Writing is a critical skill that is crucial for communication and academic success in today's information-driven society (Rad et al., 2023). Yet, writing skill is deemed the most difficult (Ahmad Ghulamuddin et al., 2021) with macro and micro writing strategies. While ESL learners may understand English language, many struggle to express their ideas clearly and effectively in written form. Besides, ESL learners often encounter distinct challenges in writing, such as limited exposure to English beyond the classroom, low confidence and self-efficacy in their writing abilities, and a lack of personalised feedback caused by large class sizes and limited resources in Malaysia (Han & Xu, 2020; Jeyraman et al., 2024).

Moreover, Common European Framework of References (CEFR) is extremely important in English language acquisition and instruction, especially in writing skills. CEFR established in 2001, sets international benchmarks for foreign languages to facilitate assessment, instruction and acquisition of languages with comprehensive framework, outlining what language learners have to achieve to communicate using a language via four main skills, such as reading, writing, listening and reading (Mohamad Uri & Abdul Aziz, 2018). From a study report by Sidhu et al. (2018), the implementation of CEFR in ESL learning introduces an innovative approach that fosters autonomous language learners. It marks a crucial shift from assessment of learning to assessment for learning. In addition, the CEFR scale is comparable to other well-known frameworks, offering a standardised grading system with clear criteria. Regardless of the exam taken, students can consistently and coherently interpret their results via the CEFR scale, which proves advantageous when applying for jobs or pursuing higher education. For English writing based on the CEFR marking criteria, the essays would be assessed based on four criteria, namely Communicative Achievement, Organisation, Content and Language (Cambridge University Press and Assessment, 2023).

Integration of Artificial Intelligence in Teaching and Learning English Writing

Writing is a critical skill that is vital for communication and academic success in today's informationdriven society (Rad et al., 2023). English writing skills have been taught with traditional learning models or approaches but the results are unsatisfactory because writing skills and performance are still low (Arafah & Kaharuddin, 2019). Besides, many students struggle with writing and may not get adequate support or feedback to improve

their skills (Han & Xu, 2020). Thus, AI tools offer promising solutions to assist in providing timely, accurate, and personalised feedback to students, helping them develop their writing skills more effectively compared to traditional feedback methods (Moussalli & Cardoso, 2020). By incorporating AI technology, educators also can enhance the effectiveness of their teaching methods and support students in reaching their language learning goals (Zainuddin et al., 2024).

Teachers can adopt AI tools in their lessons to enhance effective teaching and learning process in English writing classrooms. For instance, teachers can use AI tools like ChatGPT to help generate and curate lesson plans aligned with the curriculum, pedagogical content, and learners' proficiency levels (Octavio et al., 2024). These AI-generated lesson plans could be created immediately and easily with Generative AI like ChatGPT anytime and anywhere. This would help save time and energy besides reducing teachers' workload, enabling them to deliver better, more quality and effective instruction in English writing classes. Teachers can also use AI tools as assessment and feedback tool to assess and give immediate feedback to students' essays with personalised and constructive comments (Octavio et al., 2024). Then, students can learn from their mistakes and revise their essays and turn in a better-quality masterpiece. When uncertainty could be diminished and user feedback into written work is promoted, it reduces students' anxiety levels (Jubier et al., 2024) when learning English writing. Consequently, with more learner-centred learning applied with AI tools, students can enhance their self-efficacy, motivation and engagement in the writing lessons (Chan et al., 2024) despite it being a tedious skill to learn.

Students also can use AI tools as writing assistants via their many roles as assessment and feedback tool, paraphrasing tool, brainstorming tool, information tool and writing text generator. While writing, students can use AI tools to assess and receive immediate and personalised feedback to revise their written work effectively. For example, checking and correcting grammatical errors, syntactical errors and getting suggestions for new vocabulary words or cohesive devices (Dong, 2024) to add in. Moreover, students can integrate AI tools into writing tasks as paraphrasing tool to learn how to enhance their writing skills through learning by examples. When facing writer's block, students can turn to AI to brainstorm writing outline or templates (Sung & Jang, 2024) which can be systematic and effective to ensure fluency and cohesion of their written essays. They could also utilise AI to brainstorm new creative ideas (Kurt & Kurt, 2024) to enhance the quality of their essays. Students can search for information on definitions or concepts using AI too. Lastly, AI as writing text generator helps less proficient students to generate sample essays on topics given and they have to edit and paraphrase the words to avoid plagiarism. These students will then learn the sentence structure, grammar, and vocabulary from the AI-generated essays to be applied in their own writing gradually. This increases such learners' fluency in written communication (Mabuan, 2024) in the long run. ChatGPT and Copilot are AI tools that could be useful for this role.

