

# Comparing translation accuracy in Belt and Road Malaysia children's literature: Malay and Chinese native speakers vs ChatGPT

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**ABSTRACT:** The study investigates the translation processes of human and artificial intelligence translators in comparison. Human translators consist of a Chinese native speaker and belt and road translators. Different versions of artificial intelligence translators comprise ChatGPT 3.5 and ChatGPT 4.0. The research methodology employed is a keyword detection technique. One human translator and one translator powered by artificial intelligence achieved the highest scores in keyword detection, according to the results. Human translators continue to be indispensable in the field of translation, particularly in the translation of literary works. However, the research group is optimistic that artificial intelligence will soon be able to resolve this issue.

**KEYWORDS:** translator; Artificial Intelligent; publisher; Chinese; one belt and road

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## 1. Introduction

The Zhejiang Arts Development Fund in China provided the substantial financial support required in 2021 to facilitate the formation of a noteworthy partnership between a publishing house based in China and a foremost Malaysian organization. The task of identifying a skilled Malaysian translator capable of accurately translating Chinese literary texts into Malay was delegated to Malaya Publisher, a well-regarded Malaysian organization.

The partnership took place in the framework of the “Classic Children’s Literature Book Series: The Belt and Road Book 1” initiative, which sought to promote literary involvement among children through the publication of books. The endeavour attracted considerable interest on account of its broad global influence, which included China, Russia, Malaysia, India, Nepal, and Laos, among others. The duration of the undertaking was precisely two years, starting on 1 September 2021, and ending in August 2023.

The ultimate accomplishment of the endeavour was the effective translation and subsequent release of the literary composition. In October of 2022, the refined masterpiece was made available to the public through a public release. Furthermore, the initiative demonstrated that China had increased its awareness of the Malaysian literature market domestically in recent times. The efforts made by Chinese publishers to introduce Malaysian literature to the Chinese market demonstrated a profound curiosity in investigating the cultural subtleties and unique characteristics of international countries. This book

signified a momentous achievement in that it was the first publication in Chinese to be authored by Malaysian Chinese professionals.

The undertaking functions as a significant undertaking for the forthcoming bilingual language books, which are scheduled for release in China by a Chinese publisher in both Malay and Chinese. Additionally, the China publisher will be responsible for all promotional endeavours.

The purpose of this endeavour was to determine how well Malaysian children's literature was recognized in the Chinese market. It was rare to encounter Malaysian publishers who were actively involved in the Malay translation and publication of children's literature written by Malaysian Chinese authors for the domestic market. Publishers in Malaysia might maintain the perspective that there might not be sufficient demand for children's literature written in Malaysian Chinese. On the contrary, publishers based in China maintain an alternative viewpoint and had effectively facilitated these endeavours through financial support and supervision of all publication procedures—including illustrator recruitment and editorial processes. The China publisher's accomplishment represents a noteworthy milestone that had bolstered the Malaysian publisher's faith in the calibre of literary works authored by Malaysian Chinese.

Notably, two distinguished members of Universiti Malaysia Sabah's Centre for the Promotion of Knowledge and Language Learning contributed significantly to this study. One individual exhibits an exceptional command of the Chinese language, whereas the other demonstrates an innate fluency in Malay.

The resurgence of interest in the domain of translation has been ignited by the advent of ChatGPT, which has generated inquiries regarding the sophisticated Artificial Intelligence (AI) instrument's capacity to substitute human translators. The objective of this research is to shed light on these concerns through the quantification of the disparity between translations generated by human translators and those delivered by ChatGPT. Furthermore, the aim of this research is to furnish human translators with significant insights into the optimal implementation of this remarkable technology, which possesses the potential to augment their expertise. Furthermore, it investigates strategies to mitigate the risk of complete obsolescence at the hands of ChatGPT.

## **2. Literature review**

While there has been considerable debate regarding the use of ChatGPT to translate literary works, particularly poems, with limited research conducted on the subject. However, substantial research remains to be discussed regarding ChatGPT and human translation. Artamonova et al. (2023) investigate the use of AI as an instrument for translators. The initiative examined the translation capabilities of ChatGPT 3.5. Comparisons are made between ChatGPT and online text corpora in terms of their analytical and rhyming capabilities. Information was searched for or analyzed by dialogue assistants in response to queries. Brownlee et al. (2023) provide an all-encompassing manual that imparts practical examples and insightful advice regarding the most effective implementation of ChatGPT and other Large Language Models (LLMs) across a range of professional domains. The authors place great importance on the notion that AI models ought not to be perceived as supernatural beings, but rather as powerful tools capable of yielding substantial results when utilized suitably. Almahasees (2021) and Sahari et al. (2023) investigated the impact of ChatGPT on Arabic translation in an early cross-sectional study. The research assessed the translation effects of ChatGPT within the given linguistic and cultural framework. Using projective methods and semi-structured interviews, the perspectives of a select group of translation

instructors and students were investigated. Data was gathered regarding the merits and demerits of ChatGPT in the domains of translation and translation education, in comparison to Google Translate. In the investigation, ChatGPT satisfaction was high. Lu et al. (2023) documented a multitude of challenges encountered by translators when utilizing ChatGPT. Consequently, the translations of the symbols in Luo Jingguo and A Tribute to King Teng's Tower of ChatGPT are examined in this study. ChatGPT employs a shoddy literal translation when translating metaphors. Luo Jingguo's utilization of transfer, as opposed to mere literal and metaphorical translation, is preferable. The research revealed that ChatGPT exhibits a relatively subpar capacity for translating metaphors.

