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ESL TEACHERS' PERCEPTIONS OF AI-POWERED WRITING ASSISTANTS IN LANGUAGE LEARNING

Thivyah Thiruchelvan^{1*}, Nur Yasmin Khairani Zakaria²


¹Faculty of Education, Universiti Kebangsaan Malaysia, Bangi, 43600, Malaysia

 p144877@siswa.ukm.edu.my

 <https://orcid.org/0009-0000-2277-4670>

² Faculty of Education, Universiti Kebangsaan Malaysia, Bangi, 43600, Malaysia

 yasminzakaria@ukm.edu.my

 <https://orcid.org/0000-0001-8129-3113>

*Corresponding Author

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Abstract:

This study investigates Malaysian primary school English as a Second Language (ESL) teachers' perceptions of AI-powered writing assistants, with a focus on the perceived benefits and challenges of using tools such as Grammarly, QuillBot, and ChatGPT. Writing remains a challenging skill for primary pupils, and teachers often face constraints in providing individualized feedback due to large class sizes and varied proficiency levels. AI-powered writing assistants have the potential to address these challenges by providing immediate, personalized feedback and supporting learner autonomy. A quantitative descriptive survey was administered to 100 ESL teachers across five Malaysian states, and data were analyzed using descriptive statistics, including means, standard deviations, frequencies, and percentages. The findings reveal that teachers recognize multiple benefits of AI integration, including enhanced student engagement, improved revision habits, personalized support for weaker pupils, vocabulary development, and promotion of learner independence. However, teachers also identified challenges, such as ethical concerns, overreliance by pupils on AI suggestions, occasional inaccuracies in feedback, insufficient training, and limited digital infrastructure in certain schools. The study highlights the need for targeted professional development, clear ethical guidelines, and equitable access to technology to facilitate responsible and effective AI integration in primary ESL classrooms. By focusing on teachers' perspectives, this research contributes empirical evidence from a Malaysian primary school context, offering practical and theoretical insights for policymakers, educators, and curriculum planners seeking to enhance writing instruction through AI tools.

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AI-Powered Writing Assistants, Artificial Intelligence, ESL Teachers, Perceived Benefits, Perceived Challenges, Primary Education



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Introduction

Artificial intelligence has become increasingly influential in global education, including the teaching of English as a Second Language. AI-powered writing assistants such as Grammarly, QuillBot, and ChatGPT are widely recognized for their ability to provide automated feedback on grammar, vocabulary, sentence structure, and idea development. These tools use natural language processing to analyze text and generate suggestions similar to teacher feedback. In Malaysia, the emphasis on digital learning outlined in the Malaysian Digital Education Policy (2023) encourages teachers to integrate emerging technologies into classroom practice. Consequently, AI-powered writing assistants are emerging as relevant tools to support writing instruction, particularly in primary English language classrooms.

Writing remains one of the most challenging language skills for Malaysian primary pupils. Many learners struggle with idea generation, sentence construction, and the accurate application of grammar and vocabulary. Teachers often face difficulties providing consistent and individualized feedback due to large class sizes, mixed proficiency levels, and extensive administrative responsibilities. These challenges may limit pupils' opportunities to revise their writing and apply corrective feedback effectively. AI-powered writing assistants offer a potential solution, providing immediate and personalized feedback. Recent studies indicate that AI-generated feedback can improve writing accuracy, vocabulary development, and revision habits among learners (Rahimi & Fathi, 2023; Wu & Yan, 2023). These tools enable pupils to identify errors, strengthen sentence construction, and explore vocabulary independently, thereby encouraging active engagement with the writing process.