METHODOLOGY

This literature study adopted the Systematic Literature Review (SLR) methodology, following a structured review process guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. The PRISMA framework provides a systematic approach to plan, implement and report, ensuring the research questions are addressed effectively (Higgins et al., 2021; Newman & Gough, 2020). This primary focus of this paper is to explore artificial intelligence integration in English writing learning and teaching, specifically the AI tools used and strategies of integrating AI in teaching and learning English writing. The review began with an extensive phase dedicated to identifying relevant articles, focusing literature on AI for English writing in elementary schools, high schools and ESL or second language (L2) contexts. Relevant scholarly sources were collected from well-established databases such as ERIC, Scopus, and Web of Science, known for their extensive coverage of education, English language writing teaching and learning, and AI-related research. The selection process followed four key stages, which are identification, screening, eligibility and inclusion. This structured approach played a vital role in refining the extensive range of past literature into a targeted collection of articles that are closely aligned with the research objectives. By utilising the database resources and adhering to a systematic review approach, this study seeks to offer meaningful insights into the AI tools employed and the strategies for integrating AI into English writing lessons, focusing specifically on high schools, elementary schools, and the ESL educational landscape.

Identification

The first phase, identification, is utilised to find related terms, synonyms, and variations for the main keywords of the study, namely artificial intelligence and English writing. The purpose of this stage is to provide more alternatives to the identified databases to search for more relevant articles to be included in the systematic literature review. Relevant literature for this paper was gathered through searches across multiple academic databases, including Web of Science, Scopus, and ERIC. Keywords such as "AI", "Artificial Intelligence", "machine learning", "Natural Language Processing", "NLP", "English writing", "learning", and "teaching" are used in the search strings (see Table 1). During the initial screening phase, the titles of the identified studies were reviewed to evaluate their relevance to the research scope. This was followed by a detailed content review of each article to understand its focus and assess its appropriateness for inclusion in the study. To ensure a focused selection amid the broad research scope and extensive available literature, publication date restrictions were applied, limiting materials to those published from year 2021 to 2025. A total of 304 articles were sourced from the three databases with 59 articles obtained from Web of Science, 138 articles from Scopus and 107 articles from ERIC. 42 articles from the three databases are found to be duplicates and are removed, resulting in 262 articles.

Table 1 Search strings used for the systematic review process

Database	Search String
Web of Science	((((((((((((ALL=("AI")) OR ALL=("Artificial Intelligence")) OR ALL=("Machine Learning")) OR ALL=("Natural Language Processing")) OR ALL=("NLP")) AND ALL=("teaching")) AND ALL=("English writing")) OR ALL=("AI")) OR ALL=("Artificial Intelligence")) OR ALL=("Machine Learning")) OR ALL=("Natural Language Processing")) OR ALL=("NLP")) AND ALL=("learning")) AND ALL=("English writing")
Scopus	TITLE-ABS-KEY ("AI" "English writing") OR TITLE-ABS-KEY ("Artificial Intelligence" "English writing") OR TITLE-ABS-KEY ("machine learning" "English writing") OR TITLE-ABS-KEY ("Natural Language Processing" "English writing")
	OR TITLE-ABS-KEY ("NLP" "English writing") AND PUBYEAR > 2020 AND PUBYEAR < 2026
ERIC	"AI" AND "writing" AND "English"

Screening

Following an initial literature search that identified 262 potentially relevant articles, the remaining publications were scrutinised in-depth to see if they meet the researcher's criteria. Through screening process, 176 articles met the inclusion criteria for this paper after 86 articles are removed based on exclusion criteria. A total of 176 articles were documented, with their alignment to the study objectives meticulously assessed to inform further analysis. In addition, supplementary information was integrated into the search strategy to capture relevant related research. This ensures the search gathered a comprehensive collection of studies that met the researcher's criteria. Full details of the additional search information are presented in Table 2.

Table 2 Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Articles from journals	Books, book chapters, reports, conference proceedings, literature review articles and conceptual papers
Related to AI	Unrelated to AI
Focus on English writing	Unrelated to English writing
Related to high schools, elementary schools, ESL or L2 learners	Not related to high schools, elementary schools, ESL or L2 learners

Peer-reviewed	Not peer-reviewed
Written in English	Not written in English
Non-retracted articles	Retracted articles

