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REVOLUTIONIZING LANGUAGE LEARNING IN THE GEN-AI ERA: OPTIMIZING CHATGPT IN A MERDEKA BELAJAR CURRICULUM

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ABSTRACT

Objective: This study aims to examine the potential integration of ChatGPT, as a language model based on generative artificial intelligence (GenAI), into the Merdeka Belajar Curriculum to support the increased effectiveness of student-centered language learning.

Research Design & Methods: This study used a qualitative method with a desk study approach, analyzing 15 selected studies from a total of 157 initial entries relevant to the use of GenAI, specifically ChatGPT, in language teaching and learning.

Findings: The review shows that ChatGPT can improve language skills such as reading, writing, speaking, and listening through personalized, adaptive, and real-time interactions. It was also shown to encourage active participation, learning autonomy, and intrinsic motivation. However, the implementation of ChatGPT demands serious attention to ethical issues, data privacy, and the readiness of educational institutions' infrastructure. In addition, there are research gaps, such as the lack of long-term studies, the dominance of English language learning contexts, and the lack of exploration in local language and cultural contexts.

Implications & Recommendations: To optimize ChatGPT integration, educators need to design innovative pedagogical strategies that strengthen critical digital literacy and support the development of lifelong learning skills. Strong and inclusive educational policy support is also needed to ensure ethical and sustainable implementation.

Contribution & Value Added: This study makes an important contribution to the discourse of GenAI integration in the Indonesian education sector, highlighting the potential for transforming language learning through technology and offering strategic directions for educators and policymakers.

Keywords: ChatGPT, Kurikulum Merdeka, Pembelajaran Bahasa

JEL codes: I21; I28; O33

Article type: research paper

INTRODUCTION

Language teaching and learning play a very important role in today's globalization era, where effective communication skills as well as cross-cultural understanding become the main foundation for one's success in personal life, education, and the world of work. Language skills enable one to establish meaningful communication and convey ideas clearly in a multicultural context. With increasing economic, political, and social integration at the global level, language education now focuses not only on linguistic aspects but also on intercultural communication skills, which are an important part of 21st-century skills (Oberste-Berghaus, 2024). Language learning connected to real cultural contexts helps learners foster empathy, awareness of cultural diversity, and adaptability skills in various dynamic social situations (Su et al., 2024).

Although various teacher training programs for multilingual education have been introduced, the belief in the myth of "the younger the better" in language learning is still prevalent

in many multilingual contexts. Many educators, despite training, continue to believe that starting language learning early will automatically lead to better achievement. Research shows that, although initial training may change some teachers' views, belief in this age-related myth remains strong and is one of the main barriers to the implementation of research-based pedagogical approaches in multilingual classrooms (Portolés & Martí, 2020). This situation shows the importance of a more in-depth and continuous approach to equip teachers with a critical understanding of the complex factors that influence the language learning process, such as the role of age, motivation level, intensity of language exposure, and social context.

The Merdeka Curriculum provides flexibility for educational institutions to design programs that are aligned with local needs and contexts, enabling a more adaptive response to today's educational challenges and dynamics (Wasehudin et al., 2023). This flexibility is in line with the potential of Generative Artificial Intelligence (GenAI) to deliver more personalized learning experiences and support the efficient creation of learning materials (Rashid et al., 2024). The curriculum's focus on learning freedom, learner independence, and customization to individual needs (Wasehudin et al., 2023) fits well with GenAI's ability to provide individually tailored learning support and create an intelligent tutor system capable of guiding students in an interactive and adaptive manner (Bahroun et al., 2023).

The development of language learning in the era of generative artificial intelligence (Gen-AI) has resulted in a major transformation in traditional teaching methods. ChatGPT, an artificial intelligence-based chatbot developed by OpenAI, launched in November 2022, quickly attracted global attention for its ability to generate human-like conversational responses (Morya et al., 2024). Relying on a large language model based on a transformer architecture, the generative pre-trained transformer (GPT), ChatGPT is able to generate semantically coherent and grammatically correct text. This quality is continuously improved through machine learning from user input. It not only represents an advancement in GenAI technology, but also has a major impact in various fields, including language teaching and learning, by offering a new, more interactive, and personalized way of teaching and learning.