It is critical to discern the intricate attributes, intrinsic unpredictability, and vast diversity that are intrinsic to natural languages. Upon closer examination of the computational challenge, it has become apparent that machine translation encounters barriers that human translators have already surmounted, owing to the unique characteristics that are intrinsic to natural languages. Simultaneously, the scientific community has yet to fully comprehend the intricacies surrounding the cognitive processes involved in the human brain's comprehension of natural languages, as well as the mechanisms through which individuals acquire proficiency in this domain. Chen (2023) further clarifies the differentiation between the act of translation and the role fulfilled by the translator. Wu (2023) requested that ChatGPT translate and refine specific Chinese-specific terms from the work report of the Chinese government. Comparing the official Chinese-English translation with the traditional machine translation version, this article evaluated the syntactic structure, coherence, and domain adjustment of ChatGPT to provide a synopsis of machine-assisted translation strategies and methods for Chinese characteristic words. In their 2023 study, Ruhmadi and Al Farisi investigate translated errors that arise in the context of morphology within Arabic-to-Indonesian outputs produced by ChatGPT. By investigating the source language and identifying instances of translation errors in morphology at the morphological level during the use of the Chat GPT translation system, the research aims to confirm that the translation is error-free. The processes involved in the ChatGPT translation error include the translation of superfluous words and the conversion of passive verbs to active verbs; the transformation of nouns into passive verbs; and the choice of words that differ from those used in the source language for the target language.

Additionally, researchers are concerned about ChatGPT's potential for bias. Partha et al. (2023) assert that ChatGPT has revolutionized various facets of scientific investigation, encompassing data administration, hypothesis development, collaboration, and public participation. The paper investigates how ChatGPT might draw attention to a range of current ethical issues in the computer industry. Moreover, this study recognizes the shortcomings and restrictions of ChatGPT. The research undertaken by Larroyed (2023) examines the effects of ChatGPT on linguistic standards pertaining to the translation of European patents. An increasing number of patent applications on an annual basis had generated a need for translation services that were characterized by their superior quality and cost-effectiveness. Notwithstanding the progress made in translation technology, including the implementation of ChatGPT, there was a dearth of research concerning the legal validity of translations generated by machines in the context of patent translation. In their study, Hamilton et al. (2023) investigate the potential of ChatGPT to assist with human-oriented duties such as qualitative study analysis. Analyzing the primary concepts that emerge from qualitative analyses conducted by humans and AI in response to interviews with pilot project participants who received guaranteed income. The results demonstrated that studies generated by humans and AI are both similar and different. For instance, certain themes were identified by human coders that were overlooked by ChatGPT, while other themes that were identified by human coders were ignored by ChatGPT. According to the findings of the study, ChatGPT could be of great assistance when

humans were required to perform complex tasks. Additionally, it forecasts that these instruments will ultimately be implemented to facilitate research. An area of potential interest could be the application of ChatGPT in the processing of unprocessed interview transcripts, as well as the integration of themes generated by AI into triangulation discussions to identify gaps in knowledge, alternative perspectives, and personal biases.

The technological advancements of deep learning were examined by Zhao et al. (2023), who conclude that deep learning had made it possible to improve pre-trained language models. By capitalizing on the achievements of GPT-3.5 and GPT 4.0, this study investigated the potential applications of ChatGPT in the domain of agricultural information technology. The investigation commences with a comparison between ChatGPT and PLM-based methods with respect to promptness and fine-tuning. Empirical evidence substantiates the claim that ChatGPT effectively eradicates complexities and postponements associated with scientific investigation.

Downie (2019) employed an original and approachable writing style that successfully integrates comedic elements and makes use of concrete case studies. The principal aim of this instructional curriculum was to furnish interpreters, irrespective of their proficiency level, with direction on cultivating a comprehensive comprehension of their vocation and the computational methodologies employed in the domain of interpretation. It was imperative to assess the translation accuracy of ChatGPT because of its deficiencies in managing domain-specific terminology and cultural context, as demonstrated in Khoshafah's (2023) study. This article evaluates the precision of ChatGPT 3.5's translations. This study assessed the precision and calibre of translations generated by ChatGPT 3.5 in contrast to those produced by seasoned translators, with respect to texts pertaining to history, literature, media, law, and science. The findings of the study indicated that although ChatGPT exhibited proficiency in translating simple texts, it faces challenges when presented with complex topics that require human involvement. ChatGPT has gained significant recognition for its remarkable translation functionalities, which are distinguished by an exceptionally high level of precision. Nevertheless, it was critical to recognize that ChatGPT possessed specific limitations that make it unsuitable for categories of content. Literature, scientific inquiries, legal documents, and medical reports are all examples of academic texts.

Lee (2023) examined the implications of recent advancements in AI, focusing specifically on the utilization of large language models such as ChatGPT, in the field of translation. Currently, the current AI models are in direct competition with established translation systems, including Google Translate. One could argue that rather than regarding AI as a potential menace, it ought to be regarded as a method of augmenting the capabilities of translators. In his work, Lee (2023) argued for the adoption of a post-humanist viewpoint on translation, placing particular emphasis on the significance of expanding one's skill set and adjusting to the changing obligations that arise in the domain of translation. Fan et al. (2023) asserted that ChatGPT possesses the capacity to fundamentally transform traditional approaches to translation instruction. This was achieved through its capacity to facilitate student autonomy in learning, foster innovative connections between teaching subjects, prompt changes in teaching management models, facilitate the transformation of knowledge production methods, and expand the research scope of translation education and instruction.