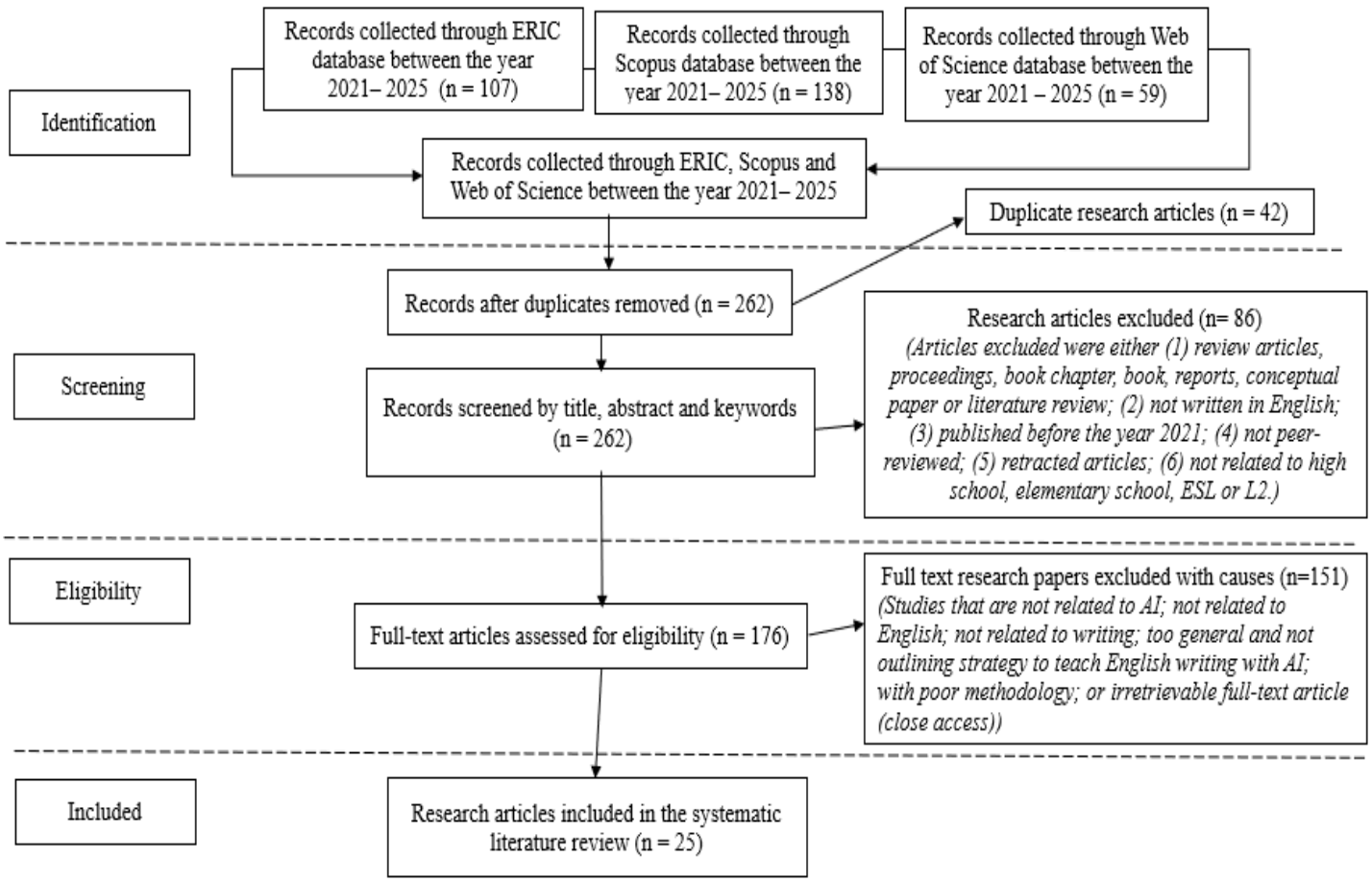
Eligibility

In this phase, full-text articles are skimmed for additional assessment to determine their quality and eligibility for inclusion in the research. Priority was given to articles published in reputable journals, with meticulous evaluation of publisher credibility. Multiple iterations were performed before including the articles in the study. To further enrich the analysis, both forward and backward citation tracking methods were used to uncover the research techniques employed. This process also helped refine the selection to focus specifically on studies related to AI, English writing and high school, elementary school, ESL or L2 contexts. Via this step, the final selection was reduced to 25 articles deemed suitable for a full-text comprehensive review.

Exclusion Criteria

Articles that truly met the inclusion criterion were included after the three steps. Conference proceedings, systematic literature review articles, literature review articles, conceptual papers, books, book chapters, report, non-English publications, non-English writing articles, non-AI articles, not peer-reviewed articles, retracted articles and articles not related to high schools, elementary schools, ESL or L2 learners, are crucial points for exclusion. All these factors were taken into account to ensure the generation of high-quality data. From 176 fulltext articles reviewed, 25 were selected and considered relevant to the study's investigation into AI integration to teach and learn English writing. Subsequently, an in-depth analysis was conducted on these 25 articles to derive insights into integration of AI, particularly on AI tools and strategies of AI integration for teaching and learning English writing. Figure 1, based on the PRISMA framework, illustrates the search procedure and highlights the number of studies identified throughout the review process.