The integration of ChatGPT, an AI-based language model, into the language learning curriculum shows great potential in enriching students' learning experience. Studies have found a significant positive relationship between the use of ChatGPT and increased effectiveness of language learning, strengthening the belief in its ability to revolutionize language pedagogy (Niyozovs et al., 2023). In implementing the Merdeka Belajar Curriculum, optimal utilization of ChatGPT can encourage the creation of language learning that is more interactive, personalized, and interesting for students. However, the use of this technology needs to be balanced with the application of solid pedagogical principles. Educators play an important role in ensuring that ChatGPT is not just an instant tool but a means of strengthening students' critical thinking, creativity, and independence in the language learning process (Ellis & Slade, 2023; Niyozov et al., 2023; Topaz et al., 2024). With the right approach, this technology can be an innovative catalyst to improve the quality of learning in the digital era.

Based on the background of significant changes in language learning methodologies due to the development of Gen-AI technology, the purpose of this study is to explore and analyze the optimization of the use of ChatGPT in supporting the implementation of Merdeka Belajar Curriculum. The focus of this research is to identify how ChatGPT integration can increase interactivity, personalization, and effectiveness of language learning, while ensuring the application of pedagogical principles that encourage the development of critical thinking, creativity, and student independence in the digital era.

LITERATURE REVIEW

Language Learning Concepts in the Digital Era

Language learning is a process that involves various complex elements, which are influenced by factors such as cultural background, social environment, as well as the unique characteristics of each individual learner. In this context, bilingualism and multilingualism have a significant influence on language acquisition. Bilinguals, who master more than one language, often

show an advantage in learning an additional language. This is due to the greater diversity of their linguistic repertoire as well as more mature cognitive skills, acquired through their experience in managing multiple language systems (Cenoz, 2013). Moreover, the learning strategies they develop, either consciously or unconsciously, enable them to overcome the challenges of learning a new language more efficiently, such as the ability to transfer skills between languages and utilize knowledge of different language structures.

The relationship between languages in bilingual and multilingual individuals is dynamic and mutually influencing, not only in one direction from the first language (L1) to the second language (L2), but also vice versa. This shows that language competence is not fixed, but continues to develop according to experience and daily language use. In a situation of bilingualism, intense use of L2 can lead to changes in L1, both in terms of grammatical structures, vocabulary choices, and speech patterns - this phenomenon is known as language attrition. This finding undermines the old assumption that once an L1 is fully mastered, it is fixed and unaffected by learning another language. Instead, active engagement in two or more languages creates interacting linguistic systems, and this process occurs simultaneously at both the cognitive and linguistic levels (Yilmaz & Schmid, 2018). Therefore, bilingualism needs to be understood as an ongoing process that shapes, adapts, and enriches one's language skills within an evolving social context and communication experience.

In the world of education, language learning is defined as a structured process to develop students' language skills as a whole, covering both understanding and use of language in real situations. The main focus of language learning is not only on mastering grammar rules, but also on developing communicative skills, including the ability to listen, speak, read, and write. This process requires a balance between theory and practice, as well as the creation of a supportive learning environment so that students can apply language in everyday life. The learning approach used must be interactive and contextual, and tailored to the needs of students, to ensure the achievement of learning objectives effectively (Mustafa & Efendi, 2016).

