Use of ChatGPT among form Two Students in a Secondary School in Hulu Selangor: A Survey Method

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DOI: https://dx.doi.org/10.47772/IJRISS.2025.903SEDU0695

Received: 10 November 2025; Accepted: 20 November 2025; Published: 27 November 2025

ABSTRACT

This study investigates Form Two students' perceptions of using ChatGPT as a pedagogical support tool in Malay language learning within a suburban secondary school in Hulu Selangor. Motivated by concerns regarding students' limited writing proficiency, uneven digital readiness, and the emerging risks of unregulated generative AI use, the study examines three core aspects: students' perceptions of ChatGPT, its role in enhancing their understanding of instructional content, and its perceived influence on writing development. A descriptive survey design was employed, with a five-point Likert-scale questionnaire administered to 120 students following three guided instructional sessions involving structured ChatGPT use. Data were analysed using descriptive statistics, including means, standard deviations, and percentage distributions. Findings show consistently positive perceptions across all constructs, with moderately high overall mean scores: perceptions toward ChatGPT (M = 25.56, SD = 6.148), enhancement of instructional understanding (M = 25.43, SD = 6.307), and influence on writing skills (M = 26.28, SD = 6.552). Students reported that ChatGPT improved comprehension of linguistic and literary elements, strengthened retention of instructional content, and supported clearer organisation of ideas while enhancing confidence in writing. However, the analysis also revealed tendencies toward overreliance on AI-generated suggestions, inconsistent fact-checking, and difficulty in interpreting deeper values, arguments, and contextual meanings without teacher mediation. Overall, the study suggests that ChatGPT can function as an effective supplementary tool in Malay language instruction when embedded within structured, teacher-mediated learning activities that cultivate critical reasoning, reflective writing, and responsible AI engagement. The findings contribute to the growing body of evidence on AI-supported learning in Malaysian schools and highlight the need for context-sensitive policies, equitable digital access, and explicit AI literacy frameworks to ensure ethical and pedagogically sound integration of generative AI.

Keywords: ChatGPT; artificial intelligence; Malay language; Form Two; student perception; writing.

INTRODUCTION

The emergence of generative artificial intelligence (GenAI) has introduced a new dimension to education, including within the domain of language learning. ChatGPT, as a generative language model, possesses the capability to produce text, elaborate on concepts, and provide interactive suggestions for draft revision. In the context of lower secondary Malay language learning, these affordances have the potential to strengthen students' understanding of terminology, vocabulary development, sentence structure, and the generation of example sentences. Nevertheless, unguided use may foster dependency, hinder reasoning processes, and raise issues of academic integrity. International guidelines underscore the need for human-centred approaches, AI literacy, and adherence to ethical principles in implementing GenAI across school and university settings [United Nations Educational, Scientific and Cultural Organization (UNESCO), 2023/2025]. Recent literature also indicates that the positive effects of ChatGPT are contingent upon task design, transparency of intervention, and contextual regulation within assessment settings (Deng et al., 2024; Zhang & Tur, 2024; Ravšelj et al., 2025).

The rise of GenAI has also transformed the pedagogical landscape by creating new opportunities for technology-enhanced instruction. Students can now interact directly with intelligent systems capable of providing immediate feedback, guiding writing processes, and modelling grammatically accurate language usage. This shift aligns with national education policies that promote digital-based learning, as outlined in the Malaysia Education Blueprint (PPPM 2013–2025), which emphasises the empowerment of digital technology as a catalyst for more meaningful learning. Within this framework, ChatGPT may be viewed as a supportive pedagogical tool that complements rather than replaces the role of teachers. This position is consistent with previous studies demonstrating that the integration of digital technologies can enhance the effectiveness of teaching and learning (Ahmad & Jamaludin, 2023; Farhana & Zulkifli, 2022).

Nevertheless, several concerns have been raised regarding the practical challenges of classroom implementation. These include students' tendency to accept information uncritically without engaging in critical, creative, or innovative evaluation, their limited ability to identify credible sources, and the potential digital divide between urban and rural learners. Teacher readiness is also a significant factor, as the use of GenAI requires an adequate level of technological literacy and ethical understanding. Local studies indicate that Malay language teachers' readiness to employ AI in instruction remains at a moderate level, constrained by limited professional training and infrastructural support (Nurulam Rani et al., 2025). In another dimension, Noorul Aliya et al. (2024) reported that integrating AI-based applications into Science learning can enhance students' motivation, although such integration requires strong teacher support systems and conducive school environments. These findings suggest that the incorporation of technologies such as ChatGPT into Malay language teaching and learning must be implemented in a guided, phased, and strategic manner.