Figure 1 PRISMA procedure



After extracting data, the information underwent categorisation, evaluation, comparison, analysis, synthesis, and holistic summarisation. The processed data from the key articles were used to address and discuss the research questions in this study. Notably, the analysis of this systematic literature review (SLR) relied on statistical methods and search engine queries instead of manually reviewing articles from various journals. This aligns with the primary aim of this SLR to examine studies on AI integration in English writing in ESL using statistical approaches and search string queries. Despite that, due to the absence of manual article reading, there remains a possibility that some relevant studies on this topic may be possibly excluded.

FINDINGS

Table 3 Background of Previous Literature on AI Integration for Teaching and Learning English Writing

No	Article	Database	Level	Type of English Learners	Country
1	Chan et al. (2024)	ERIC	University	ESL	Hong Kong
2	Chanpradit et al. (2024)	ERIC	University	ESL	Not mentioned
3	Chen (2023)	Scopus	High school	Not mentioned	China
4	Cong (2025)	Scopus	University	ESL	United States of America
5	Dong (2024)	WOS	University	ESL	China
6	Higgs & Stornaiuolo (2024)	ERIC	High school	Not mentioned	United States of America
7	Hsiao & Chang (2023)	ERIC	High school	EFL	Taiwan
8	Ibrahim (2023)	ERIC	University	ESL	Kuwait
9	Jubier et al. (2024)	Scopus	High school	EFL	Oman
10	Kotmungkun et al. (2024)	ERIC	High school, college, and post-graduates	ESL	Not mentioned
11	Kurt & Kurt (2024)	ERIC	University	ESL	Türkiye
12	Lee & Maeng (2023)	ERIC	High school	EFL	South Korea
13	Liu et al. (2024)	Scopus	Elementary school	EFL	China
14	Mabuan (2024)	ERIC	Elementary school, high school and college	Not mentioned	Philippines
15	Octavio et al. (2024)	ERIC	Elementary and high school	EFL	Spain
16	Rad et al. (2023)	ERIC	Not mentioned	ESL	Iran
17	Saarna (2024)	ERIC	University	ESL	Japan
18	Shabara et al. (2024)	ERIC	University	ESL	Egypt
19	Shin & Chon (2023)	ERIC	University	ESL	South Korea
20	Sun (2024)	Scopus	High school	Not mentioned	China

21	Sung & Jang (2024)	Scopus	University	ESL	South Korea
22	Wang (2024)	ERIC	University	ESL	China
23	Woo et al. (2024)	ERIC	Secondary school/ high school	EFL	Hong Kong
24	Wu et al. (2021)	ERIC	University	ESL	China
25	Zindela (2023)	ERIC	University	ESL	Africa

Table 3 presents the overview of the background of previous studies summarising 25 articles examined in this paper on AI integration in English writing instruction from the year 2021 to 2025. This paper focuses on previous literature for English writing for elementary school, high school or secondary schools, or English writing for English as a Second Language (ESL) or second language learners (L2). ERIC database has the highest number of articles (18 articles), followed by the second highest, Scopus database (6 articles) and the least, Web of Science database with 1 article. Majority of the past articles focused on ESL and English as a Foreign Language (EFL). The countries included in the past articles are China, Hong Kong, Taiwan, United States of America, Philippines, Spain, Oman, South Korea, Iran, Africa, Türkiye, Japan, Egypt and Kuwait. China accounts for the highest number of articles (6 articles), followed by South Korea (3 articles) and Hong Kong and United States of America with 2 articles respectively.

RQ1: What are the AI tools utilised for teaching and learning English writing in an ELT classroom?

RQ2: How can AI be integrated to teach or learn English writing in an ELT classroom?

Table 4 Summary of List of AI tools Integrated for Teaching and Learning English Writing

AI tools	**Articles**
ChatGPT	Kotmungkun et al. (2024); Kurt & Kurt (2024); Lee & Maeng (2023); Mabuan (2024); Octavio et al. (2024); Saarna (2024); Shabara et al. (2024); Sung & Jang (2024); Zindela (2023)
GPT 3.5-turbo	Chan et al. (2024)
GPT-4-0314	Liu et al. (2024)
Google Gemini	Kotmungkun et al. (2024)
Poe	Wang (2024)
Wordtune	Rad et al. (2023)
Quillbot	Chanpradit et al. (2024)
Paraphrasing Tool	Chanpradit et al. (2024)
Linggle Write	Hsiao & Chang (2023)
Grammarly	Higgs & Stornaiuolo (2024)
infinigoChatIC	Dong (2024)
iWrite	Dong (2024)
EditGPT	Jubier et al. (2024)
Pigai CF	Wu et al. (2021)
Bert	Cong (2025)
GPT2	Cong (2025)
DistilGPT2	Cong (2025)
GPT Neo, GPT-Neo-1.3B	Cong (2025); Woo et al. (2024)
T5	Cong (2025)