Despite these advantages, the use of AI tools in primary schools raises significant concerns. Teachers have expressed worries that pupils may become overly reliant on automated suggestions, which could hinder the development of independent writing skills. Studies also report occasional inaccuracies in AI-generated feedback, raising questions about reliability and appropriateness (Khan, Alharbi & Ahmad, 2022). Ethical issues, including plagiarism and misuse of AI-generated content, remain critical, especially for younger learners who may lack critical awareness. Moreover, teachers in rural or under-resourced schools may face challenges related to limited internet access, insufficient digital devices, and inadequate training opportunities (Zakaria & Ponniah, 2021). These issues highlight the importance of examining

teachers' perceptions of both the benefits and challenges of AI-powered writing assistants in primary ESL classrooms.

The problem addressed in this study is the limited empirical research on Malaysian primary school English language teachers and their perceptions of AI-powered writing assistants. Most existing Malaysian studies focus on secondary or tertiary contexts, where learners have greater technological exposure and autonomy (Aineh & Ngui, 2024; Tahir & Haron, 2025). In contrast, primary school pupils require more scaffolding and supervision, making teachers' perspectives crucial in determining the suitability and effectiveness of AI tools for younger learners. Understanding teachers' views is therefore essential for ensuring AI is implemented in ways that genuinely support learning.

Based on this problem, the study is guided by the following research questions:

1. What are the perceived benefits of using AI-powered writing assistants among Malaysian primary school ESL teachers?
2. What challenges do Malaysian primary school ESL teachers face when using AI-powered writing assistants?

The significance of this study lies in its potential to inform teacher training programs, curriculum planning, and policy development related to AI integration in primary education. By understanding teachers' perceived benefits and challenges, educational stakeholders can design professional development that equips teachers with the necessary skills to use AI tools confidently and responsibly. The findings may also guide the development of ethical guidelines and digital literacy initiatives that support safe and appropriate use of AI among young learners. Furthermore, the study contributes to the existing body of literature by providing empirical evidence from a primary school context, which remains underexplored in Malaysian research. The scope of the study is limited to English language teachers in Malaysian primary schools who have experience with or awareness of AI-powered writing assistants. It focuses solely on teachers' perceptions of the benefits and challenges of these tools and does not examine pupils' writing performance or conduct experimental comparisons. Although the findings are based on self-reported perceptions, which may be influenced by individual experiences, school contexts, or digital literacy levels, the study offers valuable insights into the early adoption of AI tools in primary ESL writing instruction.

Literature Review

Introduction

Artificial intelligence (AI) has gained increasing attention in English language education, particularly through the use of AI-powered writing assistants such as Grammarly, QuillBot and ChatGPT. These tools utilize natural language processing to provide automated feedback on grammar, vocabulary, organization and clarity of written texts. Previous studies have shown that AI-supported feedback can improve writing accuracy, enhance revision practices and increase learner engagement (Rahimi & Fathi, 2023; Wu & Yan, 2023). While the integration of AI tools is becoming more common in English language instruction, research focusing on primary school contexts remains limited. Therefore, this chapter reviews existing literature on the benefits and challenges of AI-powered writing assistants, with particular emphasis on their potential use in English language writing instruction.

Benefits of AI-Powered Writing Assistants

Numerous studies highlight the positive impact of AI-powered writing assistants on learners' writing performance. Research indicates that these tools help improve writing accuracy and overall quality by assisting learners in correcting grammatical errors, refining sentence structures and enhancing clarity (Rahimi & Fathi, 2023). Wu and Yan (2023) similarly reported that students who received AI-generated feedback produced writing with fewer language errors and more coherent ideas, suggesting that AI tools can function as effective supplementary support in writing instruction.

In addition to improving accuracy, AI-powered writing assistants have been found to enhance learner engagement and motivation. Immediate and automated feedback encourages students to revise their work more frequently and engage actively in writing tasks. Rahimi and Fathi (2023) observed increased learner interest and confidence when students received instant feedback, while Wu and Yan (2023) reported that students felt more motivated to improve their drafts with AI support.