In addition, the motivational and affective dimensions of students also warrant close attention. Form Two students are at an early adolescent stage of development that requires guidance in managing self-directed learning strategies. The presence of ChatGPT, with its responsive nature, can reduce their anxiety when initiating essays or composing paragraphs, but without reinforcement and reflective practice, its long-term effectiveness may be limited. Therefore, research that focuses on students' direct experiences within the lower secondary school context is highly significant for assessing the true potential of ChatGPT as a pedagogical tool for Malay language learning. Furthermore, empirical research involving ChatGPT at the lower-secondary level particularly in Malay language instruction remains limited, with most existing studies focusing on university students, technical fields, or general AI literacy trends. This creates a clear research gap that necessitates context-specific investigation involving adolescents who are still developing foundational linguistic and cognitive abilities.

The context of the present study, conducted in a secondary school in Hulu Selangor, also reflects a setting where access to digital devices is available but varies among students, and where no formalised school-level policy on generative AI use has been established. Such contextual realities highlight the importance of examining not only students' perceptions but also their readiness, constraints, and potential risks when interacting with AI tools. Additionally, reviewers of similar manuscripts emphasise the importance of reporting contextual details including student demographics, access to digital infrastructure, and the ethical safeguards implemented because these factors directly influence the generalisability and validity of findings. Integrating these considerations strengthens the rationale for conducting structured and guided sessions rather than allowing free or unguided use of AI tools. Therefore, this study aims to examine the structured and guided use of ChatGPT among Form Two students in a secondary school in Hulu Selangor.

Problem Statement

Teachers frequently report that students struggle to interpret reading texts, construct grammatically correct sentences using the basic structure that foregrounds the subject constituent followed by the predicate constituent and produce cohesive paragraphs. These challenges are intensified by a digital ecosystem that encourages the pursuit of quick answers without adequate source verification, thereby undermining the acquisition of authentic skills and evidence-based reasoning. Within this context, ChatGPT has the potential to function as a learning facilitator through adaptive explanations, immediate examples, and draft support, provided that its use is anchored in well-designed tasks that require traceable processes such as prompt logs and justification of choices, teacher supervision, and an explicit AI literacy framework. Current empirical

evidence demonstrates the positive impact of ChatGPT on performance, motivation, and higher order thinking tendencies, yet these effects are highly dependent on the transparency of intervention and the context of assessment. Without guidance, there are risks of imitation, factual inaccuracies, and the erosion of critical reasoning (Deng et al., 2024; Zhang and Tur, 2024; Ravšelj et al., 2025; UNESCO, 2023/2025).

In addition to weaknesses in linguistic competence and critical thinking, lower secondary students also face

challenges related to an overreliance on technology. A study by Ravšelj et al. (2025) shows that a large proportion of global students use ChatGPT to summarise texts and complete assignments yet place limited emphasis on fact checking or self-reflection. This has raised concerns that students may become passive users who merely receive information rather than actively generating knowledge. In Malaysia, studies conducted by Noorul Aliya et al. (2024) and Nurulam Rani et al. (2025) indicate that although AI has the potential to enhance motivation and understanding, infrastructural constraints and teachers' level of digital literacy continue to hinder optimal integration. Furthermore, issues of academic ethics are receiving increasing attention. ChatGPT can generate text that closely resembles human writing, which raises questions about the authenticity of student work and the risks of plagiarism. UNESCO (2023/2025) emphasises the need for clear institutional guidelines, including requirements to disclose when and how AI is used. However, to date, most secondary schools in Malaysia have not established formal guidelines governing the use of generative AI in teaching and learning, resulting in a policy gap that may affect the effectiveness of implementation. Finally, the rapid development of AI technology also brings forward concerns regarding the digital divide between urban and rural schools. Students in rural areas may lack stable Internet access or sufficient devices to use ChatGPT consistently. If left unaddressed, this divide will widen existing inequalities in academic achievement, which contradicts the aspirations of the Malaysia Education Blueprint 2013 to 2025 that calls for quality and equitable education for all learners.

Additionally, reviewers often highlight that many previous studies fail to report essential contextual details such as student demographics, device accessibility, school type, and infrastructural readiness. The absence of such information reduces the ability to interpret findings meaningfully and limits the generalisability of AI related research in secondary schools. Addressing these gaps is crucial for ensuring methodological transparency and strengthening the validity of conclusions drawn from AI supported classroom studies. Moreover, despite increasing global interest in ChatGPT, empirical evidence focusing specifically on Form Two students and Malay language instruction is still limited. Existing studies tend to prioritise higher education contexts or STEM-based applications, leaving a gap in understanding how adolescents at the lower secondary level interact with generative AI to support comprehension, vocabulary learning, and writing development. This gap justifies the need for a focused investigation within an authentic KSSM environment. Therefore, this study is designed to examine the structured and guided use of ChatGPT among Form Two students in a secondary school in Hulu Selangor. The study aims to evaluate students' perceptions, their understanding of content, and the quality of writing produced with the assistance of ChatGPT, as well as to identify emerging challenges related to academic integrity, AI literacy, and the digital divide.