GPT-2 Output	Ibrahim (2023)
Crossplag AI Content Detector	Ibrahim (2023)
Detector Demo	Ibrahim (2023)
English writing automatic correction application (name not mentioned)	Chen (2023)
Generative AI tool (name not mentioned)	Higgs & Stornaiuolo (2024)
Neural Machine Translator (MT) (name not mentioned)	Shin & Chon (2023)
English writing scoring model based on hybrid neural network (name not mentioned)	Sun (2024)

Based on Table 4, the most frequently used AI tool is ChatGPT as it contributes the greatest number of past articles (9 articles). The AI tools with second highest number of articles are GPT Neo and GPT-Neo-1.3B.

Table 5 Previous Literature on AI Tools and Strategies of AI Integration for Teaching and Learning English Writing

Articles	**AI tools**	**Strategies**	
		Roles	**Description**
1	GPT 3.5-turbo LLM (Generative AI)	Automated feedback tool	Gives targeted feedback on students' essays so students can revise and improve them
2	Quillbot and Paraphrasing Tool	Paraphrasing tool	Paraphrases writing texts: - QuillBot focuses on word-level changes. - Paraphrase Tool focuses on changing sentence structure and grammar.
3	English writing automatic correction application	Assessment tool Automated feedback tool	Helps teachers provide automated, customised correction and review student essays
4	Bert, GPT2, DistilGPT2, GPTNeo and T5 (Large Language Model)	Assessment tool	Assesses writing texts automatically for students.
5	infinigoChatIC	Assessment tool Automated feedback tool Vocabulary builder Paraphrasing tool	• Corrects grammatical errors in essays • Increase vocabulary richness • Adds cohesive devices to increase coherence and cohesion in writing
	iWrite	Assessment tool Automated feedback tool	• Scores and evaluates student essays • Gives immediate feedback on grammatical errors

6	Grammarly and generative AI tool	Assessment tool Automated feedback tool Brainstorming tool	Grammarly checks grammar and spelling mistakes. For outlining to start in writing when students don't know what the first step is like email writing templates.
7	Linggle Write	Assessment tool Automated feedback tool	Gives corrective feedback for common grammatical and lexical errors for students to edit writing.
8	Crossplag AI Content Detector, GPT-2 Output, Detector Demo	Plagiarism checker tool	Identifies AI-assisted plagiarism in student essays.
9	EditGPT	Assessment tool Automated feedback tool	Automated writing evaluation system corrects grammar and spelling errors, suggests alternative expressions and terms, checks inconsistencies and redundancies. It also recommends strategies to students to improve text coherence and structure.
10	ChatGPT and Google Gemini (AI chatbots)	Writing text generator	Generates writing scripts for descriptive, classification, cause and effect, comparison and contrast, and argumentative essays.
11	ChatGPT Version 3.0	Automated feedback tool Brainstorming tool	• Students get AI customised feedback on argumentative and definition essays to review and refine writing. • For brainstorming ideas before choosing and integrating into writing essays
12	ChatGPT (AI chatbot)	Automated feedback tool Information tool Language translation tool	• Immediate feedback • Provides customised information according to learners' needs and preferences Offers various information in English although students ask in another language
13	GPT-4-0314	Brainstorming tool Writing text generator Assessment tool Automated feedback tool	• Teachers teach students writing strategy instruction based on CALLA-LLM model (Large Language Model -supported Cognitive Academic Language Learning Model). • For students to brainstorm and plan essays before writing • Generates writing texts with self-monitoring • LLM assesses and gives feedback to students to revise writing scripts.
14	ChatGPT	Vocabulary builder/ Information tool Paraphrasing tool	• Expands students' vocabulary, gives definitions, examples of English terms, concepts and sentence structure for writing

		Language translation tool	practice (students' vocabulary expansion and writing practice) • Simplifies complex message and develops fluency in written communication • For grammar and text generation • Translation and language comprehension support
16	Wordtune (application)	Assessment tool Automated feedback tool Paraphrasing tool	• Assess and give immediate personalised feedback aligned with Common European Framework of Reference for Languages (CEFR) based on Content, Communicative Achievement, Organisation and Language (Rad et al., 2023) • Give alternatives for rewriting a student's original sentences • Wordtune allows students reflect what they learnt from the rewrite and paraphrasing.
17	ChatGPT	Writing text generator Language translation tool	Generates texts for writing using prompts in English or other languages
18	ChatGPT 3.5	Assessment tool	Assess and score L2 written essays with scoring rubric given by university
19	Neural Machine Translator (MT)	Language translation tool	Students translate Korean essays into English essays with AI tool and edit them with post-editing strategies manually, such as deletion, paraphrase and grammar correction.
20	English writing scoring model based on hybrid neural network	Assessment tool Automated feedback tool	Automated scoring system assesses and gives feedback for students during formative writing.
21	ChatGPT	Writing text generator Paraphrasing tool Brainstorming tool Language translation tool	• Generate essay texts • Paraphrase writing texts • Brainstorm and outline for writing research proposal • Translate Korean writing outline into English
22	Poe (application)	Assessment tool Automated feedback tool Paraphrasing tool	Give corrective feedback on students' essays with revisions, edits, and paraphrasing.
23	GPT-Neo-1.3B (Artificial Intelligence	Writing text generator	Students key in prompts into the AI-NLG to generate writing texts and edit them.