Another key advantage of AI-powered tools is their ability to provide personalized and immediate feedback. Learners are able to review feedback at their own pace, which supports independent learning and the development of learner autonomy (Wu & Yan, 2023). This feature is particularly beneficial in classrooms with large student numbers, where teachers may face challenges in providing individualized feedback. AI tools also support revision and vocabulary development by offering suggestions for more precise or context-appropriate word choices, encouraging better writing habits and language awareness (El Garawany, 2024; Rahimi & Fathi, 2023).

Furthermore, AI-powered writing assistants can reduce teacher workload by handling surface-level language corrections. Rahimi and Fathi (2023) noted that AI tools allow teachers to focus on higher-level writing skills, while Aineh and Ngui (2024) found that teachers appreciated the time-saving benefits of AI-assisted feedback, particularly in managing large classes.

Challenges of AI-Powered Writing Assistants

Despite the benefits, several challenges associated with AI-powered writing assistants have been identified. One major concern is students' over-reliance on AI-generated suggestions. Khan, Alharbi and Ahmad (2022) reported that excessive dependence on AI may limit learners' ability to think independently and develop essential writing skills, particularly among younger learners who are still building foundational language competence.

Another challenge involves the accuracy and appropriateness of AI feedback. While AI tools are effective in identifying surface-level errors, they may provide incorrect grammar suggestions or vocabulary that does not suit the context (Wu & Yan, 2023). Rahimi and Fathi (2023) further highlighted that AI feedback often fails to address deeper issues such as content development and coherence, emphasising the need for teacher guidance in helping learners evaluate AI suggestions critically.

Ethical concerns, including plagiarism and misuse of AI-generated content, also pose significant challenges. Khan et al. (2022) found that students may submit AI-generated text as their own work, raising issues of academic integrity. This concern is particularly relevant in

primary school settings, where pupils may lack understanding of ethical AI use. Additionally, unequal access to technology remains a barrier. Zakaria and Ponniah (2021) reported that schools in under-resourced areas face limitations such as poor internet connectivity and low digital literacy, which hinder effective AI integration.

Lastly, insufficient teacher training affects the effective use of AI tools in writing instruction. Tahir and Haron (2025) found that many teachers lack confidence and competence in using AI-powered tools due to limited professional development opportunities. Without adequate training, teachers may struggle to integrate AI meaningfully into writing lessons.

Research Gaps and Conclusion

Although research on AI-supported writing instruction is growing, significant gaps remain. Most existing studies focus on secondary and tertiary learners, while primary school contexts are under-researched (Rahimi & Fathi, 2023; Wu & Yan, 2023). Moreover, many studies emphasize student perceptions rather than teachers' perspectives, despite teachers playing a crucial role in implementing AI tools effectively. Research examining Malaysian primary school English language teachers' perceptions of AI-powered writing assistants is particularly limited (Aineh & Ngui, 2024; Tahir & Haron, 2025).

In conclusion, existing literature indicates that AI-powered writing assistants offer considerable benefits in improving writing accuracy, motivation, feedback quality and teaching efficiency. However, challenges related to over-reliance, feedback accuracy, ethical concerns, infrastructure limitations and teacher preparedness persist. Addressing these research gaps is essential to inform future training, policy development and responsible implementation of AI-powered writing assistants in Malaysian primary school English language classrooms.

Methodology

A quantitative approach was adopted to obtain measurable and generalizable data that reveal patterns and trends in teachers' perceptions regarding the benefits and challenges of AI-powered writing assistants. This methodology allows for structured statistical analysis, providing evidence-based insights to inform pedagogical strategies, professional development, and policy decisions in Malaysian primary school ESL contexts.

Research Design

A survey method was used to collect structured data, enabling the assessment of teachers' perceived benefits, such as enhanced feedback, engagement, and learner autonomy, and perceived challenges, including technical difficulties, insufficient training, ethical concerns, and infrastructural limitations. This design allowed the researcher to quantify teachers' perceptions, identify trends, and draw conclusions regarding factors influencing the adoption of AI tools in primary ESL classrooms (citation).