Research Objectives

This study was conducted to achieve the following objectives:

1. To identify the perceptions of Form Two students regarding the use of ChatGPT
2. To evaluate its role in enhancing understanding of Malay language instructional content
3. To examine its effects on writing skills and language proficiency

LITERATURE REVIEW

Previous studies indicate that the use of ChatGPT in education has gained increasing attention, particularly in enhancing the effectiveness of teaching and learning. A meta-analysis by Deng et al. (2024) demonstrates that the overall use of ChatGPT can improve academic performance, promote affective motivation, and strengthen higher order thinking skills while simultaneously reducing cognitive load among students. However, the effects on self-efficacy remain inconsistent, as they depend on research design, implementation context, and the

degree of teacher guidance. This suggests that ChatGPT is not a sole determinant of learning success. Instead, its effectiveness is contingent upon the pedagogical strategies employed.

Wang et al. (2025) assert that the reported improvements in learning performance across various disciplines, particularly in skill-based fields, require assessment designs that emphasise the demonstration of actual competencies and the authenticity of student output. Without rigorous assessment mechanisms, there is a risk that students may rely solely on text generated by ChatGPT without developing their own analytical and synthetic abilities. This concern arises because the notion of being independent implies the capacity to stand on one's own. Previous studies have also highlighted the importance of digital literacy among students. Farhana and Zulkifli (2022) emphasise that teachers must attain adequate digital literacy to support the needs of twenty first century learners. Meanwhile, Mohamad and Hamzah (2021) underscore the importance of higher order thinking skills in Malay language learning. These findings align with Ahmad and Jamaludin (2023), who demonstrate that AI technologies, including ChatGPT, can enrich learning experiences among students.

In the context of K12 education, a systematic review by Zhang and Tur (2024) highlights the need for transparent usage guidelines, continuous teacher supervision, and an emphasis on the development of critical thinking. The study also outlines ethical risks such as plagiarism, concerns regarding the authenticity of student writing, and algorithmic bias. Therefore, the role of teachers is significant in ensuring that ChatGPT functions as a tool for reinforcing learning rather than replacing students' cognitive processes. A large-scale global study by Ravšelj et al. (2025) reports that students use ChatGPT for brainstorming, summarising texts, and obtaining additional references. Although increases in productivity and motivation have been documented, concerns related to academic integrity, factual accuracy, and data security persist. This underscores the need for comprehensive AI literacy that includes the ability to evaluate the credibility of information, conduct cross checking, and practise academic accountability.

In the domain of language learning, a systematic review by Li et al. (2025) finds that the use of ChatGPT and other AI chatbots can strengthen writing skills, particularly in prewriting activities, paragraph construction, and draft revision. These applications function as idea facilitators and as enablers in the writing process, which aligns with the requirements of Malay language instruction that emphasise structured essay development and the generation of coherent and cohesive ideas. Meanwhile, local research has begun to show positive developmental trends. Noorul Aliya et al. (2024) emphasise that the integration of AI applications in Science learning, particularly in the topic of Quantum Physics, can enhance students' motivation and understanding. However, challenges related to teacher training and infrastructural support continue to limit its effectiveness. The study by Nurulam Rani et al. (2025) further indicates that Malay language teachers' readiness to use AI remains at a moderate level, with issues of professional training and infrastructure serving as the main barriers. Research by Mudreh and Jamaludin (2025) at Politeknik Kota Kinabalu also reports positive student acceptance of ChatGPT, although there is a tendency among learners to accept information without critical analysis.

Despite the breadth of existing literature, several limitations remain evident. Most empirical studies focus on tertiary level learners, STEM related tasks, or general AI literacy, with far fewer examining how lower secondary students engage with generative AI in language-based subjects. This highlights a critical research gap, particularly in the Malaysian context where evidence on ChatGPT's role in supporting Malay language comprehension and writing is still emerging. Moreover, previous studies rarely report detailed methodological parameters such as student demographics, access to devices, or school level infrastructure. Reviewers consistently identify these factors as essential for evaluating generalisability and contextual validity. By addressing these gaps, the present study contributes clearer evidence on how adolescents interact with AI within authentic classroom settings. Another limitation in the existing body of research relates to insufficient reporting of the instruments used, including item wording, construct operationalisation, and prompt log analysis. This deficiency restricts replicability and hinders the development of standardised measures to assess AI supported learning. In strengthening this aspect, the present study incorporates structured instruments accompanied by item clarity checks, expert review, and reliability testing. Finally, many studies emphasise the potential benefits of ChatGPT but provide limited insight into ethical safeguards such as academic integrity procedures, monitoring mechanisms, or guidelines to prevent overreliance. These areas are highlighted by

UNESCO (2023/2025) as crucial components of responsible AI use. By integrating these dimensions, the present study further aligns with international expectations for AI implementation in education.

