Developing Personalised Reading Materials for Malaysian Primary School Pupils Using ChatGPT: A Review

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Abstract
Reading fosters a global perspective for pupils to hurdle through upcoming challenges. The rapid technological advancements have underscored the necessity for pupils to possess wellrounded competencies, thereby highlighting the paramount significance of strong reading skills. Consequently, teachers seek innovative ways to improve reading competencies by using Artificial Intelligence (AI) technology. Numerous studies have been conducted on reading skills, AI technology and material development. Yet, studies on developing personalised reading materials for Malaysian primary school pupils using ChatGPT remain uncharted. Henceforth, this review established an understanding of developing personalised reading materials and the research gap and future directions. Three dominant databases were utilised in this review: Google Scholar, Educational Resources Information Centre (ERIC) and ResearchGate in the compilation of the research articles. An extensive search was carried out by using phrases to compile the articles on the topic. This review synthesised findings of 50 journal articles (between 2019 and 2023) based on identified selected criteria to consolidate understanding on personalised reading materials and the role of AI technology. The findings indicated that reading skills remain important to advance pupils in the globalised world. AI technology such as ChatGPT can be utilised in teaching and learning and it is aligned with the Fourth Industrial Revolution, Sustainable Development Goals and the concept of Malaysia Madani. The stakeholders should consider establishing guidelines for primary and secondary schools to use the technology ethically. Hence, the technology has the potential to leverage pupils' reading competencies.
Keywords: Artificial Intelligence, ChatGPT, Personalised Reading Materials, Reading Skills, 4IR

Introduction

Reading is a fundamental skill for pupils' academic and personal development. Pamnani et al. (2021) found that reading habits have an impact on academic success and that there is a connection between reading habits and academic achievement. Beyond acquiring knowledge, reading empowers pupils to think critically, analyse information, and engage in meaningful discussions hence pupils that have a good reading habit will affect their academic performance positively (Firnas et al., 2021). By developing strong reading skills, pupils gain access to a wealth of information, diverse perspectives, and global issues. This is supported by Abahussain et al (2022) as they stated that intertextual reading helps promote critical thinking among readers of EFL and assist them in analysing, synthesising, interpreting, and evaluating texts. Reading skill goes hand in hand with globalization. The proficiency in reading skills, as measured by the Common European Framework of Reference (CEFR), can contribute to pupils' enhanced competitiveness in a globalized world. It provides a standardized framework for language learning, emphasizing the development of communicative competence across borders and cultures (Chua & Sulaiman, 2021) as the reference levels help to bridge linguistic barriers and create a shared understanding of language proficiency (Bérešová, 2019). By adhering to this framework, better communication can be expected from the pupils as good reading skills are important for communication and learning at all stages of development (Elleman & Oslund, 2019)

Enhancing reading skills among pupils is intricately linked to the current Sustainable Development Goals (SDGs) as set by the United Nations. Based on the SDG (2022), SDG 4 focused on quality education, which recognises the pivotal role of literacy in empowering individuals and promoting inclusive and equitable education. By fostering strong reading skills, pupils gain access to a world of knowledge, become critical thinkers, and develop a lifelong love for learning. Moreover, improved reading skills contribute to the achievement of several other SDGs, such as SDG 3 on good health and well-being, SDG 8 on decent work and economic growth, and SDG 10 on reduced inequalities. Proficient readers are better equipped to navigate complex information, make informed decisions, and actively participate in their communities. Therefore, by prioritizing reading skills among pupils, we not only advance SDG 4 but also pave ways for holistic development, social mobility, and sustainable progress in line with the broader SDG agenda. Enhancing reading skills among pupils serves as a cornerstone for achieving the SDGs and plays a pivotal role in empowering individuals, fostering critical thinking, and promoting holistic development, ultimately contributing to a brighter and more equitable future.