In their study, Peng et al. (2023) examined a range of strategies that can be implemented to enhance ChatGPT's machine translation capabilities. Moreover, the study emphasizes the effectiveness of giving priority to task-specific information to improve performance on complex machine translation tasks. Furthermore, it has been established through research that the integration of domain-specific expertise promotes the advancement of generalization within fields. Nevertheless, ChatGPT might continue to

generate errors when applied to machine translation assignments that are not predominantly in English. The utilization of sophisticated in-context learning techniques, such as the chain-of-thought prompt, may lead to word-by-word translation, a phenomenon that could potentially compromise the quality of the translated material.

In his work, Sarrion (2023a; 2023b) conducted an exhaustive analysis of ChatGPT, an advanced language model developed by OpenAI. The subject matter's scope encompasses fundamental principles, practical applications, and underlying mechanisms. The book additionally delves into the pragmatic applications, ethical implications, and potential future developments of ChatGPT, rendering it an all-encompassing resource that facilitates comprehension and utilization of this technological innovation. In their study, Yilmaz et al. (2023) conduct an exhaustive examination and furnish persuasive empirical data in support of the concept that experienced knowledge workers can substitute for human labor in a variety of positions. This discussion explores the implications of our findings with respect to the research on competitive advantage, technology adoption, and the micro-level underpinnings of strategy. Si et al. (2019) did a study that investigated the challenges involved in translating words that exhibit sentiment dependent on the context. This study examines the fluctuation of sentiment in translated texts, as opposed to the traditional approach of neural machine translation systems which largely prioritize generating a single, precise translation. The research paper introduces three different methodologies and ultimately determines that the "valence-sensitive embedding" (VSE) strategy exhibits higher efficacy in comparison to traditional translation techniques, with regard to both precision and sentiment retention, particularly in non-emotional contexts.

Siu (2023a; 2023b) conducted a research that investigated the most recent developments in translation-specific artificial intelligence (AI). The advancements made in the domain of neural machine translation (NMT) and the construction of large language models (LLMs) are the main subjects of discussion. The present study entails an examination of diverse deep-learning methodologies, focusing specifically on the Transformer model. Moreover, this evaluation examines the advantages and disadvantages of Language Model-based Machine Translation (LLMs) and Neural Machine Translation (NMT) in the context of translation. This article offers pragmatic guidance for educators and developers operating in the translation industry, with the objective of augmenting comprehension of AI-driven translation and encouraging industry professionals to employ these technologies efficiently. The critical functions of ChatGPT in this context were identified and discussed by Haleem et al. (2022). Conversations were the foundation upon which the neural language models that underpin AI were constructed. The program appears to employ deep learning for text analysis and generation, as indicated by this technology.

### **3. Materials and methods**

The study employs a methodology based on keyword detection techniques to facilitate an exhaustive comparative examination. This research seeks to establish the translation quality standard as set by Malay native speakers. The analysis comprises a comparison between the translations produced by ChatGPT, a Malay native speaker, a Chinese native speaker, and the Belt and Road translators, specifically those who translated Book 1 of the Classic Children's Literature Book Series from Chinese to Malay.

The Chinese native speaker is a fluent speaker of Chinese and holds a master's degree from the esteemed Peking University in the field of Chinese as a Foreign Language instruction. The Malay native speaker is currently employed at Universiti Malaysia Sabah as a Chinese instructor and holds a master's

degree from the prestigious Central China Normal University in the field of teaching Chinese as a foreign language.

An examination was conducted on a compilation of brief poems selected at random and pertaining to The Belt and Road initiative (Chia and Liu, 2022). The Chinese original poem is presented in **Table 1**, along with an English translation, to aid in understanding and clarification. The research is comprised of four discrete sections, each of which is tasked with translation duties. Group 1 is translated by a Malay native speaker. Group 2 is translated by a Chinese native speaker. Group 3a is translated by ChatGPT 3.5. Group 3b (i) is translated by ChatGPT 4 prompt 1, Group 3b (ii) is translated by ChatGPT 4 prompt 2, Group 3b (iii) is translated by ChatGPT 4 prompt 3, Group 3b (iv) is translated by ChatGPT 4 prompt 4, and Group 4 is translated by the belt and road translators.

**Table 1** contains the original poem selected from the first Malaysian Chinese children’s literature work that was translated into Malay and sold in the Chinese market in two languages. Providing a Malay translation and introducing the work of a Malaysian Chinese children’s literature author to the Chinese market is an extremely significant undertaking. One poem is chosen for this comparative analysis, which seeks to determine the quality and discrepancy between translations produced by ChatGPT, Malay, Chinese native speakers, and the Belt and Road translators. Consequently, excessively intricate pieces of work are deemed inappropriate for the research, while the nine-sentence sonnet seems to be a perfect match for the study that will utilize the keyword-detective methodology. Prominent among Malaysian Chinese is the poet Fang Mei, who has also written several children’s literary novels. This is a simple and beautiful poem that employs metaphors extensively. The analysis of the English translation is not being conducted within the scope of this study.

**Table 1.** Original poem and English translation.

Poem 1 荷花 by Fang Mei	Poem 1 Lotus by Fang Mei
1 你 是水中的仙子	1 You are a fairy in the water,
2 蜻蜓来了 又走了	2 Dragonflies come and go,
3 蜜蜂来了 又走了	3 Bees come and go,
4 你 立在水中看着自己的倒影	4 You stand in the water, gazing at your own reflection,
5 风 轻轻抚摸你忧伤的脸庞	5 The wind gently caresses your sorrowful face,
6 水 静静荡漾在你的足下	6 The water ripples peacefully at your feet,
7 你安静地不说半句话	7 You remain quietly, not uttering a word,
8 安静地不说话	8 Quietly, you say nothing,
9 不说话	9 Say nothing.