Translanguaging is a learning approach that allows students to use multiple languages flexibly in teaching and learning activities. This strategy has proven to be effective in building a healthy bilingual identity and increasing students' metalinguistic awareness. By allowing students to access all their language skills without rigid linguistic boundaries, it creates a more inclusive and supportive learning environment, especially for those from language minority communities. Various studies have shown that translanguaging can increase students' confidence in their language abilities while developing a deeper understanding of language structure and function through a reflective process (García-Mateus & Palmer, 2017; Henderson & Ingram, 2018; Vaish, 2021). This strategy also encourages the exchange of meaning and information between languages, which in turn deepens students' understanding of concepts, increases active participation in the learning process, and hones their critical thinking skills.

Merdeka Belajar Curriculum

The Merdeka Belajar curriculum introduced in Indonesia is an important initiative in education reform efforts to be more in line with the times, especially in responding to the challenges that arise in the era of the Industrial Revolution 4.0 (Aini et al., 2021). This curriculum carries the principles of flexible, learner-oriented learning and focuses on strengthening 21st-century competencies, such as critical thinking, creativity, cooperation, and communication skills. In it, students are encouraged to explore their potential and interests through a learning process that is relevant to real life. On the other hand, teachers have the flexibility to determine learning approaches and strategies that suit the needs of individual students and the context of the learning environment, so that the educational process becomes more personalized and meaningful.

The Merdeka Curriculum emphasizes the principles of flexibility, independence, and learner-focused learning, which opens opportunities for educational institutions to adapt the learning process to local needs and student characteristics (Wasehudin et al., 2023). Through this approach, schools are given the freedom to develop subject matter, choose teaching strategies, and organize learning time that is most suitable for achieving learning objectives. Students are also encouraged to learn according to their interests, personal needs, and learning styles, so that the

learning process becomes more meaningful, contextualized, and encourages active engagement. In addition, granting autonomy to teachers and schools supports the creation of learning innovations and contributes to improving the overall quality of education.

The Merdeka Curriculum education approach or the “Merdeka Belajar” curriculum currently implemented is designed with a number of key principles that aim to form a learning system that is more inclusive, responsive, and in line with the challenges and needs of modern times, including: 1) Flexibility and autonomy, where schools and educators are given the freedom to adjust and develop the curriculum based on the unique needs of learners and their respective conditions (Ndari et al., 2023); 2) Character strengthening, through the development of the Pancasila Learner Profile, which includes values such as faith, virtue, independence, collaboration, global thinking and creativity (Fauzan et al., 2023); 3) Project-based learning, a key element in helping students hone social and emotional skills while understanding core concepts in depth (Fauzan et al., 2023); 4) Implementation of multilingualism, aiming to improve learner well-being, broaden intercultural horizons, and provide an appreciation of language diversity (Halim et al., 2024); 5) Formative assessment, becoming a central focus in the learning evaluation process, replacing the traditional summative approach to provide continuous feedback that better supports student learning growth (Mubarok et al., 2023).

The implementation of the Merdeka Curriculum provides a wide space for each educational institution to develop learning programs that are tailored to their local characteristics, needs, and potential. This freedom allows schools to design learning that is more realistic and contextual, reflecting the social, cultural, and resource conditions that exist in the surrounding environment, without having to be rigidly fixated on uniform national provisions. However, every approach developed at the local level is still directed to support the achievement of national education goals, such as character building, improving literacy and numeracy skills, and strengthening competencies (Mubarok et al., 2023). Thus, Merdeka Curriculum serves as a platform to encourage educational innovation and strengthen the strategic role of schools in creating a more adaptive, relevant, and meaningful learning process for students.

GPT Chat Language Learning Model

ChatGPT is an artificial intelligence system built using a state-of-the-art language model based on the Generative Pre-trained Transformer (GPT) architecture. The system goes through a training process utilizing large amounts of text data to capture the context, language patterns, and meaning of words and sentences. The result of this training enables ChatGPT to provide answers that are logical, relevant, and resemble human speech. With these capabilities, ChatGPT can be utilized in various fields, such as digital assistants, text writing, and learning activities, such as language learning, with excellent precision and fluency (Haque, 2023; Iskender, 2023). The model was trained using a very large dataset, covering more than 175 billion parameters, consisting of different types of sources such as websites, articles, works of fiction, and books collected from the internet until September 2021 (Laudicella et al., 2023). His vast scale of training equips ChatGPT with the ability to deeply understand various forms of natural language, so that it can respond to input appropriately, relevantly, and contextually (Firat, 2023).