Malaysian pupils' reading abilities are linked to the Malaysia Education Blueprint 2013-2025, which prioritizes creating a literate and diverse student population. The blueprint places a strong emphasis on improving literacy and language proficiency as foundational skills for learning across all subjects and domains. Additionally, the blueprint recognises the importance of 21st-century skills, including critical thinking, communication, and problemsolving, all of which are closely intertwined with reading proficiency. The Malaysian English Language curriculum incorporates reading skills as a fundamental aspect of language acquisition and literacy advancement. Despite the emphasis on reading skills, there are indeed struggles among Malaysian pupils in their reading comprehension based on the current situation in schools (Wen, 2023). Multiple studies and assessments have indicated that a

significant number of Malaysian pupils face challenges in understanding and interpreting written texts (Tackling Low Reading Proficiency Among School-Going Children, 2022). The Programme for International Student Assessment (PISA) results have consistently highlighted Malaysia's lower performance in reading literacy compared to other countries (Loh & Ying, 2023). This suggests that there is a gap in reading comprehension skills among Malaysian pupils. Enhancing reading skills among pupils is of paramount importance to ensure their educational attainment and equip them with the necessary competencies for the Fourth Industrial Revolution (4IR) era. However, despite concerted efforts to improve reading literacy, there remains a need for innovative approaches to address the diverse needs and challenges faced by pupils pertaining to this skill.

4IR represents technological advancements and digital transformation (What Are Industry 4.0, The Fourth Industrial Revolution, And 4IR?, 2022). The 4IR brings new and creative ways to support the learning, including the use of Artificial Intelligence (AI). AI technology can revolutionize education by providing personalised and adaptive learning experiences. It uses intelligent algorithms and machine learning to customize content and resources based on individual needs. AI analyzes pupils' reading skills, offers specific feedback, and generates personalised reading materials to improve understanding and interest. All in all, the use of AI in education has the potential to improve the quality and effectiveness of the education system, while also providing new opportunities for innovation and growth (Holmes, 2019). The goals of the SDGs, the 4IR, and the Malaysia Madani concept share similarities as a society built upon the principles of Malaysia Madani embraces inclusivity, active citizenship, and lifelong learning (MADANI Nation: Towards Restoring Malaysia's Dignity and Glory, 2023). In this context, strong reading skills empower individuals to access information, engage critically with diverse perspectives, and actively participate in civic discourse. By encouraging strong reading skills among its citizens, Malaysia can ensure that people have the necessary abilities to contribute to society, bridge cultural differences, and uphold the values of Malaysia Madani. Developing reading skills is important for creating an informed and empowered population, which aligns with Malaysia's goals of social harmony, sustainable development, and fair progress.

This literature review aims to explore the development of personalised reading materials using ChatGPT, an AI technology, as a potential solution to enhance reading skills. With understanding of the personalized reading materials, it can improve the acquisition of reading skill among pupils. The research gaps present a prospect for future development that can be leveraged to enhance the teaching and learning. Hence, the objectives of this review are to: (i) identify the current state of knowledge on the personalised reading materials and (ii) identify research gaps and future directions. Despite the presence of articles discussing the functions of AI in education, there is a scarcity of literature specifically concentrating on the creation of customised reading materials using AI, like ChatGPT. This literature review underscores the potential of ChatGPT-powered personalized reading materials to significantly enhance reading skills among pupils, while also highlighting the existing research gaps in this domain. The prominent gap is the creation of personalised reading materials using ChatGPT. As AI technologies continue to shape education, the creation of personalised reading materials using ChatGPT for Malaysian level 2 primary school emerges as a promising yet underexplored area, offering a pathway to more effective teaching and learning practices. Literature on ChatGPT in language learning has highlighted the potential of the AI technology to further

harbour the reading skills among pupils yet there is limited knowledge on how this technology is useful for developing personalised reading materials. This knowledge gap led to the first research query: i) What is the current state of knowledge on personalised reading materials? The second research query: ii) What are the research gaps and future directions? aims to explore the areas where further research is needed and to identify potential avenues for future investigations. This study aims to contribute to the understanding of personalised reading materials and highlight areas for further exploration in the context of AI technology in education, both globally and within the context of ESL classrooms.