The translation of a statement provided by a Malay native speaker is displayed in **Table 2**. In the alternative, her translation will function as the intended translation outcome of the study or establish a model for translation. The objective of every translator is to create a rendition that is exceptionally similar in quality to that which a native speaker would produce. Because Malay is the intended translation language for the Belt and Road book, this study will be structured in accordance with a translation project that was successfully concluded by a Malay native speaker. The Malay native speaker who took part in this research is aware that the translation must meet certain criteria: it must be of adequate quality, reflect the way of thinking of the Malay native speaker, and transmit the reader’s expectation that the text pertains to children’s literature.

**Table 2.** Group 1 Malay native speaker's translation's work (MNS).

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<b>Malay Native Speaker's Translation's Work (MNS)</b>
1 Kamu adalah pari-pari di dalam air
2 Papatung terbang kemari lalu pergi
3 Lebah terbang kemari lalu pergi
4 Kamu berdiri di tengah-tengah air melihat bayang-bayangmu
5 Angin, memegang pipimu yang dalam kesedihan dengan lembut
6 Air, senyap-senyap terapung-apung di bawah kakimu
7 Kamu mendinginkan diri dan tidak berkata-kata
8 Terdiam tidak berkata-kata
9 Tidak berkata-kata

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The task of translating **Table 3** was assigned to a Chinese native speaker.

**Table 3.** Group 2 Chinese native speaker translation's work (CNS).

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<b>Chinese Native Speaker Translation's Work (CNS)</b>
1 Kamu ialah dongeng di dalam air
2 Papatung datang dan pergi
3 Lebah datang dan pergi
4 Kamu berdiri di tengah air dan melihat pantulan sendiri
5 Angin belaian muka sedih kamu dengan lembut
6 Air beralun di bawah kaki kamu dengan senyap
7 Kamu diam dan tidak berkata
8 Diam dan tidak bercakap
9 Diam dan tidak bercakap

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The translation of ChatGPT 3.5 is shown in **Table 4**. The given prompt is: Translate this poem into Malay.

**Table 4.** Group 3a ChatGPT 3.5 Translation's work (CGPT 3.5).

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<b>ChatGPT 3.5 Translation's work (CGPT 3.5)</b>
<b>Prompt: Translate this poem into Malay</b>
1 Anda adalah peri di dalam air,
2 Capung datang dan pergi,
3 Lebah datang dan pergi,
4 Anda berdiri di dalam air, memandang bayangan diri sendiri,
5 Angin lembut menyentuh wajah yang sedih,
6 Air berombak tenang di bawah kaki Anda,
7 Anda tetap diam, tidak mengucapkan sepatah kata pun,
8 Diam, Anda tidak mengatakan apa-apa,
9 Tidak berkata-kata.

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**Table 5** contains the translation of the poem into Malaysian Malay that ChatGPT 4.0 was tasked with translating by using prompt: translate this poem into Malaysia Malay.

**Table 5.** Group 3b (i) ChatGPT 4.0 Prompt 1 Translation's work (CGPT 4.0 P1).

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<b>ChatGPT 4.0 Prompt 1 Translation's work (CGPT 4.0 P1)</b>
<b>Prompt 1: Translate this poem into Malaysia Malay</b>
1 Engkau, bidadari di dalam air
2 Capung datang, lalu pergi
3 Lebah datang, lalu pergi
4 Engkau, berdiri di dalam air memandang bayangan diri
5 Angin, lembut mengusap wajah sedihmu
6 Air, tenang berombak di bawah kakimu
7 Engkau diam tanpa berkata-kata,
8 Diam tanpa suara,
9 Tanpa kata-kata

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The translation output of ChatGPT 4.0 in response to the given prompt (Translate this poem into Malaysia Malay with a focus on capturing the essence and style appropriate for Malay language expression) is presented in **Table 6**.

**Table 6.** Group 3b (ii) ChatGPT 4.0 Prompt 2 Translation's work (CGPT 4.0 P2).

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**ChatGPT 4.0 Prompt 2 Translation's work (CGPT 4.0 P2)**

**Prompt 2: Translate this poem into Malaysia Malay with a focus on capturing the essence and style appropriate for Malay language expression**

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- 1 Engkau, peri air yang lembut
  - 2 Capung datang dan pergi
  - 3 Lebah datang dan pergi
  - 4 Engkau berdiri, memandangi bayanganmu di dalam air
  - 5 Angin sepoi-sepoi menyentuh wajahmu yang berduka
  - 6 Air berayun-ayun dengan tenang di bawah kakimu
  - 7 Engkau berdiam diri, tidak mengucap sepatah kata pun
  - 8 Diam, tanpa suara
  - 9 Tanpa berkata-kata
- 

The translation output of ChatGPT4.0 in response to the prompt "Translate this children's poem into Malaysia Malay with an interpretive approach, preserving its poetic essence and ensuring it aligns with the Malay cultural context" is presented in **Table 7**.

**Table 7.** Group 3b(iii) ChatGPT 4.0 Prompt 3 Translation's work (CGPT 4.0 P3).

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**ChatGPT 4.0 Prompt 3 Translation's work (CGPT 4.0 P3)**

**Prompt 3: Translate this children's poem into Malaysia Malay with an interpretive approach, preserving its poetic essence and ensuring it aligns with the Malay cultural context**

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- 1 Engkau, peri cantik di dalam air
  - 2 Capung datang, kemudian terbang pergi
  - 3 Lebah datang, kemudian terbang pergi
  - 4 Engkau berdiri, memerhati bayang diri dalam air
  - 5 Angin perlahan-lahan menyentuh wajahmu yang sedih
  - 6 Air berombak perlahan di bawah kakimu
  - 7 Engkau berdiam diri,
  - 8 Tanpa bersuara
  - 9 Diam, tanpa kata
- 

The translation work of ChatGPT 4.0 is presented in **Table 8** with the prompt: translate this children's poem into Malaysian Malay using poetic language and the Malay way of thinking, interpretatively translate it, and then embellish the poem.