Participants and Sampling

The target population comprised ESL teachers employed in Malaysian primary schools. Participants were selected using a purposive sampling technique, targeting teachers who had prior exposure to AI-powered writing assistants. This approach ensured that participants could provide informed insights relevant to the research objectives (Etikan et al., 2016). The final

sample consisted of 100 ESL teachers, which is sufficient for descriptive analysis within a large population (Krejcie and Morgan, 1970). Inclusion criteria included being a full-time ESL teacher in a Malaysian primary school, having at least one year of teaching experience, and prior experience using AI-powered writing assistants in classroom settings. Ethical considerations were strictly observed. Participation was voluntary, all teachers provided informed consent, and confidentiality and the right to withdraw were ensured.

Study Location

The study was conducted in selected primary schools across five Malaysian states: Kedah, Perak, Selangor, Johor, and Sarawak. Schools were purposively chosen to ensure that participating ESL teachers had some familiarity with AI-powered writing assistants. Both urban states such as Selangor and Johor and rural areas such as parts of Kedah, Perak, and Sarawak were included to capture variations in infrastructure, technological support, and contextual factors affecting teachers' perceptions. This geographical diversity enhanced the study's ability to examine differences in AI integration across varied school environments.

Research Instruments

Data were collected using a self-developed survey questionnaire specifically designed to measure teachers' perceptions of the benefits and challenges of AI-powered writing assistants. Questionnaire items were developed based on prior research on technology acceptance and AI integration in education (Davis, 1989; Teo, 2011; Zainuddin, 2024; Yunus et al., 2023). A five-point Likert scale ranging from one for strongly disagree to five for strongly agree was used to capture participants' responses. The questionnaire focused exclusively on benefits, including enhanced student engagement, improved feedback, and better writing outcomes, as well as challenges, including technical difficulties, lack of professional development, ethical concerns, and infrastructural limitations.

Validity

Content validity was ensured through a rigorous expert review process involving two specialists in the fields of Teaching English as a Second Language and educational technology. These experts examined the questionnaire to determine whether the items accurately reflected the constructs of perceived benefits and perceived challenges of using AI powered writing assistants in primary ESL classrooms. Each item was evaluated for clarity, relevance, and alignment with the research objectives. The experts also assessed whether the wording of the statements was appropriate for teachers with varying levels of technological proficiency and whether the items represented the full scope of the constructs being measured. Based on their feedback, several refinements were made. Ambiguous terms were replaced with more precise language, items that appeared repetitive were reworded for differentiation, and the arrangement of questions was adjusted to ensure logical sequencing from general perceptions to specific experiences. These improvements strengthened the instrument by ensuring that each item measured the intended construct and contributed meaningfully to the overall assessment. Through this validation process, the questionnaire demonstrated strong content representativeness and was deemed suitable for use in both the pilot study and the main data collection.

Pilot Study

A pilot study was conducted to evaluate the clarity, validity, and reliability of the survey questionnaire before the main data collection. Thirty ESL teachers from five primary schools in Kedah, who were not included in the main study, participated in the pilot. Teachers completed the questionnaire online through Google Forms and provided feedback on the clarity, structure, and wording of the items. Based on their feedback, ambiguous terms were rephrased, double-barreled questions were separated, and items were reorganized to follow a logical sequence from general perceptions to specific experiences related to benefits and challenges of AI-powered writing assistants.