Methodology
The research involved the utilisation of three main databases, namely Google Scholar, Educational Resources Information Centre (ERIC) and ResearchGate, for the purpose of identifying relevant articles to review. An extensive search was conducted using specific phrases in order to compile all pertinent articles related to the topic. The selection criteria were based on three aspects, namely the language of the papers, the year of publication, and specific word searches. The articles reviewed used English language as the language of instruction hence it eased the process of synthesizing without having to translate the content. The articles reviewed were also published five years back, from 2019 to 2023. Some literature dated back to 2004, 2013, and 2018 were also chosen due to their practicality and relevance to the review. ERIC (Educational Resources Information Center) database was used to search for the journal articles. Keywords such as "Reading skills," "Artificial Intelligence in Education," "AI technology," and "Reading materials development" were used in the advanced search option. A specific publication type naming "Journal Articles" was chosen to refine the literature. The date range was set to 2019 to 2023. Relevant publication types and descriptor options were used to further refine the journal articles.The articles were also searched via Google Scholar. Keywords such as "Reading skills," "Artificial Intelligence in Education," "AI technology," and "Reading materials development" were entered in the search bar. The dates were set to 2019 to 2023 and attention was given to journal articles that have been cited frequently by other researchers. This indicates its impact and significance. ResearchGate was another method used to search for relevant literature. The same keywords used in Google Scholar and ERIC were entered in the search bar. The articles were then filtered using the publication year which was set to "since 2019" and the type of publication was set to articles, literature reviews, theses, books, conference papers, and data. The final screening was carried out through Google Search to look for recent supplementary data, articles, and policy that has yet to be published or cited in any research. Articles on AI that do not constitute an educational field and English language learning are excluded. Another exclusion criteria is any articles that are not available in full text as it will limit the researchers understanding on the reviewed subject. As a result, a total of 50 journal articles, and documents were chosen to be reviewed in this study.

Literature Review Findings Reading and Teaching of Reading Skills
The cognitive capacity to decode symbols into meaningful language, thereby translating text into spoken words or sounds, forms the basis of the reading process. This activity is

multifaceted, complex, and demands proficiency in various interrelated skills such as comprehension, fluency, motivation, and word recognition (KoolMinds Team, 2022). Comprehension, as posited by Brandon (2023), represents a cognitive capacity that is distinct from word recognition. While recognising words is certainly a necessary foundation for reading, true reading comprehension involves a deeper understanding of the written language and the meaning conveyed through it. This ability imbues words with significance, allowing the reader to engage with complex ideas and thoughts beyond the mere printed word. Consequently, the reading experience is further enhanced, making it both informative and engaging. Metacognitive strategies in reading, on the other hand, help pupils regulate and become aware of their reading processes, enabling them to effectively organize and control their comprehension (Babayiğit, 2019). Explicitly teaching metacognitive strategies to improve reading skills can indirectly enhance higher-order thinking skills (HOTS) as metacognitive strategies involve essential components of HOTS such as planning, monitoring, and evaluating one's own thinking processes. Therefore, the explicit teaching of metacognitive strategies can contribute to the development of HOTS (Rajasagaran & Ismail, 2022).

Good reading abilities are essential for comprehension and reading comprehension. Readers need to have the skills to decode written words, understand sentence structures, and make inferences from the text in order to comprehend what they read. When reading abilities improve, comprehension also improves because proficient readers can understand and remember the information they encounter. Proficiency in reading is particularly important for language learners as it directly impacts their academic success across various educational levels. Hence, it is imperative for English language learners to develop their reading skills and utilise appropriate strategies to become proficient readers (Laličić & Dubravac, 2021). Based on research carried out by Balan et al (2019), the findings indicated that pupils who frequently read academic and non-academic literature exhibit superior comprehension, analysis, and oral communication abilities. These findings coincide with the goals established by the Malaysian Ministry of Education, which prioritizes the cultivation of diverse competencies and qualities, such as critical and inventive thinking, leadership aptitudes, ethical standards, and bilingualism (Jantan et al., 2020). Consequently, strong reading skills contribute to academic achievements and the development of individuals who can positively contribute to society and adapt to a globalised world.

The assimilation of the CEFR framework within the Malaysian education curriculum has expedited the worldwide dissemination of knowledge and promoted enhanced global appreciation of language proficiency levels. CEFR suggests that pupils should have a sophisticated comprehension of social functions, language features, and text structures when reading narrative texts, whether oral or written (Chua & Sulaiman, 2021). However, it is widely acknowledged that many pupils struggle to meet these expectations and have limited reading comprehension skills. Although genuine materials like English periodicals, newspapers, and essays are essential for improving pupils' reading abilities and understanding, they may not always be easily understood by pupils. Based on the article by Loh and Ying (2023), it was revealed that nearly fifty percent of 15-year-olds in Malaysia are incapable of reading at the level expected of their grade. It is a matter of great concern because this issue of poor reading skills can lead to unsatisfactory academic performance, elevated dropout rates, and limited success in other subjects. Although reading more is the most effective way to promote literacy, many children lack access to a suitable learning environment. Therefore, it is crucial

that Malaysian classrooms prioritize reading instruction and offer pupils access to culturally relevant and fascinating reading materials.