**Table 8.** Group 3b (iv) ChatGPT 4.0 Prompt 4 Translation's work (CGPT 4.0 P4).

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**ChatGPT 4.0 Prompt 4 Translation's work (CGPT 4.0 P4)**

**Prompt 4: Translate this children's poem into Malaysia Malay using poetic language and the Malay way of thinking, interpretatively translate it, and then embellish the poem**

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- 1 Engkau ibarat peri yang menari di dalam air
  - 2 Capung hinggap sejenak, lalu ia terbang pergi
  - 3 Lebah pun singgah, namun ia pun berlalu
  - 4 Engkau berdiri gagah, menatap bayangmu di air yang tenang
  - 5 Angin sepoi menyapa wajahmu yang pilu
  - 6 Air di bawahmu bergerak halus, mengikuti irama hatimu
  - 7 Engkau tenggelam dalam sunyi, tiada sepatah kata terucap
  - 8 Dalam hening, engkau berdiri,
  - 9 Dalam diam, tanpa kata
- 

The translations performed by the belt and road translators are detailed in **Table 9**.



**Table 9.** Group 4: The belt and road translator’s work (L & A).

<b>The Belt and Road Translator’s work (L &amp; A)</b>	
1	Kamu bidadari di dalam air
2	Pepatung tiba pepatan pergi
3	Lelebah tiba lelebah pergi
4	Kamu di Tengah air tegakkan diri merenung bayang sendiri
5	Angin membelai wajahmu yang sedih pilu
6	Air memeluk kakimu dengan lemah-lembut
7	Kamu dengan tenangnya mendiamkan diri dalam ketenangan
8	Kamu tidak bersuara lagi
9	Tidak bersuara lagi

**Table 10** contains the rubric utilized for keyword detection.

**Table 10.** Rubric to identify the keywords.

No	Explanation
1	<ul style="list-style-type: none"> <li>a. Word that is the same as the Malay native speaker’s translation check v.</li> <li>b. The phrase that is the same as the Malay native speaker’s version check v.</li> <li>c. Roof term (without regard to tenses, etc.) that is the same as the Malay native speaker’s translation will check v.</li> <li>d. The tenses or grammatical differences will be listed after the “v” in brackets ().</li> <li>e. The sequence of word/phrase differences that appear in the same sentence identical as the Malay native speaker’s translation check “v” but after “v” will insert the word in {}.</li> </ul>
2	The score is calculated using the formula $\text{total v} \div \text{total words/segment} \times 100\%$ .
3	The sentence with the highest score will be highlighted in grey.

**Table 11** illustrates the technique employed by the four translation groups for detecting keywords. The Malay native translation functions as the exemplar for the translation task.

**Table 11.** Analysis by using keyword detection technique.

Sentence 1	Kamu	adalah	pari-pari	di	dalam	air
L&A	v		bidadari	v	v	v
CNS	v	ialah	dongeng	v	v	v
CGPT 3.5	Anda	v	peri	v	v	v
CGPT 4.0 P1	Engkau		bidadari	v	v	v
CGPT 4.0 P2	Engkau		peri air	yang	lembut	
CGPT 4.0 P3	Engkau		peri cantik	v	v	v
CGPT 4.0 P4	Engkau	ibarat	Peri yang menari	v	v	v
Sentence 2	Pepatanung	terbang	kemari	lalu	pergi	
L&A	v	tiba	pepatung		v	
CNS	v	datang	dan		v	
CGPT 3.5	Capung	datang	dan		v	
CGPT 4.0 P1	Capung	datang	lalu		v	
CGPT 4.0 P2	Capung	datang	dan		v	
CGPT 4.0 P3	Capung	datang	kemudian	terbang	v	
CGPT 4.0 P4	Capung	hinggap	sejenak	v	v (ia terbang pergi)	
Sentence 3	Lelebah	terbang	ke mari	lalu	pergi	
L&A	v	tiba	lelebah		v	

Table 11. (Continued).