	Natural Language Generation, AINLG)		
24	Pigai CF	Automated feedback tool Assessment tool	Gives corrective feedback for writing like suggestions for sentence patterns and expressions
25	ChatGPT-3.5	Writing text generator	Generates argumentative essay texts

Table 6 Summary of Roles of AI Tool Integration for Teaching and Learning English Writing

Role of AI tools	**Articles**
Automated feedback tool	Chan et al. (2024); Chen (2023); Dong (2024); Higgs & Stornaiuolo (2024); Hsiao & Chang (2023); Jubier et al. (2024); Kurt & Kurt (2024) Lee & Maeng (2023); Liu et al. (2024); Octavio et al. (2024); Rad et al. (2023); Sun (2024); Wang (2024); Wu et al. (2021)
Assessment tool	Chen (2023); Cong (2025); Dong (2024); Higgs & Stornaiuolo (2024); Hsiao & Chang (2023); Jubier et al. (2024); Liu et al. (2024); Octavio et al. (2024); Rad et al. (2023);
	Shabara et al. (2024); Sun (2024); Wang (2024); Wu et al. (2021)
Brainstorming tool	Higgs & Stornaiuolo (2024); Kurt & Kurt (2024); Liu et al. (2024); Octavio et al. (2024); Sung & Jang (2024)
Information tool	Lee & Maeng (2023); Mabuan (2024); Octavio et al. (2024)
Paraphrasing tool	Chanpradit et al. (2024); Dong (2024); Mabuan (2024); Octavio et al. (2024); Rad et al. (2023); Sung & Jang (2024); Wang (2024)
Language translation tool	Lee & Maeng (2023); Mabuan (2024); Saarna (2024); Shin & Chon (2023); Sung & Jang (2024)
Writing text generator	Kotmungkun et al. (2024); Liu et al. (2024); Saarna (2024); Sung & Jang (2024); Woo et al. (2024); Zindela (2023)
Plagiarism checker tool	Ibrahim (2023)
Vocabulary builder	Dong (2024); Mabuan (2024); Octavio et al. (2024)

Table 6 depicts the roles of AI tools to teach and learn English writing. The roles include as writing text generator, brainstorming tool, automated feedback tool, information tool, language translation tool, paraphrasing tool, vocabulary builder, assessment tool, lesson plan generator and plagiarism checker. The role of AI as an automated feedback tool for English writing classrooms contributes to the highest number of past articles (14

articles), followed by the role as an assessment tool with 13 articles as the second highest, as a paraphrasing tool (7 articles), as a writing text generator (6 articles), as a language translation tool (5 articles), as a brainstorming tool (5 articles), as an information tool (3 articles), vocabulary builder (3 articles), and plagiarism checker tool (1 article).

DISCUSSION

AI Tools Utilised for Teaching and Learning English Writing

Based on the findings of this paper, the most frequently used AI tool for English writing instruction is ChatGPT as it contributes the greatest number of past articles (9 articles). The AI tools with second highest number of articles are GPT Neo and GPT-Neo-1.3B. Other AI tools for English writing instruction mentioned in the past papers include GPT 3.5-turbo, GPT-4-0314, Google Gemini, Poe, Wordtune, Quillbot, Paraphrasing Tool, Linggle Write, Grammarly, infinigoChatIC, iWrite, EditGPT, Pigai CF, Bert, GPT2, DistilGPT2, T5, GPT2 Output, Crossplag AI Content Detector and Detector Demo. There are also unmentioned names of 4 AI tools in the past articles but named as English writing scoring model based on hybrid neural network, Neural Machine Translator (MT), generative AI tool and English writing automatic correction application.

ChatGPT is the most frequently used AI tool integrated in teaching and learning English writing because it offers a wide range of functions such as a writing text generator, brainstorming tool, automated feedback tool, information tool, language translation tool, paraphrasing tool, vocabulary builder, assessment tool and lesson plan generator. These roles of ChatGPT are beneficial and convenient for both learners and educators in English writing lessons. The next most frequently used AI tools for English writing classroom are GPT Neo and GPTNeo-1.3B, which function as assessment tools and writing text generators.