A research was conducted by Kiew and Shah (2020) to investigate the factors that contribute to Malaysian ESL primary pupils' reading comprehension skill and the significant difference in the factors affecting reading comprehension between male and female learners. The research concluded that reading motivation is significant for ESL learners and it helps to increase learners' reading comprehension. Prior knowledge and vocabulary knowledge are also important factors that influence learners' reading comprehension skill and it was emphasised that the teaching of reading skills in schools are essential. Low motivation and confidence in reading activities among Malaysian Primary ESL pupils also have been noted by Salleh and Yamat (2021), indicating the necessity for intervention based on the preliminary study that they have conducted. It has been observed that motivation to read, which has been found to have a positive correlation with academic performance, is crucial for ESL learners. Increased reading frequency and improved reading abilities, particularly comprehension, are outcomes associated with motivation to read. Due to the effort and patience required for reading in a second language, motivation to read is deemed essential for ESL learners. To ensure that students attain their grade level in reading skills, motivation to read should be enhanced as a primary step. The incorporation of technology can facilitate the creation of engaging and purposeful lessons, motivating struggling readers to participate.

The study by Dawi and Hashim (2022) focusing on favored reading strategies among Level 2 primary pupils in Malaysia found out that they often show limited interest in reading and are primarily motivated by the visual appeal of the text rather than intellectual engagement. They also favored simpler and familiar reading materials due to their vocabulary deficiencies. Thus, it puts emphasis on using reading materials that offer comprehensible input and close to their schemata. Brown (2014) stated that providing learners with reading materials that are appropriate for their level and interests can help to increase their motivation to read as the materials are interesting and engaging. Additionally, Brown highlighted the significance of building vocabulary knowledge and activating prior knowledge, both of which align with the factors identified by Kiew & Shah's (2020); Salleh & Yamat (2021); Dawi & Hashim (2022) research. By integrating Brown's approach, educators can design instructional activities that stimulate learners' interests, activate their background knowledge, and explicitly teach vocabulary, thereby enhancing their reading comprehension skills.

Technology and Personalised Reading Materials

Personalization in ESL refers to the pedagogical approach that supports individualized choices for learning, particularly in the context of flipped classrooms. It involves providing pupils with on-demand access to the teacher for individual questions while they engage in learning activities, either individually or in groups (Koh, 2019). In this context, personalised reading materials can be defined as texts, whether specifically designed for educational purposes that cater to the individual learning needs and preferences of English language learners (Albiladi, 2018). These materials are selected and adapted to support flexible learning environments, allowing pupils to choose different study modes, study at their preferred times and locations, and engage with activities and resources that enhance student-centeredness. According to Yin and Chai (2020), addressing the unique characteristics and individuality of each student is an important component of education. It is crucial to cater to the diverse needs of learners to

create an inclusive learning environment where they can flourish and attain their full potential. Teachers who recognise and attend to the diversity of learners can provide individualized assistance, resources, and teaching strategies that correspond to their specific strengths and limitations. This individualized approach not only fosters student engagement and motivation but also instill a sense of belonging and positive learning experiences. Cabual (2021) found out that acknowledging the diverse learning styles among learners and integrating this awareness into the classroom environment can yield a more productive learning atmosphere. Furthermore, pupils hailing from diverse cultural backgrounds may possess varying degrees of familiarity with the course materials. Using a tailored teaching approach in a diverse classroom can effectively address the needs of each student. Pupils in an English as a Second Language (ESL) class often possess different English proficiency levels and adopt different learning strategies. Teachers can ensure that all pupils can learn and progress at their own pace by adapting their instruction to meet each student's unique needs and learning styles. Differentiated Learning Methods (DLM) are a well-known approach that helps teachers support a diverse range of pupils in a mixed-ability classroom. By using DLM, teachers can provide engaging learning opportunities that foster the development of essential 21st century skills (Abu Hassan & Ajmain, 2022).

Personalised reading materials is one way to implement DLM. These materials can be customised to meet the specific needs and interests of each student, creating an inclusive and supportive learning environment for all pupils, especially in ESL classrooms. Research by Rezaeinejad (as cited in Cabual, 2021) emphasizes the importance of understanding pupils' individual learning styles to optimize instructional delivery. By adapting teaching strategies to align with pupils' preferred learning styles, teachers can create an environment that promotes academic success and supports pupils' educational achievements. This research underscores the value of considering individual learning styles and highlights the potential benefits of differentiated teaching methods.