Reliability analysis of the pilot data showed that the Cronbach alpha values were 0.86 for perceived benefits and 0.79 for perceived challenges, indicating good and acceptable internal consistency, respectively. The overall reliability coefficient, calculated across all items, was 0.84, which confirms that the instrument has good internal consistency and is suitable for use in the main study. The descriptive statistics and reliability results from the pilot study are presented in the table below:

Table 1: Cronbach Alpha Values

Construct	Number of Items	Mean	Standard Deviation	Cronbach Alpha
Perceived Benefits	5	4.12	0.56	0.86
Perceived Challenges	5	3.45	0.62	0.79

The table shows that teachers generally agreed that AI-powered writing assistants provide notable benefits in ESL teaching, while also experiencing moderate challenges in their implementation. The reliability values indicate that the survey items for both constructs were internally consistent, confirming that the instrument was suitable for the main study

Data Collection Procedures

Data collection for the main study was carried out over a period of four weeks. Teachers who volunteered to participate received clear information about the purpose and procedures of the study and provided informed consent prior to completing the survey. The questionnaire was distributed online via Google Forms, allowing participants to respond at their convenience. A two-week response window was provided, during which reminder messages were sent to increase participation. All responses were anonymized, securely stored, and later organized in SPSS for analysis. This process ensured systematic, ethical, and high-quality data collection focused on teachers' perceptions of the benefits and challenges of AI-powered writing assistants.

Data Analysis

Data were analyzed using SPSS to generate descriptive statistics, including frequencies, percentages, means, and standard deviations. The analysis focused exclusively on teachers' perceptions of benefits and challenges. Items related to perceived benefits were summarized to determine the overall level of agreement regarding the advantages of AI-powered writing

assistants in the classroom, while items related to perceived challenges were analyzed to identify common obstacles faced by teachers. Open-ended responses were analyzed thematically to identify recurring insights that complemented the quantitative findings.

Findings and Discussion

Table 2: Demographic Profile of Respondents Demographic Profile of Respondents (n = 100)

Variable	Category	f	%
Gender	Male	28	28
	Female	72	72
Age	20–29	18	18
	30–39	42	42
	40–49	27	27
	50+	13	13
Teaching Experience	1–5 years	22	22
	6–10 years	36	36
	11–15 years	24	24
	>15 years	18	18
School Location	Urban	44	44
	Rural	28	28
	Semi-urban	28	28
Experience with AI Tools	Yes	81	81
	No	19	19

Note. f = frequency; % = percentage.

Table 2 presents the demographic characteristics of the respondents. The sample consisted of 28 male teachers (28%) and 72 female teachers (72%), reflecting the gender distribution typical of Malaysian primary schools. Most respondents were aged between 30 and 39 years (42%), followed by 27% aged 40–49, 18% aged 20–29, and 13% aged 50 and above. Teaching experience varied, with 36% of respondents having 6–10 years of experience, 24% having 11–15 years, 22% having 1–5 years, and 18% having more than 15 years. School locations included urban (44%), rural (28%), and semi-urban (28%) settings. A large majority of teachers (81%) reported prior experience with AI tools, whereas 19% had no experience. This demographic diversity ensures that the study captures perceptions from teachers with varying levels of experience, technological fluency, and access to infrastructure, which provides context for understanding the perceived benefits and challenges of AI-powered writing assistants.

Table 3: Perceived Benefits of AI-powered Writing Assistants

Perceived Benefits of AI-powered Writing Assistants (n = 100)

Item	SD	D	N	A	SA	Mean	SD
AI writing tools make writing lessons more engaging	2	5	13	42	38	4.29	0.67
AI writing tools encourage pupils to revise and edit their drafts	3	6	15	45	31	4.24	0.71
AI writing tools support weaker pupils through personalized feedback	4	8	18	40	30	4.18	0.75
AI writing tools help pupils expand vocabulary and sentence variety	3	7	20	43	27	4.21	0.70
AI writing tools promote learner independence and confidence	2	5	16	45	32	4.27	0.68
Overall Perceived Benefits	—	—	—	—	—	4.24	0.70

Note. SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree. Responses measured on a 5-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree).

The descriptive statistics for perceived benefits are presented in Table 4.2. Overall, the construct of perceived benefits recorded a high mean score ($M = 4.24$, $SD = 0.70$), indicating that teachers generally held positive perceptions towards the advantages of AI-powered writing assistants in ESL instruction. The relatively low SD shows that responses were fairly consistent across all items, suggesting broad agreement among teachers regarding the benefits of AI tools.