This model relies on deep learning techniques to generate responses similar to how humans speak in various conversational situations, making it highly effective for application in areas such as language translation, foreign language learning, and automated question and answer systems. Its main advantage lies in its ability to dynamically understand context and provide relevant and natural responses. Furthermore, ChatGPT is able to offer personalized feedback, design teaching materials tailored to individual needs, and create an interactive and adaptive learning environment. These capabilities make ChatGPT a very promising tool in language education, especially in supporting self-directed learning and significantly increasing learner motivation and engagement (Kavak et al., 2024).

Language learning models utilizing ChatGPT offer an innovative approach in designing more effective and engaging learning experiences. The teaching design can be flexibly customized to the needs of learners, enabling the integration of interactive elements such as conversation simulations,

contextual exercises, and artificial intelligence-based instant responses. In addition, ChatGPT supports a wide range of application scenarios, from formal classroom learning to self-paced practice through digital platforms, creating broader and more inclusive learning opportunities. It is also possible to comprehensively evaluate the learning effect, both through analyzing the real-time development of students' language skills and through adjusting materials based on feedback obtained during the interaction process (Y. Li, 2024). This approach not only improves the effectiveness of learning but also encourages personalization and higher engagement in the learning process.

Various language learning approaches have been developed and applied in second or foreign language teaching to increase effectiveness and student engagement. They include communicative methods, task-based learning, the use of technology in learning, and project-based approaches. Each method is designed to suit students' needs, cultural background, and learning objectives, while encouraging active language use in relevant contexts. The main models implemented include: 1) Usage-based approaches in second language acquisition emphasize the importance of exposure to authentic and meaningful language, in line with cognitive theories that view language as a system that develops through use (Ellis & Robinson, 2008; Wang & Lu, 2024); 2) Experiential learning models that combine community-based learning and digital technologies, as well as synergies between teachers and artificial intelligence, have been shown to be effective in increasing students' engagement and curiosity about culture (Huang et al., 2024; Moreno-López et al., 2017).

METHODS

This research was conducted by applying a qualitative method that relies on a literature study approach as the main basis for data collection and analysis. The literature review research method is a systematic and open methodology for thoroughly reviewing and reorganizing existing research results related to a particular topic. The process includes organized steps of searching, selecting, and critically appraising relevant studies from academic sources, based on predetermined criteria (Fahad & Bulut, 2024; Fiandrino et al., 2022). This approach does not rely on direct experimentation or primary data collection, but instead focuses on analyzing information obtained from previous studies. The aim is to synthesize understanding, explore issues in greater depth, and identify opportunities or gaps for future research.

The implementation of a desk study is crucial in formulating theoretical frameworks, detailing definitions of key concepts, and recognizing recent trends and advances in a field of study. This can involve the use of methods such as bibliometric analysis to evaluate publication trends and relationships between scholarly works, content analysis to identify and assess the information contained in studies, and thematic categorization to group key topics in research (Fahad & Bulut, 2024; Bolbot et al., 2022). It allows for a more comprehensive mapping of developments within a field of study, providing greater insight into the direction and focus of emerging research.

This approach was chosen because it is able to provide an in-depth understanding of the phenomenon under study in a contextual and comprehensive manner, particularly in exploring recent developments in the use of GenAI technology in the field of language education. From a total of 157 initial entries collected through a systematic search on various reputable academic databases, 15 studies were carefully selected based on inclusion criteria such as topic relevance, publication quality, and meaningfulness of findings to the context of ChatGPT integration in Merdeka Belajar Curriculum. The selection process was conducted in stages through the screening of titles, abstracts, and full content review of articles. The selected studies were analyzed using thematic techniques to identify the main patterns, challenges, and opportunities for ChatGPT integration in language teaching. With this approach, the research aims to formulate conceptual understandings and practical implications that can be used by educators, curriculum developers, and policymakers in adopting GenAI ethically and strategically in the Indonesian education system.