Next, GPT 3.5-turbo, a generative AI, is used as automated feedback tool whereas Quillbot and Paraphrasing Tool act as paraphrasing tools in English writing. As for Bert, GPT2, DistilGPT2, and T5, they function as assessment tools. Besides, iWrite, Linggle Write, EditGPT and Piai CF play important roles as assessment and automated feedback tools for English writing. Grammarly act as assessment, automated feedback and brainstorming tools. For Crossplag AI Content Detector and GPT-2 Output Detector Demo, they act as plagiarism checker tool for English writing. Other than that, ChatGPT and Google Gemini or also known as AI chatbots, play the role as writing text generator for English writing. As for GPT-4-0314, it is used as brainstorming tool, writing text generator, assessment tool and automated feedback tool. On the other hand, ChatGPT-3.5 plays the role as a writing text generator. Wordtune, an AI application, covers the function of an assessment tool, an automated feedback tool and a paraphrasing tool. Another AI application, Poe, is used as assessment, automated feedback and paraphrasing tools. Lastly, the four AI tools with unmentioned names, are used as assessment, automated feedback, brainstorming and language translation tools.

Strategies of Integrating AI in English Writing Lessons according to Roles

From the findings of this paper based on previous literature, for English writing lessons, AI tools were frequently used as an automated feedback tool and assessment tool, moderately used as a paraphrasing tool, writing text generator and language translation tool and brainstorming tool. AI tools were used the least as information tool, vocabulary builder, lesson plan generator and plagiarism checker. Thus, strategies of AI integration applicable to classrooms for English writing would be discussed on the roles of automated feedback tool, assessment tool, paraphrasing tool, writing text generator, language translation tool and brainstorming tool. AI tools undeniably have many advantages such as they increase student motivation, engagement and selfefficacy, promote autonomous and student-centred learning while tackling difficulties surrounding writing tasks. AI tools also serve to help teachers to save time and reduce workload, making teaching more quality and effective.

Automated Feedback Tool

Feedback is important to help students learn (Gielen & De Wever, 2015) but teachers find it difficult to give timely feedback to students in large number, especially in writing (Applebee & Langer, 2011) as it takes up a great amount of time and effort (Yong & Schun, 2021). To decrease teachers' workload and make it possible for

students to get detailed, immediate and personalised feedback, AI tools like ChatGPT and EditGPT could be integrated as an automated feedback tool in English classrooms with big class sizes to teach and learn writing effectively.

Moreover, AI can function as a formative feedback tool to facilitate dialogue, increases student engagement and improve learning outcomes (Barrot, 2023). AI technology can also give immediate, individualised feedback to learners while advancing through different essay writing stages, to provide scaffolding. Hence, students can identify and correct errors quickly, improving the quality of revisions. Next, tailored feedback supports diverse ESL students by tackling specific linguistic difficulties (Abduljawad, 2024).

While using AI tools during writing lessons, students can reduce anxiety levels. This is because the rapid and constructive feedback by AI tools help students rectify writing errors with guidance, diminishing uncertainty which enhances their confidence and self-efficacy (Jubier et al., 2024). This also increases learning engagement and motivation among students, which in turn promotes autonomous learning in students.

Assessment Tool

Having to complete a lot of documentation for the government, teachers have less time to really teach their students (Simangunsong, 2023). Plus, teachers' workload becoming increasingly heavy when they have to score and grade English writing assignments and homework from large number of students. Here, AI tools could play a vital role to reduce teachers' workload as an assessment tool for English writing. AI tools, like iWrite, could help teacher to mark, score and evaluate student essays quickly with feedback on grammatical errors (Dong, 2024). Besides, AI tools could help teacher prepare assessments to test and improve students' writing skills. For example, teacher can use AI tools to generate language proficiency tests, tailored to specific language levels (Octavio et al., 2024). This is beneficial to students with different language proficiencies learning the similar topic, allowing differentiated learning easily in classes. Another example is teacher can use AI for creative assessments with varied activities to evaluate students' learning while promoting engaging and fun learning in class. AI tool, like Wordtune, is practical in English writing classes as it can assess and gives immediate feedback aligned with Common European Framework of Reference for Languages (CEFR) (Rad et al., 2023), which also serves as the marking scheme and criteria for English writing assessment. Therefore, AI integration for English writing classrooms is convenient and saves time for teachers.

Paraphrasing Tool

Paraphrasing is the practice of writing the original text again by modifying others' words, sentences or phrases to differentiate them from their original authors while adding own ideas (Fitria, 2022; Solanki et al., 2019). Paraphrasing is an important writing skill that allows students to articulate ideas effectively in their essays (Xuyen, 2023). AI tools like ChatGPT can help students while writing, as a paraphrasing tool as it is very useful to improve students' learning ability while still maintaining their creativity for English writing lessons. ChatGPT can simplify complex messages and enables clear, precise and fluent written communication (Mabuan, 2024). This could help increase less successful English learners' fluency in written communication (Mabuan, 2024). Moreover, AI tools like infingoChatIC can add cohesive devices to increase cohesion and coherence in writing (Dong, 2024), which is greatly encouraged in English writing for higher proficiency level.