Teaching reading, creating personalised reading materials, and utilising technology for reading instruction are interconnected and can be used together to provide pupils with engaging and effective learning experiences. However, with advancements in technology, teachers now have access to a variety of digital tools and to ensure optimal learning outcomes for pupils, teachers need to stay updated on the latest technological advancements and incorporate them into their teaching practices (Hashim & Aziz, 2021). The progress of technology enables the creation of personalised reading materials tailored to the preferences and interests of each student. Learning materials are essential for effective teaching and learning as they cater to pupils' needs. Teachers use instructional materials in various settings such as schools, workplaces, and homes to present information, reinforce lessons, introduce new concepts, and provide opportunities for practice (Saikat, 2023). For instance, AI-powered tools like ChatGPT can generate personalized reading materials based on pupils' reading levels and interests, thus helping pupils connect with the content and improve their understanding. According to a study, teaching pupils how to effectively read and interact with digital materials improves their comprehension (Hopman-Droste, 2022). This can be linked to the real-time feedback from technology as it allows pupils to monitor their progress and adjust their learning strategies accordingly. It also provides authentic experiences for applying language skills in real-life situations. It creates a safe environment for practicing language skills, boosting confidence and proficiency. With instant feedback readily available, pupils can receive timely

guidance to improve their language abilities (Pazilah et al., 2019). Hence, technology plays a valuable role in creating dynamic and effective language learning experiences for pupils.

Fourth Industrial Revolution (4IR)

4IR (or also referred to as Industry 4.0) denotes the ongoing period characterized by swift technological advancements, automation, and digitization. The integration of state-of-the-art technologies such as AI, Internet of Things (IoT), and robotics in various facets of daily life, including education, is a clear indication of this revolution. The Malaysian government, with the aim of propelling Malaysia into a futuristic and technological powerhouse by 2030, has recently disclosed its National Fourth Industrial Revolution (4IR) strategy for the period of 2021 to 2030 (National Fourth Industrial Revolution (4IR), 2021). The Malaysian administration has recognised 4IR as an important element of the country's economic expansion and has enforced strategies to facilitate the integration of new technologies across various domains, including education. Consequently, there has been an ultimate stress on technological proficiency and workforce preparation in the schooling system of Malaysia, with higher education institutions in Malaysia elevating their endeavours to form an education system that is knowledgeable about the principles of 4IR (Mat Jam & Puteh, 2022).

English language skills, particularly reading, play a crucial role in this endeavour, as English is widely used in business, science, and technology worldwide. To fully participate in the digital economy, Malaysian pupils must be proficient in reading and comprehending technical materials and digital resources in English. According to Rao (2019), English serves as a common language and a global language for international relationships in various sectors such as education, travel, and tourism. Consequently, teachers in Malaysia are exploring innovative approaches, such as utilising technology-based tools and resources, to enhance English reading skills. Digital literacy has become an essential skill, enabling individuals to find and understand information online and transform it into knowledge. The 4IR has significantly influenced the Malaysian education system, driving a shift towards digital literacy and the development of English language proficiency (Chin, 2021). With new teaching methods and resources, teachers can equip Malaysian pupils with the necessary skills to thrive in the global economy and excel in the digital age.

Artificial Intelligence and ChatGPT in Education

AI is a field of computer science that focuses on creating intelligent machines that can perform tasks that typically require human intelligence, such as visual perception, speech recognition, decision-making, and language translation (Russell et al., 2022). AI is a concept with a multitude of facets and varying definitions. According to the Turing Test, AI pertains to the capacity of machines to communicate with humans through electronic output devices, all while concealing their non-human nature (Frankenfield, 2022). Marvin Minsky, a pioneering figure in the field of AI, has defined AI as the ability of machines to carry out tasks requiring human intelligence (Dennis, 2023). Meanwhile, the symbolic school perceives AI as the manipulation of symbols, with the most basic symbols representing physical entities (Santoro et al, 2021).

Presently, AI is increasingly impacting human life and, akin to steam engines, generators, and computers during their respective eras, is poised to become the cornerstone of technology in the contemporary and future epoch (Jiang et al., 2022). Russel et al (2022) stated that AI is

being widely used in various domains of the modern world. It is the foundation of natural language processing and speech recognition, enabling virtual assistants like Siri and Alexa to understand and respond to human commands. AI also plays a role in image and facial recognition systems used in security and social media platforms. Additionally, AI powers recommendation systems in e-commerce and entertainment platforms, improving personalised experiences for users. It is utilised in fraud detection processes in financial institutions, ensuring secure transactions. Furthermore, AI-driven chatbots and automated customer service systems enhance customer experiences. These examples highlight the diverse and ever-expanding applications of AI in the modern world, demonstrating its potential to transform various industries.