RESULT

Identification and Categorization of Scientific Evidence

A flowchart of the evidence source selection process is shown in Figure 1. At the identification stage, 157 initial entries (100%) were obtained from the established database, with no additional findings from other sources. The citation data from these entries was exported and organized in a Microsoft Excel spreadsheet for duplicate removal. Once the duplicates were removed, 136 records (87%) were left for the screening stage. From the screening results, 74 records were excluded, leaving 62 entries (39%) for further evaluation through full-text article search and eligibility assessment. Furthermore, 47 articles were excluded for various reasons, such as inaccessibility of the full text, irrelevance to the GenAI topic, or insufficient quality (e.g. missing important sections such as research methods). In the final stage, 15 studies (10%) met the inclusion criteria and were included in the synthesis process.

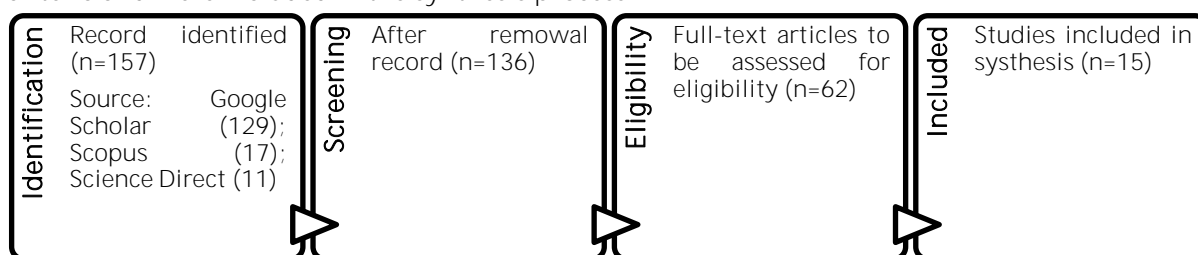


Figure 1. Summary flow chart of evidence source selection.

Characteristics of Supporting Data Sources

Although the search focused on publications between 2017 and 2023, only one study published in 2022 was found (Topsakal & Topsakal, 2022), while all other publications were from 2023. These findings reflect an understandable trend, given that academic attention to the use of generative artificial intelligence (GenAI) in language education only significantly increased after the launch of ChatGPT by OpenAI in November 2022. Since then, there has been a surge in scholarly interest and exploration into the utilization of this technology in the context of language teaching and learning.

Of the 15 selected studies (100%), 13 were scientific journal articles (90%), one was included in the gray literature (5%), and 1 was an editorial article (5%). In terms of study type, there were eight empirical studies (53%), consisting of 4 with a mixed methods approach, three qualitative studies, and one quantitative study. In addition, there were two review articles (13%), four technology reviews (27%), and one commentary (7%).

Table 1. Characteristics of supporting data sources

Characteristics	Description	Frequency	%
Year of Publication	In 2022	1	2
	In 2023	14	98
	Total	15	100
Kind of Publication	Journal Articles	13	86
	Gray literature	1	7
	Editorial Articles	1	7
	Total	15	100
Type of Research Study	Qualitative	3	19
	Mixed methods	4	27
	Quantitative	1	7
	Review articles	2	13
	Technology reviews	4	27
	Comments	1	7
	Total	15	100

Results of Analysis of Each Supporting Data

Table 2 presents the results of a thorough analysis of the supporting data used in this study, providing an in-depth insight into the key findings obtained from various relevant sources related to the application of artificial intelligence technology, especially ChatGPT, in language learning. The data obtained through diverse methodological approaches provides a clear picture of the potential as well as challenges in integrating ChatGPT into Merdeka Belajar Curriculum. This analysis reveals how ChatGPT can assist in developing language skills, such as writing, speaking, and listening, and highlights its benefits in creating a more personalized and flexible learning experience. The findings also show how important pedagogical understanding is in utilizing technology to create more interactive and efficient learning, which can meet students' individual needs, in line with the principles of Merdeka Belajar Curriculum, which emphasizes student-based learning and encourages learning autonomy.