Sentence 1	Kamu	adalah	pari-pari	di	dalam	air	
CNS	v(Lebah)	datang	dan		v		
CGPT 3.5	v(Lebah)	v	dan		v		
CGPT 4.0 P1	v(Lebah)	datang		v	v		
CGPT 4.0 P2	v(Lebah)	datang	dan		v		
CGPT 4.0 P3	v(Lebah)	datang	kemudian	terbang	v		
CGPT 4.0 P4	v(Lebah)	pun	singgah	v(namun ia pun)	berlalu		
Sentence 4	Kamu	berdiri	di	tengah-tengah	air	melihat	bayang-bayangmu
L&A	v		v	v(tengah)	v (air tegakkan diri)	merenung	v(bayang sendiri)
CNS	v	v	v	v(tengah)	v dan	v	v (pantulan sendiri)
CGPT 3.5	Anda	v	v	dalam	v	memandang	v (bayangan diri sendiri)
CGPT 4.0 P1	Engkau	v	v	dalam	v	memandang	v (bayangan diri)
CGPT 4.0 P2	Engkau	v	memandangi		di	dalam air	v {bayanganmu}
CGPT 4.0 P3	Engkau	v	memerhati		v (dalam air)		v{bayang diri}
CGPT 4.0 P4	Engkau	v(berdiri gagah)	v{di}	menatap	v {air yang tenang}		v{bayangmu}
Sentence 5	Angin	memegang	pipimu	yang	dalam	kesedihan	dengan lembut
L&A	v	membelai	wajahmu	v		v(sedih pilu)	
CNS	v	belaian	muka			v(sedih kamu)	v
CGPT 3.5	v	lembut menyentuh	wajah	v		v(sedih)	
CGPT 4.0 P1	v(Angin lembut)	mengusap	wajah			v(sedihmu)	
CGPT 4.0 P2	v	sepoi-sepoi	menyentuh	v (wajahmu yang)		berduka	
CGPT 4.0 P3	v	perlahan-lahan	menyentuh	v (wajahmu yang)		v(sedih)	
CGPT 4.0 P4	v	sepoi	menyapa	v (wajahmu yang)		pilu	
Sentence 6	Air	senyap-senyap	terapung-apung	di	bawah	Kakimu	
L&A	v	memeluk	dengan	lemah-lembut		v{kakimu}	
CNS	v	beralun		v	v	v (kaki kamu dengan senyap)	
CGPT 3.5	v	berombak tenang		v	v	v (kaki anda)	
CGPT 4.0 P1	v	tenang	berombak	v	v	v(kakimu)	
CGPT 4.0 P2	v	berayun-ayun	dengan	tenang	v (di bawah)	v(kakimu)	
CGPT 4.0 P3	v	berombak	perlahan	v	v	v(kakimu)	
CGPT 4.0 P4	v	di bawahmu	bergerak halus	mengikuti	irama	hatimu	
Sentence 7	Kamu	mendiamkan	diri	dan	tidak	berkata-kata	
L&A	v	v(dengan tenangnya mendiamkan diri)	v	dalam	ketenangan		
CNS	v	v(diam)		v	v	berkata	

Table 11. (Continued).

Sentence 1	Kamu	adalah	pari-pari	di	dalam	air
CGPT 3.5	Anda	v(tetap diam)			v	v (mengucapkan sepatah kata pun)
CGPT 4.0 P1	Engkau	v(diam)			tanpa	v
CGPT 4.0 P2	Engkau	v (berdiam )	v		v	v (mengucap sepatah kata pun)
CGPT 4.0 P3	Engkau	v (berdiam )	v			
CGPT 4.0 P4	Engkau	tenggelam	dalam	sunyi	v	v (sepatah kata terucap)
Sentence 8	Terdiam	tidak	berkata-kata			
L&A	Kamu	v	bersuara	lagi		
CNS	v(Diam)	v (dan tidak)	bercakap			
CGPT 3.5	v(Diam)	anda tidak	V (mengatakan)	apa-apa		
CGPT 4.0 P1	v(Diam)	tanpa	suara			
CGPT 4.0 P2	v(Diam)	tanpa	suara			
CGPT 4.0 P3		tanpa	bersuara	lagi		
CGPT 4.0 P4	Dalam	hening	engkau	berdiri		
Sentence 9	Tidak	terkata-kata				
L&A	v	bersuara	lagi			
CNS	v (Diam dan tidak)	bercakap				
CGPT 3.5	v	v(berkata-kata)				
CGPT 4.0 P1	Tanpa	v(kata-kata)				
CGPT 4.0 P2	Tanpa	v(berkata-kata)				
CGPT 4.0 P3	Diam tanpa	v(kata)				
CGPT 4.0 P4	Dalam diam	v (tanpa kata)				

Sentences 1 to 9 have been rendered into Malay by a Malay native speaker. An examination is undertaken to compare translations produced by ChatGPT 3.5 (CGPT 3.5), ChatGPT 4.0 (CGPT 4.0), translations by Chinese native speakers (CNS), and translations by the belt and road translators (L&A). If the letter “v” represents a term that is exactly that of a Malay native speaker, it is annotated. In the event of a discrepancy in the translation, the translator shall specify the word that was altered. For instance, in sentence 1, ChatGPT 3.5 employs the word “adalah”, which is identical to the translation used by a Malay native speaker. As a result, the checkbox labeled “v” appears beneath “adalah” in ChatGPT 3.5. The phrase that is identical to the version spoken by a Malay native speaker is verified by checking “v”. For instance, in sentence 3, no translator has used the phrase “ke mari”, which is utilized by a Malay native speaker. As a result, the words/phrases utilized by each translator category are indicated in the boxes corresponding to the categories of “ke mari”. For instance, ChatGPT 4.0 P3 employs the word “kemudian”, which is written in the same line as “ke mari” in the ChatGPT 4.0 P3 category.

A “v” check will be performed on a roof term that is identical to the Malay native speaker’s translation (regardless of tenses, etc.). In sentence 7, for instance, a Malay native speaker renders the phrase “mendiamkan diri” in her translation. Although the tenses and grammar may differ, the roof word

remains the same. Therefore, these boxes were all checked with “v”: “diam” is used by a Chinese native speaker and ChatGPT 4.0 P1; “tetap diam” is used by ChatGPT 3.5; and “berdiam” is used by ChatGPT 4.0 P2 and P3.

The distinctions in tenses or grammar will be indicated following the letter “v” enclosed in brackets. Sentence 9 contains the translation “terkata-kata” by a Malay native speaker; “berkata-kata” is used in ChatGPT 3.5 and ChatGPT4.0 p2; “kata-kata” is used in ChatGPT 4.0 P1; “kata” is used in ChatGPT 4.0 P3; and “tanpa kata” is used in ChatGPT 4.0 P4; the roof words remain the same; the only differences are in tenses and grammar. Therefore, the following terms are enclosed in brackets: “kata-kata”, “berkata-kata”, “kata”, and “tanpa kata”.

The word or phrase sequence may differ, but it remains in the same sentence as the translation check “v” and insert the word or phrase in the {}. For instance, the Malay native speaker employs the phrase “kakimu” in the translation that concludes sentence 6. Even though the belt and road translators’ work also includes the phrase “kakimu”, it is in a distinct portion of sentence 6, thus the “kakimu” is rendered in the {}.