AI is crucial in driving the 4IR as it is being implemented in the field of education to produce tools and resources that could potentially amplify the learning experience for pupils. The common practice of AI in education is the AI-powered chatbots. They can provide customised assistance to pupils, addressing their queries and offering guidance on course content. AIgenerated content can be employed to produce tailored learning materials for individual pupils, encompassing reading materials customised to their preferences and learning requirements. Additionally, AI can be used to assist in data analysis and research by processing large amounts of data, identifying patterns and trends, and enhancing the accessibility and inclusivity by providing support for pupils with disabilities or language barriers (Kooli, 2023).

AI chatbot, ChatGPT, launched in November 2022, is capable of generating cohesive and informative human-like responses to user input (Lo, 2023). It is the fastest-growing consumer application ever, with 100 million monthly active users just two months after its launch and has garnered around 13 million unique visitors daily (Hu, 2023). By providing specific prompts, it can generate responses that are tailored to the desired outcome, increasing the relevance of the information it provides. Hence, ChatGPT, along with other AI technologies, has the potential to enhance teaching and learning by generating and evaluating information. It can contribute to improving the learning process and creating a more engaging experience for pupils (Sabzalieva & Valentini, 2023).

Each student possesses unique learning preferences and requirements, presenting challenges for educators to accommodate everyone effectively. Hence, this AI-driven multimodal language model can help as it provides pupils with tailored learning experiences that align with their individual needs (Mittal, 2023). It can be used to produce a variety of reading materials, like news articles, short stories, and even novels, that are tailored to each student's needs and interests by having access to a wide range of reading materials. It can also be used to make conversational agents or chatbots that help people learn a language in a way that is unique to them. These chatbots can give pupils tailored feedback, answer their questions, and help them understand the course material, which improves their overall learning experience (Kohnke et al., 2023). This interesting technology can change the way people learn languages and education in general by giving pupils more personalised and interesting ways to learn.

ChatGPT Limitations and Ethical Issues

Like all AI technology, it has weaknesses and challenges that affect its performance and accuracy. According to Marr (2023), one limitation of ChatGPT is its lack of common sense. Despite its ability to generate human-like responses and access extensive information, the model does not possess the same level of common sense or background knowledge as

humans. As a result, there may be instances where ChatGPT provides nonsensical or inaccurate responses to specific questions or situations. He also noted that it lacks emotional intelligence thus it does not possess genuine emotional understanding. The notable limitations include biased responses, limited knowledge, accuracy problems, and the need for fine-tuning. The use of AI technology also raises concerns about data privacy. The Italian Data Protection Watchdog had instructed OpenAI, the developer of ChatGPT to temporarily stop handling the data of users from Italy while investigating a potential violation of Europe's strict privacy rules (Browne, 2023) which was then addressed and resolved by the developer (McCallum, 2023). Italy joined several other countries that have taken the step to ban the use of ChatGPT. A continuous effort has been taken by OpenAI to reduce personal data usage in training AI systems like ChatGPT (McCallum, 2023). Despite the existing limitations of ChatGPT, it is essential to recognise its potential to enhance student's learning. With ongoing efforts to address and rectify its flaws, the benefits of ChatGPT can be further amplified. The adoption of AI in the academic field is not without challenges and controversies. The implementation of chatbots in education has sparked ethical issues, including plagiarism and cheating. Users must acknowledge the crucial role of academic integrity and personal responsibility in the utilisation of chatbots for learning. Hence, clear guidance and expectations should be provided to pupils to ensure responsible use of chatbots (Rudolph et al., 2023). The issue of AI chatbots spreading inaccurate or misleading information is a valid concern. The natural language generation capabilities of AI chatbots make them prone to propagating false or deceitful information. To combat these challenges, regulatory frameworks need to ensure that AI chatbot usage is transparent and accountable. Developers can also be required to include design features that discourage the spread of false information. Implementing a reporting system for incidents of disinformation can further promote transparency and accountability, allowing users, regulators, and the public to make informed decisions about the use of AI chatbots (Sebastian, 2023). Moreover, there is a need to support research endeavors that investigate the influence of AI chatbots on both teaching and learning in order to ensure their effectiveness and mitigate potential hazards. Thus, the integration of AI systems and chatbots in education should be viewed as an opening for progress and advancement, not as a risk.