Table 2. Results of the analysis of each supporting data

Reference	Methodological Approach	Geographic Origin	Academic Level of Participants	Field of Study	Perceptual Stance or Disposition
Lee et al., (2023)	Empirical (mixed method)	Korea Selatan	Primary	T&L Policy	Positif
Schmidt-Fajlik (2023)	Empirical (mixed method)	Jepang	University	Writing	Positif
Agustini (2023)	Empirical (mixed method)	Indonesia	Secondary	T&L Policy	Positif
Mohammadkarimi (2023)	Empirical (mixed method)	Kurdistan Irak	University	S&K	Proportional
Aktay et al. (2023)	Empiris (kualitatif)	Turki	Primary	S&K	Positif
Marzuki et al., (2023)	Empiris (kualitatif)	Not specified	University	T&L Policy	Positif
Li et al., (2023)	Empiris (kualitatif)	Internet	N/A	S&K	Positif
Zhou et al., (2023)	Empiris (kuantitatif)	Cina	University	Writing	Proportional
Zhai and Wibowo (2023)	Review article	N/A	N/A	S&K	Positif
Jeon and Lee (2023)	Review article	N/A	N/A	S&K	Positif
Topsakal and Topsakal (2022)	Technology reviews	N/A	Preschool and elementary school	S&K	Positif
Zhu et al., (2023)	Technology reviews	N/A	N/A	S&K	Proportional
Kohnke et al., (2023)	Technology reviews	N/A	University	T&L Policy	Positif
Forrester (2023)	Technology reviews	Hongkong	University	T&L	Positif
Ray and Das (2023)	Comments	N/A	N/A	Etics	N/A

Table 3. Analysis results in accordance with the paper

Reference	Sample/Participant	Research Tools	Finding
Lee et al., (2023)	121 fifth and sixth-grade students aged 11 to 12 years old from elementary schools located in Seoul, Gwangju, and Jeollanam-do, South Korea	Pre and post-approach, which includes experimental conditions as well as a comparison group	The study concluded that the use of AICG can increase reading interest and enjoyment and contribute positively to the second language learning experience.
Schmidt-Fajlik (2023)	69 students of a Japanese university	Questionnaire	This article concludes that ChatGPT is effective in helping Japanese learners of English through contextualized and interactive feedback, thereby improving understanding and application of grammar.
Agustini (2023)	6 high school students from Indonesia	Semi-structured interview	The findings highlight that ChatGPT has the potential to support more independent and personalized learning for English Language Learners in the context of Merdeka Belajar Curriculum, by encouraging students to more actively manage their language learning processes and goals.
Mohammadkari mi (2023)	Questionnaire: 67 lecturers Interviews: 23 lecturers	Questionnaires and interviews	The study concludes that training, support, and clear ethical guidelines are essential for teachers to effectively and responsibly utilize AI technologies in education while maintaining academic integrity.
Aktay et al. (2023)	15 students in the 4th grade of public schools in Turkey in the school year 2022-2023	Online questionnaire	The results showed that the students found ChatGPT engaging, effective, and informative, and recommended it for use in various subjects.
Marzuki et al., (2023)	4 writing teachers from three different universities (Tools: Quillbot, WordTune, Jenni, Chat-GPT, Paperpal, Copy.ai, and Essay Writer)	Semi-structured interviews	This article suggests that the use of AI-based writing tools in English as a foreign language (EFL) learning has a positive impact on students' writing outcomes, including aspects of content and structure.
Li et al., (2023)	45 video Youtube	N/A	The study found that while ChatGPT is useful in language teaching, it cannot replace the role of the teacher, and two major challenges remain: optimization of learning and comprehension of knowledge.
Zhou et al., (2023)	<ul style="list-style-type: none"> Number of participants: 40 undergraduate students Study Program: English Department Gender: male (10) and female (30) 	Coh-Metrix (a discourse analysis tool that measures data based on five major components of discourse)	The study recommends that ChatGPT excels in narrative aspects and surface cohesion, but still loses out to CIE learners in syntactic simplicity and deep cohesion.