Writing Text Generator

In English writing classrooms, generative AI like ChatGPT, can serve as an excellent writing text generator for various essay genres, such as argumentative essays (Zindela, 2023) with higher lexical sophistication, density and diversity. AI tools can also generate easy-to-understand essays with clear straightforward language for cause and effect, argumentative, comparison and contrast essays (Kotmungkun et al., 2024). All these essay genres are usually taught in English secondary school classrooms, so the AI tools are a great deal of help to students as writing assistant during writing. Moreover, AI tools can generate essay texts fast and tirelessly, enabling students to save time for learning. Low proficiency students can also learn English writing by good examples, using the AI-generated writing texts, to enhance their writing skills and knowledge.

Brainstorming Tool

AI tools play a crucial role as brainstorming tools for both teachers and students in the English writing classrooms. Teachers can apply AI tools in the writing class by teaching students on how to use AI to ask for writing outlines and essay templates before they start writing (Higgs & Stornaiuolo, 2024). This reduces teachers' time spent on explanation, supporting more enjoyable student learning experience. Furthermore, when students face writers' block, they can ask AI to suggest creative ideas before choosing and integrating them into their essays (Kurt & Kurt, 2024). As for teachers, they can use AI to brainstorm and create good-quality lesson plans for writing lessons (Octavio et al., 2024) to save time and energy. The lesson plans could be detailed, of good quality and integrates various fun, creative and innovative class activities, suitable for the class curriculum and content. As a result, teachers' workload could be reduced and students will be more engaged and motivated to learn English writing in the classrooms.

Language Translation Tool

AI tools as a language translation tool are helpful in English writing classrooms too. AI tools can provide information in English although students ask in another language (Lee & Maeng, 2023) or translate texts from other languages into English texts (Mabuan, 2024; Shin & Chon, 2023). This is applicable among students with low proficiency in English, to help them better grasp the meaning of certain English words or context for writing. English texts generated from translation act as a guideline for less-skilled learners to help them with content for English writing (Shin & Chon, 2023), reducing the language barriers in learning English writing. However, this function of AI should be monitored and used with caution as translated English texts from other language may have the meaning be inaccurate and distorted, grammatical errors brought over from native languages, missing words and extra words (Shin & Chon, 2023).

CONCLUSION

To conclude, this study has reviewed 25 papers associated with AI integration in teaching and learning English writing for high school or secondary school, and English writing for ESL or L2 learners, using the PRISMA framework. Based on the previous literature reviewed on AI tools for English writing, ChatGPT is the most popular AI tool as it has many roles in teaching and learning English writing. Strategies of integrating AI tools for teaching and learning English writing include automated feedback tool, assessment tool, paraphrasing tool, writing text generator, language translation tool, brainstorming tool, information tool, vocabulary builder and plagiarism checker tool. AI tools as automated feedback tool and assessment tool has the most frequent usage, followed by paraphrasing tool, writing text generator, language translation tool and brainstorming tool with moderate usage. Such AI roles make teaching effortless whereas learning becomes more engaging and effective for English writing lessons.

One limitation of this study is that it sources articles from 3 databases, Web of Science, ERIC and Scopus. Future studies should include more databases to obtain more comprehensive and generalised findings. This paper highlights a gap in past studies on AI integration for Malaysian English writing lessons, as there are no articles from or on Malaysia. Besides, past studies reviewed have not mentioned about using game-based learning and gamification with AI integration to teach English writing. Another gap from past literature is no mention of using online writing modules with AI integration for English lessons. Therefore, by addressing the gaps identified, future research can build a more detailed understanding of AI integration in English writing lessons on Malaysia, game-based learning and gamification with AI integration, and lastly using online writing modules with AI integration in English writing lessons.

On top of that, the study's findings highlight the potential of AI tools, particularly ChatGPT, as valuable resources for enhancing English writing instruction. Education policymakers and school administrators should consider incorporating AI literacy and tool integration training into teacher professional development programs. Doing so can bridge the gap in practical implementation and empower educators to adopt AI meaningfully in ESL and high school contexts. The wide range of AI applications identified such as automated feedback, paraphrasing, and vocabulary building signals a need for more tailored educational AI tools. Developers should consider designing user-friendly, culturally adaptive platforms that align with curriculum objectives and support varied levels of learner proficiency for English writing, especially in ESL and high school contexts.

In overall, AI tools are crucial in English education and should be integrated effectively to reap their benefits to promote effective learning and teaching for English writing lessons.

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