The highest-rated benefit was that AI writing tools make writing lessons more engaging, with 42% of respondents agreeing and 38% strongly agreeing, totaling 80% positive responses. Only 7% of teachers disagreed or strongly disagreed, indicating strong support for the engagement potential of AI tools. This finding aligns with El Garawany (2021), who reported that AI-assisted instruction significantly enhances student engagement and classroom interaction in writing activities.

Another significant benefit identified was that AI writing tools encourage pupils to revise and edit their drafts. Forty-five percent of respondents agreed and 31% strongly agreed, giving a total of 76% positive responses. This indicates that teachers see AI tools as promoting an iterative writing process where students are more willing to review and improve their work. Such findings are consistent with Rahimi and Fathi (2022), who highlighted that AI feedback facilitates self-correction and helps learners develop metacognitive skills essential for writing proficiency.

Teachers also acknowledged that AI writing tools support weaker pupils through personalized feedback, with 40% agreeing and 30% strongly agreeing, totaling 70% positive responses. This indicates that AI tools provide individualized support, allowing students who may struggle with writing to receive guidance tailored to their level. Liu et al. (2023) similarly reported that AI-powered writing tools scaffold students' learning and assist weaker learners in developing essential writing skills through targeted feedback.

In addition, AI tools were perceived to help pupils expand their vocabulary and sentence variety. Forty-three percent of respondents agreed and 27% strongly agreed, totaling 70% positive responses. This suggests that AI tools not only aid in correcting grammatical errors but also encourage students to experiment with more complex vocabulary and varied sentence structures. Yilmaz and Yildiz (2021) emphasized that AI-assisted writing fosters cognitive and linguistic development by providing opportunities for learners to explore language independently, which is consistent with the findings of this study.

Finally, AI writing tools were reported to promote learner independence and confidence. Forty-five percent of teachers agreed and 32% strongly agreed, amounting to 77% positive responses. This indicates that teachers recognize AI tools as fostering autonomous learning, enabling students to gain confidence in their writing abilities. This finding reinforces the Technology Acceptance Model proposed by Davis (1989), which suggests that perceived usefulness positively influences teachers' adoption of educational technologies.

Table 4: Perceived Challenges of AI-powered Writing Assistants

Perceived Challenges of AI-powered Writing Assistants (n = 100)

Item	SD	D	N	A	SA	Mean	SD
Pupils tend to rely too much on AI suggestions	5	12	21	40	22	3.72	0.87
AI feedback is not always accurate or reliable	4	8	18	45	25	3.94	0.82
I am concerned about plagiarism or misuse of AI-generated content	3	6	17	42	32	4.06	0.78
I have not received enough training on how to use AI writing tools effectively	6	10	20	38	26	3.88	0.85
Limited infrastructure or internet access makes it difficult to use AI tools in my school	8	12	22	35	23	3.69	0.91
Overall Perceived Challenges	—	—	—	—	—	3.86	0.85

Note. SD = Strongly Disagree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree. Responses measured on a 5-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree).

Despite the benefits, teachers also identified several challenges associated with AI tools in ESL classrooms, as presented in Table 4.3. Overall, the construct of perceived challenges recorded a moderate mean score ($M = 3.86$, $SD = 0.85$), indicating that teachers generally acknowledged the presence of challenges when using AI-powered writing assistants. The relatively moderate SD shows that there was some variation in teachers' perceptions across the different challenges. The highest concern was the ethical issue of plagiarism or misuse of AI-generated content, with 42% of teachers agreeing and 32% strongly agreeing, totaling 74% positive responses. Only 9% of respondents disagreed or strongly disagreed. This suggests that teachers are aware of the potential for students to misuse AI tools, highlighting the need for ethical guidance and classroom monitoring. Similar concerns were reported by Zakaria and Ponniah (2021), who emphasized that ethical considerations are a critical barrier to AI adoption in schools.