Reference	Sample/Participant	Research Tools	Finding
	<ul style="list-style-type: none"> Language background: Native Chinese speakers Institution: One of the top 20 universities in China 		
Zhai and Wibowo (2023)	Web of Science, Google Scholar, ProQuest, IEEE, ScienceDirect	N/A	This research highlights the limitations of AI dialog systems in the aspects of debate, problem solving, and social elements, and recommends focusing on meaningful communication and strengthening language competence in the future.
Jeon and Lee (2023)	10 elementary schools in Korea (11 English teachers)	Semi-structured interviews and records of teachers' interactions with the chatbot	This research identifies the role of ChatGPT and teachers in education and emphasizes the importance of teachers' pedagogical knowledge in using AI tools, with implications for the future use of LLM-based chatbots.
Topsakal and Topsakal (2022)	ChatGPT	N/A	This article proposes a framework for children's foreign language learning software that integrates AR, Voicebot, and ChatGPT as a guide to creating efficient and quality software.
Zhu et al., (2023)	ChatGPT	SWOT Analysis	This research recommends a SWOT analysis of ChatGPT and emphasizes the importance of overcoming its weaknesses and utilizing its advantages for the advancement of education.
Kohnke et al., (2023)	ChatGPT 6 male and 6 female lecturers	Questionnaires and semi-structured interviews	This study confirmed the need for digital competence, pedagogical understanding, and professional support for instructors to effectively implement AI in the classroom.
Forrester (2023)	ChatGPT	N/A	This article emphasizes that ChatGPT has the potential to be an effective language learning partner, but its use needs to be balanced so as not to reduce students' learning independence.
Ray and Das (2023)	ChatGPT	N/A	This article emphasizes the need for multidisciplinary and collaborative approaches, as well as sustainable AI policy, understanding, and practice to address challenges related to artificial intelligence.

DISCUSSION

From an initial collection of 157 entries retrieved from selected databases, a total of 15 studies filled the set inclusion criteria and were thoroughly examined in this scoping review. The main objective of this review is to evaluate the current research landscape regarding the application

of Generative AI (GenAI) in the context of language teaching and learning. In addition to mapping existing findings, this review aims to uncover gaps in the literature and highlight unexplored areas that require further scientific investigation. By synthesizing selected studies, this review provides a comprehensive overview of emerging trends, practical implementations, and theoretical developments related to the integration of GenAI in educational settings, particularly in language education.

This scoping review provides a comprehensive understanding of the direction and development of research related to the utilization of Generative AI (GenAI) in language teaching and learning. The review shows that researchers have applied a variety of research methods - qualitative, quantitative, and combined - that demonstrate a variety of approaches in evaluating the role of GenAI in education. Overall, perceptions towards the application of GenAI tend to be positive, both from teachers and students. This technology is considered an effective tool to support learning activities, especially in improving language skills such as reading, writing, speaking, and listening. In addition, GenAI is also utilized in evaluation activities, the creation of learning materials, and to customize learning experiences according to individual needs.