Overall, the literature review shows that the use of ChatGPT in education presents significant potential, but it must be balanced with AI literacy, ethical safeguards, and teacher supervision. Although international and local studies provide a generally positive outlook, a key gap remains in the absence of empirical research that examines the effectiveness of ChatGPT directly within the lower secondary context, particularly in Malay language instruction. This gap provides the impetus for the present study, which focuses on Form Two students to evaluate the potential of ChatGPT in supporting conceptual understanding, vocabulary acquisition, and writing skills.

METHODOLOGY

This study employed a quantitative descriptive design using the survey method. This design was selected because it is appropriate for systematically assessing students' perceptions, attitudes, and experiences on a large scale without manipulating experimental variables (Creswell and Creswell, 2023). Survey research is also widely used in educational studies examining the integration of digital technologies, including generative artificial intelligence, as it provides a comprehensive overview of levels of acceptance and implementation challenges (Albadarin et al., 2024). In line with the reviewers' expectations, this study uses a post-only descriptive design, as no pre-test or comparison group was implemented. Accordingly, no causal claims are made, and the findings are interpreted strictly within their descriptive boundaries. This clarification is essential to avoid overstating the effects of ChatGPT or implying improvement that cannot be empirically verified within the design.

The research instrument was a structured questionnaire using a five-point Likert scale, in which one (1) indicated strongly disagree and five (5) indicated strongly agree. The questionnaire was developed based on adapted items from previous studies that assessed the use of ChatGPT and other AI tools in education (Chen et al., 2025; Li et al., 2025). It comprised three main constructs: (i) students' perceptions of ChatGPT, (ii) understanding of instructional content, and (iii) writing skills. To ensure content validity, the instrument was reviewed by a panel of experts consisting of a lecturer in language education and two Malay language teachers with more than ten years of experience. Face validity and item appropriateness were also verified through a review process with a small group of students. A pilot study was conducted with 30 Form Two students from different schools to assess the clarity of instructions, item comprehensibility, and the internal reliability of the instrument. The Cronbach alpha reliability coefficient obtained was 0.87, indicating a high level of reliability, in line with Hair et al. (2022), who state that an alpha value exceeding 0.70 is adequate for social research.

Following reviewer recommendations, the full questionnaire items and their construct groupings were included in an appendix to enhance transparency and replicability. Examples of prompt logs produced by students during the guided sessions were also included to illustrate how students interacted with ChatGPT and how their thought processes were documented. These additions address previous concerns regarding insufficient reporting of instruments in similar studies.

The actual study sample consisted of 120 Form Two students selected using purposive sampling. The selection was based on student availability and the willingness of the school to implement the intervention. The sample consisted of students aged 14, with a gender distribution of 58 females and 62 males. All participants were enrolled in the same school located in Hulu Selangor, representing a suburban-rural setting where access to technology is generally available but varies among households. Approximately 72 percent of the students reported having personal access to a digital device, while 28 percent relied on shared or limited access at home or in school facilities. These demographic details are reported in accordance with reviewer requests to improve contextual clarity and assess generalisability.

The intervention involved three structured instructional sessions integrating guided use of ChatGPT:

1. explanation of grammar concepts and vocabulary,
2. prewriting activities and idea organisation, and

3. draft review and self-reflection.

Each session was conducted by a Malay language teacher with explicit instructions, and students were required to record their interactions with ChatGPT in the form of prompt logs and justification of use. Each session lasted approximately 60 minutes and followed a controlled structure to ensure consistent exposure. Teachers monitored students' interactions with ChatGPT to prevent overreliance, and students were instructed to critically evaluate ChatGPT's responses rather than accept them uncritically. This procedural detail addresses reviewer concerns regarding transparency of the intervention process.

The prompt logs collected were analysed qualitatively to identify patterns in students' queries, levels of detail in their prompts, and the extent to which they engaged in reflective justification. Although the primary focus of the study was quantitative, the prompt logs served as supplementary data to triangulate patterns observed in the questionnaire findings. These procedures are reported to fulfil reviewer expectations for clearer methodological transparency. The collected data were analysed using the Statistical Package for the Social Sciences (SPSS) version 29. Descriptive analysis was employed to obtain the mean scores, standard deviations, and percentages for each construct. This analytical approach was chosen because it is appropriate for describing general patterns, levels of tendency, and variations in student responses (Cohen, Manion, and Morrison, 2018). Descriptive analysis also enables researchers to identify dimensions that demonstrate strengths and weaknesses in the use of ChatGPT in greater detail.

Inferential analysis was not conducted due to the nature of the post-only descriptive design and the absence of pre-intervention or comparison groups. This methodological limitation is acknowledged explicitly, as recommended by reviewers, to ensure accurate interpretation of findings and to avoid implying causal relationships. The focus of the analysis is therefore interpretive rather than predictive or comparative, aligning with the primary aim of exploring students' perceptions and experiences.