## 4. Results

Table 12 displays the percentage scores achieved by each group. A higher score indicates a greater resemblance between the translation effort and that of a Malay native speaker.

**Table 12.** The percentage of congruence with translations rendered by Malay native speakers in Percentage (%).

	*S 1	*S 2	*S 3	*S 4	*S 5	*S 6	*S7	*S 8	*S 9
L&A	66.67%	40%	40%	71.43%	50%	33.33%	50%	33.33%	33.33%
CNS	66.67%	40%	40%	100%	33.33%	66.67%	66.67%	66.67%	33.33%
CGPT 3.5	66.67%	20%	60%	57.14%	50%	66.67%	33.33%	66.67%	66.67%
CGPT 4.0 P1	50%	20%	60%	57.14	33.33%	66.67%	33.33%	33.33%	33.33
CGPT 4.0 P2	0	20%	40%	28.57	33.33%	50%	66.67%	33.33%	33.33
CGPT 4.0 P3	50%	20%	40%	42.86	50%	50%	33.33%	0	33.33
CGPT 4.0 P4	50%	40%	40%	57.14	33.33%	16.67%	33.33%	0	33.33

\*S = Sentence

The box highlighted with the grey color is the highest score in the percentage of the corresponding sentence.

In Sentence 1, three groups achieve identical or the maximum scores in terms of keyword detection. The score for the belt and road translators, a native Chinese speaker, and ChatGPT 3.5 is 66.67%. The greatest possible score for sentence 2 is 40%, which is achieved by a Chinese native speaker and ChatGPT4.0 P4. The greatest scores for sentence 3 are 60% on ChatGPT4.0 P1 and ChatGPT3.5. 100% is the score for sentence 4 for Chinese native speakers. The belt and road translators, ChatGPT 3.5 and ChatGPT4.0 P3 achieve an identical score of 50% for sentence 5. The highest result achieved by a Chinese native speaker, ChatGPT 3.5 and ChatGPT 4.0 P1 was 66.67% for sentence 6. The highest score achieved by a Chinese native speaker and ChatGPT 4.0 P2 was in sentence 7. In sentence 9, the highest score achieved was 66.67% using ChatGPT 3.5.

The ChatGPT 4.0P2 returns a score of 0 for sentence 1, and P3 and P4 both return a score of 0 for sentence 8. This indicates that not a single word has been altered in the translation of sentence 1 by ChatGPT P2 and sentence 8 by ChatGPT 4.0 P3 and P4 in comparison to the version provided by a Malay native speaker.

The frequency of the maximum score for each category translator is detailed in **Table 13**.

**Table 13.** The frequency at which each category achieved its highest score.

NO	Categories	Frequency
1	L&A	2
2	CNS	6
3	CGPT 3.5	6
4	CGPT4.0P1	2
5	CGPT4.0P2	1
6	CGPT4.0P3	1
7	CGPT4.0P4	1

The outcomes are extremely intriguing, given that ChatGPT3.5 and a Chinese native speaker achieve the maximum frequency and percentage of keyword detection, respectively. A Chinese native speaker could be classified as a human translator, whereas ChatGPT3.5 is classified as an AI translator. One individual from each representative group achieved the highest score. It is possible to deduce that the grade of translation produced by human and AI translators is equivalent, without successfully distinguishing between the two. Surprisingly, the commercial version of ChatGPT 4.0 exhibits subpar performance during combat. The prompt may have prompted the ChatGPT 4.0 translator to engage in excessive thought, resulting in translations of substandard quality that fail to meet the standards expected for the translation of children’s literature. It is possible to conclude that this is one of the limitations of AI translation. With each sentence they translate, a human translator will adjust and modify the translation to better suit the needs of the target audience. However, in the process of translating the poem, AI will apply the identical prompt to every word without taking sentence-to-sentence or word-to-word context.

The frequency at which the belt and road translators achieve the same score as ChatGPT 4.0 P1 is 2, as indicated by the results. The frequency at which the remaining ChatGPT 4.0 P2, P3, and P4 achieve a score of 1 is identical.

The frequency of scores is displayed in **Table 14**.

**Table 14.** Frequency of scores.

No	Scores	Frequency	Accumulative Frequency	%	Accumulative %
1	0	3	3	4.76%	4.76%
2	16.67	1	4	1.59%	6.35%
3	20.00	4	8	6.35%	12.7%
4	28.57	1	9	1.59%	14.29%
5	33.33	18	27	28.57%	42.86
6	40.00	8	35	12.70%	55.56%
7	42.86	1	36	1.59%	57.15%
8	50.00	9	45	14.29%	71.44%
9	57.14	3	48	4.76%	76.20%
10	60.00	2	50	3.17%	79.37%
11	66.67	11	61	17.46%	96.83%
12	71.43	1	62	1.59%	98.42%
13	100	1	63	1.59%	100%

The segment contains 18 translations executed across seven categories, with a maximum frequency of 33.33%. The eleven translations that follow receive a score of 66.67% in comparison to the translations made by a Malay native speaker. The performance of the three translation segments is below 1%. The frequency of scores equal to or greater than 50% is 27 and cannot exceed fifty percent of the total frequency of 63.

## 5. Discussion

As demonstrated by the incidence of scores in **Table 14**, translating a poem is not a simple undertaking. It is not simple to translate a keyword so that it is accurate or precisely the same as what a native speaker would understand. Regardless of whether the translator was an AI or human, the frequency of failures in each translation segment with a score of 50% or higher did not exceed fifty percent of the total.