The importance of policy aspects in assisting the implementation of GenAI is also highlighted in this review, especially regarding ethical issues, personal data protection, and the readiness of educational institutions to adopt the technology systematically; in addition, this review also maps the current research directions while revealing research gaps such as the lack of long-term studies, the dominance of English language learning contexts, and the limited understanding of the sustainable impact of GenAI use on learning outcomes. In addition, the review confirms that while research on the use of Generative AI (GenAI) in language education is progressing, there are still gaps in the literature dominated by English language learning studies, which calls for the development of broader studies on the use of GenAI in teaching other languages, such as local languages, non-English foreign languages, and second languages, to enrich the understanding of the diversity of cultures and educational contexts in different regions of the world.

ChatGPT is now recognized as an artificial intelligence tool that has great potential in supporting the language learning process, thanks to its ability to mimic conversations like human communication. Various studies have confirmed that this technology provides many benefits, both for learners and educators. For example, research by [Xiao and Zhi \(2023\)](#) and a study by [Zhao et al., \(2023\)](#) show that the integration of ChatGPT in language learning can increase students' active participation and encourage the development of learning independence, which is the ability of students to organize and direct their own learning process. Not only that, ChatGPT is also considered to be able to support the improvement of academic achievement by providing additional assistance outside of regular class hours. With its ability to provide customized and responsive feedback, ChatGPT is in line with the values in the Merdeka Curriculum, which prioritizes learning tailored to the needs of individual students and strengthens their ability to learn independently and adaptively. This technology opens up the opportunity to create a more immersive, student-centered learning experience that caters to the various learning styles present in the classroom.

ChatGPT acts as a flexible and responsive language learning partner in Merdeka Curriculum programs, providing immediate feedback on students' language tasks, covering aspects of vocabulary, grammar, and sentence structure. The learning experience becomes more customized, as ChatGPT can tailor its responses to students' ability levels and individual needs ([Xiao & Zhi, 2023](#)). With these capabilities, ChatGPT opens up new opportunities for more interactive, adaptive, and student-focused language learning. Such potential makes ChatGPT an important element in modern teaching approaches that combine technology with pedagogical methods to create a more effective and valuable learning process.

Furthermore, to maximize the potential of ChatGPT in education, educators need to design integration strategies that not only support the language learning process but also strengthen students' independence, develop critical digital literacy, and encourage lifelong learning skills ([Tran & Tran, 2023](#)). This requires an approach that recognizes the importance of training students

to use technology wisely and responsibly, while instilling a deep understanding of digital ethics and the ability to critically evaluate information. In addition, the use of ChatGPT should be designed to give students the freedom to manage their learning, allowing them to tailor the learning experience to individual needs. By doing so, educators can help create a learning environment that not only relies on technology but also empowers students to continuously evolve to face future challenges.

CONCLUSION

The integration of ChatGPT, as a generative artificial intelligence-based language model, has great potential to revolutionize the language learning approach in the Merdeka Belajar Curriculum. This technology is able to provide a more personalized, interactive, and adaptive learning experience to the needs of each student. In the language learning process, ChatGPT has proven effective in improving key skills such as reading, writing, speaking, and listening because it is able to simulate natural human communication and provide real-time feedback. This advantage provides space for students to learn independently and at their own pace, in line with the spirit of Merdeka Belajar, which emphasizes student-centered learning. Positive perceptions from teachers and students indicate that this technology not only enhances active participation but also strengthens students' learning autonomy and intrinsic motivation, in line with the principle of learner-centered learning. However, the adoption of ChatGPT requires careful consideration of educational policy aspects, especially related to ethical issues, data privacy, and the readiness of educational institutions' infrastructure in managing technological change systematically. This review highlights significant gaps in the literature, such as the lack of long-term studies on the sustained impact of GenAI use, the limited linguistic contexts studied, and the dominance of studies in English language learning, which creates an urgent need to expand the scope of research to other languages and cultural contexts. Therefore, to maximize the potential of ChatGPT, educators are expected to design innovative pedagogical approaches, strengthen critical digital literacy, and encourage lifelong learning skills so that learners are prepared to face 21st-century challenges independently, ethically, and adaptively.

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