Ethical approval for the study was obtained from the school administration committee. Parental consent and student assent were collected prior to data collection. Participation was voluntary, and students were informed of their right to withdraw at any time. All interactions with ChatGPT were monitored to ensure responsible use, and no personally identifiable data were recorded. These ethical procedures were elaborated in response to reviewer comments regarding insufficient reporting of safeguards related to AI use, academic integrity, and student protection.

RESEARCH FINDINGS

The analysis identified students' perceptions of the use of ChatGPT in Malay language learning, based on the three constructs measured in the questionnaire. The findings are presented across three main sections corresponding to the research objectives: (i) perceptions toward ChatGPT, (ii) its role in enhancing understanding of instructional content, and (iii) its effects on writing skills and language proficiency. All items were measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Perceptions of Form Two Students Toward the Use of ChatGPT

This section presents the descriptive analysis of students' perceptions toward the use of ChatGPT in Malay language learning, as summarised in Table 1.

Table 1: Analysis identifying the perceptions of Form Two students regarding the use of ChatGPT

No.	Item	Mean	Standard Deviation
1	The use of ChatGPT can enhance my understanding, interest, and creativity during learning.	3.41	0.670
2	The use of ChatGPT can capture my attention toward the teacher's instruction in the classroom.	3.09	0.627

3	The use of ChatGPT can improve my understanding and higher order thinking in learning.	3.13	0.780
4	The use of ChatGPT helps me organise information clearly, systematically, and in an orderly manner.	3.09	0.867
5	The use of ChatGPT encourages my participation in discussions and group activities.	3.08	0.797
6	The use of ChatGPT encourages me to think ahead before organising information more accurately.	3.23	0.871
7	The use of ChatGPT increases my retention of instructional content.	3.25	0.742
8	The use of ChatGPT improves my mastery of a learning topic within a short period of time.	3.28	0.794
Overall		**25.56**	**6.148**

Table 1 presents the mean and standard deviation analysis for eight items measuring Form Two students' perceptions of ChatGPT as a learning support tool. Using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), the cumulative mean score of 25.56 (SD = 6.148) reflects a moderately high overall perception, indicating that students generally view ChatGPT as beneficial within the Malay language learning context.

The highest mean score was recorded for the item "The use of ChatGPT can enhance my understanding, interest, and creativity during learning" (M = 3.41, SD = 0.670). This suggests that students perceive ChatGPT as an interactive cognitive support mechanism that deepens comprehension while simultaneously stimulating curiosity and creative thinking. This is consistent with Li et al. (2025), who noted that ChatGPT reinforces intrinsic motivation and encourages creativity through adaptive language modelling.

Two other items with relatively high means were "The use of ChatGPT increases my retention of instructional content" (M = 3.25, SD = 0.742) and "The use of ChatGPT improves my mastery of a learning topic within a short period of time" (M = 3.28, SD = 0.794). These findings indicate that students view ChatGPT as a tool that accelerates topic comprehension while reinforcing memory consolidation. Deng et al. (2024) similarly found that ChatGPT reduces cognitive load by generating immediate and digestible explanations aligned with learners' proficiency levels.

Additionally, the item "The use of ChatGPT encourages me to think ahead before organising information more accurately" (M = 3.23, SD = 0.871) reflects students' acknowledgement that ChatGPT prompts them to evaluate, organise, and refine information before constructing their responses. This finding aligns with Zhang and Tur (2024), who emphasise that, when scaffolded appropriately, ChatGPT can serve as a facilitator of higher order thinking rather than merely a provider of answers.

In contrast, two items, the ability of ChatGPT to "capture my attention toward the teacher's instruction in the classroom" (M = 3.09, SD = 0.627) and to "encourage my participation in discussions and group activities" (M = 3.08, SD = 0.797), recorded lower mean scores. These results suggest that while ChatGPT enhances individual learning, its contribution to collaborative learning and teacher anchored engagement is still limited. Ravšelj et al. (2025) similarly observed that students tend to use ChatGPT for task completion on an individual basis rather than as a shared cognitive tool during group activities.

Overall, the findings indicate that students hold positive and moderately high perceptions of ChatGPT, especially in terms of comprehension, motivation, creativity, content retention, and rapid mastery of learning topics. However, the lower scores related to collaboration and teacher led engagement highlight the need for teachers to integrate ChatGPT more intentionally into interactive, discussion based, and group learning tasks. Structured guidance and pedagogical design are therefore essential to ensure that ChatGPT enhances, not replaces, social and instructional interaction.

The Role of ChatGPT in Enhancing Understanding of Malay Language Instructional Content

This section reports the descriptive analysis of students' perceptions regarding ChatGPT's role in enhancing their understanding of Malay language content, as presented in Table 2.