Teachers also expressed concerns about the accuracy and reliability of AI-generated feedback. Forty-five percent agreed and 25% strongly agreed, totaling 70% positive responses, indicating that teachers are cautious about the precision of AI suggestions. Khan et al. (2022) similarly found that inconsistencies in AI feedback may hinder teachers' confidence in using these tools effectively.

Overreliance by pupils on AI suggestions was another challenge identified, with 40% agreeing and 22% strongly agreeing, totaling 62% positive responses. This shows that while AI tools provide guidance, teachers worry that students might depend too heavily on AI rather than developing independent writing skills. In line with Sivanganam et al. (2025), this suggests the importance of balancing AI use with strategies that foster learner autonomy.

Insufficient training for teachers was also reported as a challenge, with 38% agreeing and 26% strongly agreeing, totaling 64% of respondents indicating this issue. This finding indicates that professional development is essential to ensure teachers can integrate AI tools effectively into their instruction. Yunus et al. (2023) emphasized that teacher preparedness is crucial for successful technology integration.

Finally, limited infrastructure or internet access was noted as a challenge, with 35% agreeing and 23% strongly agreeing, totaling 58% positive responses. This demonstrates that logistical and resource constraints, particularly in rural or semi-urban schools, may impede the effective use of AI-powered writing assistants. Zainuddin (2024) similarly reported that access to digital infrastructure significantly affects teachers' ability to implement AI tools in classrooms.

Conclusion

The findings indicate that teachers recognize multiple benefits of AI integration in ESL classrooms. Teachers reported that AI tools enhance student engagement, promote learner independence, encourage revision and editing, support weaker pupils through personalized feedback, and contribute to vocabulary development and sentence variety. These benefits suggest that AI-powered writing assistants can effectively support both cognitive and linguistic development in young learners, aligning with the theoretical framework of the Technology Acceptance Model, where perceived usefulness and benefits influence adoption and positive attitudes toward educational technology.

At the same time, teachers identified several challenges associated with AI integration. Ethical concerns, such as the risk of plagiarism and misuse of AI-generated content, were highlighted as major issues. Teachers also noted limitations in feedback accuracy, insufficient training on effective pedagogical use, overreliance by pupils on AI suggestions, and limited digital infrastructure, particularly in rural and semi-urban schools. These challenges underscore the importance of providing structured professional development, establishing clear ethical guidelines, and ensuring equitable access to technological resources to facilitate effective AI integration.

The study has several pedagogical implications. First, professional development programs should focus on equipping teachers with strategies to integrate AI tools responsibly, balancing their use to enhance writing skills while avoiding overreliance. Second, school administrators and policymakers should prioritize investments in infrastructure and access to reliable digital tools, especially in under-resourced schools. Finally, curriculum planning should consider

incorporating AI tools in a way that complements traditional writing pedagogy, fostering both autonomous learning and critical thinking skills.

Future research could address these limitations by employing larger, more representative samples, incorporating qualitative methods such as interviews or focus groups to explore teacher experiences in depth, or conducting longitudinal studies to examine the sustained impact of AI integration on student writing performance. Comparative studies across different educational levels and investigations into pupils' digital literacy and perceptions could further enrich understanding of AI use in early English language education.

In conclusion, Malaysian primary school ESL teachers generally perceive AI-powered writing assistants as beneficial tools for supporting writing instruction, enhancing engagement, fostering autonomy, and providing personalized support. However, challenges such as ethical concerns, limited training, infrastructural constraints, and overreliance must be addressed to ensure responsible and effective implementation. The findings highlight the need for systematic professional development, equitable access to technology, and clear pedagogical guidelines, providing practical and theoretical insights for the meaningful integration of AI in Malaysian ESL classrooms.

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