Using ChatGPT to Develop Reading Materials
Considering the importance of reading skills, it is crucial to develop personalised reading materials because imported English language textbooks are considered unsuitable for local English learners as they do not contain relevant cultural content and lack a balance between cultural perspectives (Takal et al., 2021). Pupils may struggle to understand the content of the textbooks because of cultural differences, and those from rural or suburban backgrounds may find it particularly challenging as they lack curiosity and a sense of connection to the material (Ya Shak et al., 2021). Thus, there is a critical need for the materials used to be culturally relevant and use local context. Incorporating contextualization into the teaching process is important to promote continuous learner development. This involves taking into account the previous educational experiences of both learners and educators, as well as considering potential educational pathways that learners may encounter in the future (Fitzsimons et al., 2020). According to Brown (2014), using real-life materials like newspapers, magazines, and videos can help learners improve their language skills in a natural manner. It is important for teachers to choose materials that match the learners' level and needs, and to provide support

and guidance to help them understand and use the materials effectively. By using authentic materials, learners can experience language as it is used and develop their language abilities in a more practical way. In addition to traditional authentic materials, incorporating ChatGPT into the process can further enhance the production of personalised reading materials.

ChatGPT has the capability to generate coherent and natural text in response to prompts or questions. This makes it a valuable tool for language teachers in the creation of reading materials that align with the learners' interests and needs (Quinn, 2022). Teachers can use ChatGPT to generate realistic dialogues, scenarios, and texts, providing learners with authentic language use in a customised format. Authentic materials provide cultural relevance, contextual understanding, and exposure to genuine language use (Danansooriya, 2022), while ChatGPT allows for the creation of tailored reading materials that cater to individual learners' preferences and language proficiency levels. All in all, authentic materials promise a hope for better reading skills among pupils (Mara & Mohamad, 2021) and ChatGPT can boost its eveready benefits.

Using ChatGPT to create personalised reading materials is an innovative approach that shows great promise in improving language learners' reading skills. Language teachers can utilise AI to produce reading materials that are customised to fit the specific requirements and interests. AI can assist teachers throughout the design process by providing the system with prompts of how they want the end product to look like (Sabzalieva & Valentini, 2023). Tailored reading materials have the potential to significantly boost reading motivation. Positive motivation plays a crucial role in reading development, as it directly influences comprehension and the willingness to engage in extended reading. When pupils lack motivation, reading strategies and content knowledge remain dormant and ineffective (Chua & Sulaiman, 2021). It is also widely acknowledged that motivation and interest are key factors that significantly contribute to learners' ability to comprehend what they read (Kiew & Shah, 2020). When pupils are motivated to read, they are more likely to be intrinsically motivated thus actively engage with the text, invest their effort, and employ effective reading strategies. In conclusion, the utilisation of ChatGPT in the development of reading materials has shown promise in enhancing language learners' reading skills. By incorporating this AI tool, language teachers can create personalised reading materials that cater to individual pupils' needs and interests. The power of AI technology assists teachers throughout the design process, allowing for customised prompts and generating realistic dialogues, scenarios, and texts. This approach, coupled with authentic materials, deepens learners' reading skills, cultural knowledge, and ability to engage with real-world reading situations. By leveraging ChatGPT's capabilities, teachers can foster motivation and engagement among pupils, ultimately promoting effective reading comprehension and language development.

Research Gaps and Future Directions
Despite acknowledging the benefits that can be derived from ChatGPT, it has not been clarified on how this AI driven technology can be used in developing reading materials for Malaysian primary school pupils. Existing literature has not extensively explored this area, leaving a gap in understanding how to effectively harness the potential of ChatGPT for developing reading materials. The Higher Education Minister, Mohamed Khaled Nordin stated that the utilisation of AI-driven ChatGPT and other AI technologies in the learning process is permitted in Malaysia as they are beneficial, provided that their use complies with the established

guidelines given to universities (Aubrey, 2023). The guidelines for universities can be adopted and adapted to suit its usage in primary and secondary level. Previous studies on the development of reading materials using ChatGPT for primary school pupils are limited, indicating a research gap in this field. The available literature such as Kooli (2023); Lo (2023); Kohnke et al (2023), primarily focuses on the capabilities of ChatGPT in generating coherent and natural text, but there is a dearth of research specifically addressing its application in creating reading materials for primary school language learners.