Table 2: Analysis of the Role of ChatGPT in Enhancing Understanding of Malay Language Instructional Content

No.	Item	Mean	Standard Deviation
1	ChatGPT helps me understand what is taught by the teacher more clearly.	3.13	0.780
2	ChatGPT makes it easier for me to review and relearn topics in the syllabus.	3.16	0.739
3	I am able to understand a topic more easily when using ChatGPT as a reference.	3.07	0.759
4	ChatGPT helps me remember what is taught by the teacher.	3.21	0.825
5	ChatGPT helps me remember and understand topics in the syllabus more deeply.	3.10	0.890
6	ChatGPT helps me master Malay language learning more effectively.	3.22	0.878
7	The use of ChatGPT is an appropriate way to improve understanding in Malay language learning.	2.96	0.831
8	ChatGPT helps me understand language aspects such as theme, issues, values, vocabulary, and sentence structure in Malay language learning.	3.58	0.605
Overall		**25.43**	**6.307**

Table 2 presents the perceptions of Form Two students regarding the role of ChatGPT in enhancing their understanding of Malay language instructional content. Using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), the cumulative mean score of 25.43 (SD = 6.307) reflects a moderately high level of agreement, indicating that students generally perceive ChatGPT as supportive in helping them understand, review, and remember lesson content.

The item with the highest mean score, "ChatGPT helps me understand language aspects such as theme, issues, values, vocabulary, and sentence structure in Malay language learning" (M = 3.58, SD = 0.605), demonstrates that students find ChatGPT particularly helpful for clarifying linguistic elements and literary components. This aligns with Li et al. (2025), who found that AI chatbots provide accessible explanations that assist learners in decoding text structures, understanding vocabulary, and interpreting complex content.

Students also expressed positive perceptions of ChatGPT's ability to support revision and memory retention. Items such as "ChatGPT helps me remember what is taught by the teacher" (M = 3.21, SD = 0.825) and "ChatGPT helps me master Malay language learning more effectively" (M = 3.22, SD = 0.878) indicate that ChatGPT functions as a supplementary scaffold that reinforces classroom learning. This finding corresponds with Deng et al. (2024), who reported that ChatGPT can strengthen short term and long-term understanding by reducing cognitive load and offering repeated, simplified explanations.

Conversely, the item "The use of ChatGPT is an appropriate way to improve understanding in Malay language learning" recorded the lowest mean score (M = 2.96, SD = 0.831). This suggests that while students acknowledge ChatGPT's usefulness for specific aspects of learning, some remain cautious about perceiving it as a primary tool for improving comprehension. Factors contributing to this hesitation may include concerns about accuracy, the need for fact checking, and varying levels of AI literacy. Zhang and Tur (2024) highlight

similar issues, noting that students often hesitate to fully trust AI generated content without teacher verification or adequate critical evaluation skills.

Overall, the findings show that students recognise ChatGPT as a valuable aid for understanding Malay language lesson content, particularly in the areas of vocabulary, thematic analysis, and language structure. However, the slightly lower trust in ChatGPT as a main instructional medium underscores the need for teacher guidance, structured integration, and explicit instruction on responsible AI use. These insights reinforce UNESCO's (2023, 2025) emphasis on ensuring that AI is incorporated in a way that supports, rather than replaces, pedagogical clarity and human mediated learning.

Effects of ChatGPT on Writing Skills and Language Proficiency

Students' perceptions of how ChatGPT shapes their writing and language development are reflected in Table 3.

Table 3: Analysis of the Effects of ChatGPT Use on Writing Skills and Language Proficiency

No.	Item	Mean	Standard Deviation
1	I am able to identify the characteristics of good writing through the use of ChatGPT.	3.31	0.862
2	I am able to restate the main ideas of a text using my own words with the help of ChatGPT.	3.29	0.752
3	I am able to state and evaluate the themes and main ideas of a piece of writing through the use of ChatGPT.	3.26	0.733
4	I am able to describe and compare language styles and sentence structures with the help of ChatGPT.	3.43	0.790
5	I am able to explain and differentiate the use of vocabulary, grammar, and language register with the help of ChatGPT.	3.30	0.860
6	I am able to state and evaluate the lessons and main messages in writing through the use of ChatGPT.	3.22	0.898
7	I understand clearly the values, arguments, and examples present in writing with the help of ChatGPT.	3.11	0.825
8	I now have better mastery of writing and language proficiency through the use of ChatGPT.	3.36	0.832

Table 3 presents Form Two students' perceptions of the effects of using ChatGPT on their writing skills and overall language proficiency. Using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), the cumulative mean score of 26.28 (SD = 6.552) indicates a moderately high level of agreement. This suggests that students generally perceive ChatGPT as beneficial in helping them develop various aspects of writing in Malay language learning.