**Table 12** indicates that only a Chinese native-speaker translator received a perfect score for a single translation segment. Furthermore, the AI translator achieved a score of zero in all three translation segments. The translation of six sentences by a Chinese native speaker and ChatGPT 3.5 is deemed optimal, as shown in **Table 13**. In comparison to translations written by Malay native speakers, the average quality of the three categories of works under consideration is remarkably similar. Nevertheless, this research is restricted to the analysis of quantitative information. This constraint stems from the page restriction of the report, which restricted the team to an analysis of a single poem. Further analyses, encompassing a greater quantity of translated works, might potentially produce more comprehensive data and more substantial findings. Overall, in comparison to the belt and road translators, the Chinese native speaker and the ChatGPT demonstrate comparatively superior performance in translating numerous sentences.

The research findings indicated that the current performance of ChatGPT translation is inferior to, if not inferior to, that of human translators. The statistical analysis indicated that the quality of the categories does not differ significantly. Nevertheless, our team maintains the conviction that this formidable instrument will eventually surpass the level of translation quality attained by human translators. When comparing translations authored by Malay native speakers to the three categories of works under consideration, one can notice a striking similarity in their average quality. However, it should be noted that this study is limited to the examination of quantitative data. The limitation arises from the report's page requirement, which confined the group to conducting an examination of a solitary composition. Additional analyses, which include a wider range of translated works, have the potential to yield more comprehensive data and more substantial findings. In general, when comparing the translations of numerous sentences, the Chinese native speaker and the ChatGPT exhibit comparatively superior performance when compared to the belt and road translators.

The translation of poems is considered the most challenging form of translation since not every definition in the source language precisely captures the intended meaning in the target language. For instance, the Mandarin word “xian zi 仙子” (“Fairy”) is the English translation of the first sentence of **Table 1**. The word “xian zi 仙子”)originates from a character that first appeared in Chinese legends or myth. This character conveys many ideas that refer to a beautiful woman who is not human, but an exact Malay word that perfectly translates the meaning of “xianzi” is not available. A closer word or diction is selected exclusively.

In addition, the translation of a poem failed to precisely preserve the words of an entire sentence in its translated form. The word control of human translators is more adaptable during the translation process. In this case, AI translations are rigid and less adaptable.

Prompts play a critical role in AI translations and have the potential to significantly impact the quality of the translated works. A greater level of specificity in the prompts may result in more accurate translations; however, this does not necessarily imply that the translated versions are more appropriate for the requirements of the literary works. In this study, the intended audience consists of children. The original author employs uncomplicated language to compose the poem. A human translator who is not well-versed in the market must acquire experience through previous translation projects and possess knowledge of which words are appropriate for translation. The analysis reveals that when the prompt to have AI translators operate includes more information and specificity, better sentences are generated that contain more complex and high-level vocabulary. However, it does not exactly satisfy market demand. AI translators lack the capacity to modify words based on context and experience and are also oblivious to and insensitive to the most recent developments and trends in translation style. Thus, it appears that human translators continue to be the most suitable option when it comes to translating literature.

## **6. Conclusions**

The research findings suggested that the AI translation offers a greater variety of translation options where varying cues may yield distinct translation tasks. The many tasks may be generated quickly, efficiently, and with high quality, resulting in time and cost savings. AI translators may find it challenging to fulfil exceptional needs or specific translation requests, such as restricting the use of a term to only the categories taught in elementary school. This difficulty arises from the fact that each country has its own distinct set of word categories taught at the primary school level. If these prerequisites were met, human translators are still necessary to make revisions to the translations produced by AI translators.

Moreover, it seemed that the performance of human and AI translators was indistinguishable, as all translators from both the human and AI translator cohorts attained the highest marks in this study. Another obstacle faced by AI translators was their incapacity to perceive the feelings and thoughts conveyed by the original poet in the poem. Prior to commencing the translation process, human translators may carry out a survey to ascertain the poet's genre and manner, peruse the poet's prior works to grasp their writing style, and exert their maximum efforts to ensure that the translated work closely emulates the original author's style. In order to achieve this goal, it was crucial that we furnished the AI translators with relevant information about the poet's previous works before starting the translation process. Lengthening the duration of this task will not guarantee an improvement in the standard of work. Allowing a single person to translate the writings of a particular author is a common practice in the field of translation. This method guarantees that the translated versions faithfully capture the author's original ideas or notions, therefore benefiting the reader. Utilising AI translators does not ensure consistent adherence to the same style and approval of the translation's content by the writer. In order to avoid any inaccuracies in translation, human translators have the ability to immediately engage in communication with the author. Nevertheless, AI translators have a passive nature and lack the proactive qualities possessed by their human counterparts.

Hence, it is recommended to be cautious when using ChatGPT due to its extensive capabilities. With its amazing speed and high-quality output, it has the potential to outperform humans in translation. The ability to supervise and impede the advancement of competitors that arise internally within our organisation is lacking. Nevertheless, it is wise to exercise caution considering the potential adverse

repercussions that they may entail. Furthermore, it is imperative that we give priority to personal growth and make efforts to distinguish ourselves from the automated translations generated by ChatGPT. Assigning substantial significance to human existence is crucial, since it may offer an effective method of overcoming ChatGPT.

## Author contributions

Conceptualization, CEC and YLL; methodology, CEC and YLL; formal analysis, ZXY and ZHY; investigation, ALAB and BA; resources, EN and CJK; data curation, YLL; writing—original draft preparation, YLL and CEC; writing—review and editing, ZXY and ZHY; visualization, ZXY and ZHY; supervision, ALAB and BA. All authors have read and agreed to the published version of the manuscript.

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## Conflict of interest

The authors declare no conflict of interest.

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