Several unanswered questions remain regarding the use of ChatGPT in teaching and learning. For instance, there is a need to determine when clear guidelines and policies regarding the utilisation of AI chatbots like ChatGPT will be established in Malaysian primary and secondary education. The current guidelines for the utilisation of AI-driven technologies, including ChatGPT, have primarily been disseminated within university settings, which overlooks the valuable opportunity for schools to harness the full potential of this technology. Additionally, unresolved issues such as data privacy concerns (Weatherbed, 2023) and the readiness of teachers to effectively harness the potential of ChatGPT also warrant further investigation (Baharuldin et al., 2020). Emerging challenges and developments associated with ChatGPT implementation in education include the need to address potential misuse among pupils, ensuring that its use aligns with ethical practices (Jafar, 2023). Furthermore, concerns regarding overreliance on the system impacting critical thinking abilities, potential biases in the information generated Lo (2023), and the limitations of ICT infrastructure in certain regions in Malaysia also require attention (Chacko, 2022).

Considering interdisciplinary perspectives, the integration of ChatGPT aligns with Malaysia's move towards the Fourth Industrial Revolution (4IR) (Zahiid, 2023). Its application can contribute to achieving Sustainable Development Goals (SDGs) as it can enhance the quality of education (Chacko, 2022) and support the concept of Malaysia Madani (Carvalho et al., 2023). The practical implications of utilising ChatGPT for developing reading materials are noteworthy. By tailoring materials to pupils' needs, teaching and learning become more meaningful and engaging (Yin & Chai, 2020). Moreover, teachers can save time on material development, especially in large classrooms with pupils of diverse backgrounds, personalities, and learning styles. The adaptation of materials to local and cultural contexts fosters a sense of national identity, and the human-like responses generated by ChatGPT provide pupils with experiences applicable in real-life situations.

Conclusion

The application of ChatGPT in education holds significant promise for enhancing the teaching and learning experience in Malaysia. By incorporating authentic materials and utilising AIgenerated resources, teachers can create personalised and culturally relevant reading materials that engage and motivate pupils. This research necessitates further investigation and a comprehensive understanding of ChatGPT's effective application in developing personalised reading materials for Malaysian primary school pupils. The existing literature recognises the potential advantages of AI technology, but it lacks the ability to provide comprehensive insights into its practical implementation in this particular context. Therefore, there is a research gap that requires attention to harness the full potential of ChatGPT and its contribution to language learning, specifically in leveraging reading skills among Malaysian primary school pupils.

The present research has profound implications for an array of stakeholders. The integration of ChatGPT into pedagogical practices can result in numerous advantages for teachers and educators. Primarily, it can assist in the personalisation of reading materials, a pivotal feature of modern education. Besides, it can speed up the process of material development, resulting in the conservation of valuable time and effort. Lastly, it can equip learners with enthralling experiences that can enrich their cognitive and academic growth. Pupils with a low proficiency level can reap maximum benefits from tailored reading materials that cater to their unique needs. Such materials can significantly enhance their comprehension and promote real-life applicability. Furthermore, policymakers and curriculum developers may acquire invaluable discernment regarding the potential of AI technologies like ChatGPT in leveraging linguistic acquisition and fulfilling educational goals. By embracing this innovative technology while considering the principles of inclusivity, Malaysia Madani, the Sustainable Development Goals, and the 4IR, the education system in Malaysia can advance towards a more inclusive, culturally rich, and technologically adept future.

Several recommendations for future research can be made to advance the understanding and utilisation of ChatGPT in developing reading materials. Firstly, there is a need to establish clear guidelines and policies regarding the use of AI chatbots, including ChatGPT, in primary and secondary education. This will ensure ethical practices, address data privacy concerns, and promote responsible usage. Secondly, further investigation is required to assess teachers' readiness and training needs in effectively harnessing the potential of ChatGPT in the classroom. Additionally, research should focus on addressing biases in the information generated by ChatGPT and exploring strategies to enhance critical thinking abilities while utilising AI technologies. In conclusion, it is crucial for investigations to examine the versatility of ChatGPT across various cultural and local circumstances, ensuring that the reading materials provide beneficial learning experiences for pupils of differing levels of proficiency and adhere to the national identity.

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