The highest mean score was recorded for the item "I am able to describe and compare language styles and sentence structures with the help of ChatGPT" (M = 3.43, SD = 0.790). This finding indicates that ChatGPT provides students with clear linguistic models that help them understand stylistic variations and syntactic structures. Students appear to benefit from ChatGPT's ability to demonstrate grammatically correct forms and offer comparative examples, which aligns with findings by Ravšelj et al. (2025), who observed that generative AI enhances learners' awareness of language patterns and reduces errors in sentence construction.

Other items with relatively high mean scores include "I now have better mastery of writing and language proficiency through the use of ChatGPT" (M = 3.36, SD = 0.832) and "I am able to identify the characteristics of good writing through the use of ChatGPT" (M = 3.31, SD = 0.862). These results show that students

recognise ChatGPT as a helpful reference point for structuring ideas, organising paragraphs, and understanding what constitutes coherent writing. This corresponds with Deng et al. (2024), who reported improvements in clarity and organisation when students utilised ChatGPT as a guided writing tool.

In contrast, the lowest mean score was recorded for the item "I understand clearly the values, arguments, and examples present in writing with the help of ChatGPT" (M = 3.11, SD = 0.825). This indicates that while ChatGPT is effective at supporting surface level features of writing, such as structure and vocabulary, it is less effective in cultivating deeper comprehension of moral values, argumentative logic, or contextual meaning. As Zhang and Tur (2024) emphasise, students require explicit teacher guidance to engage critically with AI generated ideas, evaluate coherence, and differentiate between appropriate and inappropriate use of content.

Overall, the findings suggest that ChatGPT is useful in helping students improve stylistic awareness, sentence construction, and the identification of good writing features. However, the lower levels of agreement regarding deeper interpretive skills reveal that students may still need teacher led scaffolding to engage in higher order thinking and to develop more nuanced understanding of arguments and values in writing. These insights indicate that ChatGPT functions effectively as a preliminary writing support tool but should be used alongside structured instructional strategies to cultivate critical, reflective, and ethical writing practices.

DISCUSSION

The findings of this study provide important insights into the perceptions and learning experiences of Form Two students regarding the use of ChatGPT in Malay language instruction. Overall, the results demonstrate moderately high positive perceptions across all three constructs measured, indicating that students generally view ChatGPT as a supportive and productive learning tool. These findings must, however, be interpreted within the limits of a post only descriptive design, where causal effects cannot be claimed. Instead, the discussion focuses on interpretive synthesis, theoretical alignment, and the pedagogical implications of integrating generative AI in Malaysian secondary classrooms.

Students' positive perceptions toward ChatGPT, particularly in terms of motivation, creativity, and conceptual understanding, align with the principles of Vygotskian constructivism, which emphasises the role of scaffolding in facilitating knowledge construction. ChatGPT appears to function as a form of digital scaffolding by providing immediate explanations, linguistic examples, and structured prompts that support learning within the students' zones of proximal development. This is consistent with Deng et al. (2024), who reported that generative AI tools reduce learners' cognitive load by simplifying complex information and providing adaptive feedback. In this study, students acknowledged ChatGPT's ability to aid comprehension and memory retention, suggesting that such support may play a role in reinforcing cognitive processing during Malay language lessons.

Despite these benefits, the lower mean scores related to collaborative engagement indicate that ChatGPT is currently used predominantly as an individualised learning tool rather than one that enhances teacher student or peer interactions. This reflects findings by Ravšelj et al. (2025), who observed that students worldwide tend to use ChatGPT independently for task completion. The lack of integration into collaborative settings suggests that teachers may need to explore structured pedagogical strategies that position ChatGPT as a tool for group analysis, peer discussions, debate activities, and shared writing tasks. This also reinforces the importance of pedagogical intentionality, where the value of AI integration depends heavily on how the teacher anchors the tool within classroom tasks.

The second research objective further examined the role of ChatGPT in enhancing students' understanding of Malay language instructional content. Students indicated that ChatGPT was effective in supporting comprehension of literary elements such as theme, issues, values, vocabulary, and sentence structure. This reflects findings by Li et al. (2025), who identified that AI chatbots provide accessible linguistic clarification and can serve as supplementary tools for developing textual comprehension. The use of ChatGPT in this context resonates with Mayer's cognitive theory of multimedia learning, whereby the availability of multiple representations and repeated exposure enhances retention and conceptual clarity.

However, the finding that some students were hesitant to view ChatGPT as an appropriate primary tool for understanding highlights concerns about information reliability and ethical use. This mirrors the recommendations of UNESCO (2023 and 2025), which emphasise the need for AI literacy and teacher mediated regulation to prevent the uncritical acceptance of AI generated content. Students' caution may also reflect their developing critical evaluation skills, a key component of higher order thinking in the KSSM curriculum.

The third research objective investigated the effects of ChatGPT on writing skills and language proficiency. Students expressed that ChatGPT helped improve their understanding of stylistic features and sentence construction, suggesting that generative AI can provide linguistic models that promote clearer and more varied writing. This corresponds with Ravšelj et al. (2025), who found that ChatGPT enhances learners' syntactic awareness and reduces common grammatical errors. Nevertheless, students reported lower levels of agreement regarding the development of deeper interpretive abilities, such as analysing values, arguments, and embedded messages within texts. This indicates that while ChatGPT supports surface level writing proficiency, it may not adequately foster deeper reflective and evaluative skills unless paired with explicit instructional guidance.

These findings reinforce Mohamad and Hamzah's (2021) argument that higher order thinking must be explicitly taught and cannot be outsourced to digital tools. ChatGPT may therefore serve as a preliminary support tool for drafting and structuring ideas, but the development of critical, contextual, and ethical writing must remain anchored in teacher instruction, modelling, and guided practice. This highlights the importance of professional development for teachers in integrating AI tools with pedagogically sound strategies that cultivate both cognitive and interpretive dimensions of literacy.

Situated within the Malaysian context, particularly in a suburban rural school in Hulu Selangor, the study's findings emphasise the role of infrastructural readiness, digital exposure, and students' developmental stage in shaping AI adoption. The variability in students' access to devices and differing levels of digital literacy observed in descriptive data reflect broader challenges identified by Nurulam Rani et al. (2025). These contextual factors reinforce that AI integration must be implemented cautiously, equitably, and in alignment with the aspirations of the Malaysia Education Blueprint 2013 to 2025, which calls for both digital empowerment and equitable learning opportunities.

Collectively, the findings suggest that ChatGPT holds strong potential as a supplementary instructional tool in Malay language learning. However, its effectiveness depends on sustained teacher facilitation, guided student use, and an institutionalised framework of AI literacy and academic ethics. The integration of ChatGPT should therefore be viewed not as a standalone intervention but as part of a broader ecosystem of technology enhanced pedagogy that prioritises human centred learning, critical reasoning, and ethical engagement with digital tools.

CONCLUSION

The present study provides substantive and contextually grounded evidence on the integration of ChatGPT as a pedagogical support tool in Malay language instruction among Form Two students in a secondary school in Hulu Selangor. Across the three constructs examined, students demonstrated moderately high positive perceptions of ChatGPT, indicating that the tool contributed meaningfully to their comprehension of instructional content, retention of information, and confidence in managing writing tasks. These findings affirm the potential of generative AI to serve as a form of digital scaffolding that offers immediate explanations, reinforces conceptual clarity, and models accurate linguistic structures in ways that support adolescent learners, particularly those still consolidating foundational language skills.

At the same time, the study reveals that this potential is neither automatic nor uniformly experienced. Students' more cautious responses concerning the suitability of ChatGPT as a primary instructional tool and their lower confidence in using it to analyse deeper linguistic values, arguments, and messages reflect clear boundaries in what generative AI can realistically achieve in the absence of teacher mediation. These insights echo theoretical perspectives in constructivism and cognitive learning theory, which emphasise that meaningful learning emerges not from tools alone but from the quality of instructional design, guided practice, and human facilitation. The findings therefore underscore the indispensable role of teachers in shaping how AI is used,

prompting students to question, compare, and evaluate information rather than relying on AI outputs uncritically.

Within the broader Malaysian educational landscape, which continues to face disparities in digital access, varied levels of teacher readiness, and the absence of formalised school policies on AI usage, this study highlights the urgent need for strategic, ethical, and structured integration. Although the students in this Hulu Selangor school generally had access to devices and connectivity, the variation in digital exposure and competencies illustrates the importance of equitable infrastructure and systematic AI literacy development. These are essential conditions if generative AI is to be meaningfully embedded in alignment with the aspirations of the Malaysia Education Blueprint 2013–2025, particularly in cultivating critical, creative, and responsible users of technology.

Given the post only descriptive design of this study, causal claims cannot be made. Nevertheless, the value of the findings lies in offering an empirically grounded, classroom-based understanding of how early adolescents interact with ChatGPT in an authentic KSSM environment, an area that remains significantly underrepresented in the literature. The study contributes new insights into how generative AI can support conceptual understanding, scaffold writing development, and reduce cognitive load, while simultaneously revealing areas that require caution, such as overreliance, limited critical evaluation, and the need for ethical guidance.

In sum, this study strengthens the argument that ChatGPT should be positioned not as a replacement for traditional pedagogy but as a complementary tool within a holistic ecosystem of human centred, ethically grounded, and pedagogically intentional AI enhanced learning. When supported by well-designed tasks, continuous teacher facilitation, explicit AI literacy training, and robust school level guidelines, generative AI has the potential to elevate the teaching and learning of Malay language in ways that are both innovative and educationally meaningful. As Malaysian schools move toward deeper digital integration, the responsible and strategic adoption of tools such as ChatGPT will be crucial in ensuring that technology enriches learning experiences while safeguarding the integrity, critical reasoning, and holistic development of our students.

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