Research Article

Utilization of GPT Chat for Teachers in Developing Creative Teaching Materials in Grade V of Elementary School

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Abstract: The use of artificial intelligence technology in elementary education is becoming increasingly relevant as teachers demand to develop creative and efficient teaching materials. Problems faced by fifth-grade elementary school teachers include limited time, a variety of ideas, and reliance on conventional methods in developing teaching materials, resulting in suboptimal learning creativity. This study aims to describe the use of ChatGPT by fifth-grade elementary school teachers in developing creative teaching materials and to identify the benefits and constraints of its use in the learning process. The research method used is a descriptive qualitative approach with data collection techniques through literature studies and online questionnaires based on Google Forms. The research respondents were fifth-grade elementary school teachers who were familiar with and used ChatGPT in lesson planning. The data obtained were analyzed using qualitative descriptive analysis techniques through the stages of data reduction, data presentation, and drawing conclusions. The results of the study are expected to provide a comprehensive picture of the role of ChatGPT as a digital assistant for teachers in increasing the efficiency and creativity of teaching material development in elementary schools.

Keywords: ChatGPT; Creativity; Digital Assistant; Elementary Education; Teaching Materials

1. Introduction

The development of artificial intelligence (AI) has had a significant impact in various fields, including education. One form of AI that is currently developing rapidly is ChatGPT. ChatGPT is an artificial intelligence application based on the Generative Pretrained Transformer (GPT) developed by OpenAI. ChatGPT is designed to understand and generate text naturally through human language-based interactions, so it can provide responses in the form of ideas, explanations, examples, and material development according to user commands. In the context of elementary education, ChatGPT has the potential to be used by teachers as an aid in developing creative, varied, and contextual teaching materials according to student characteristics. Therefore, the object of research in this article is the use of ChatGPT by teachers in developing creative teaching materials in grade V of elementary school.

Before the development of generative AI, the development of teaching materials was generally carried out through conventional methods, such as the independent preparation of teaching materials by teachers, the use of textbooks, and the use of simple digital learning media. Mayer (2009) through multimedia learning theory stated that the combination of text and visuals can improve student understanding. Another method widely used is the development of information technology-based teaching materials, such as interactive presentations and learning videos, which are considered to be able to increase student engagement (Smaldino et al., 2015). Based on these theories, it can be concluded that the integration of technology in the development of teaching materials is a crucial need to create effective and engaging learning. Therefore, the use of digital technology, including ChatGPT, has the potential to support teachers in producing creative teaching materials in grade V of elementary school.

Several recent studies have highlighted the use of ChatGPT in education. Kasneci et al. (2023) stated that ChatGPT can assist teachers in quickly creating teaching materials,

evaluation questions, and learning ideas. However, Zhai (2022) emphasized that generative AI also has limitations, such as the potential for information inaccuracy and a lack of appropriateness to the learning context if used without validation. Holmes et al. (2019) also emphasized that AI technology can function as a teacher's assistant in lesson planning. This aligns with ChatGPT's role as a language-based pedagogical assistant that supports teachers in designing creative teaching materials, without replacing the teacher's role in maintaining the quality, relevance, and appropriateness of the materials to the curriculum. Several recent studies have highlighted the use of ChatGPT in education.

Based on these findings, it can be concluded that the use of ChatGPT in elementary schools offers significant opportunities as well as challenges. Therefore, its use must be accompanied by teacher validation and supervision to ensure the accuracy and appropriateness of the learning materials.

This article proposes an approach to utilizing ChatGPT as a digital teacher assistant during the planning and development stages of teaching materials, including formulating learning objectives, developing materials, creating sample questions, and designing creative learning activities that are aligned with the curriculum and student developmental levels.   The main contributions of this article are: (1) this article provides a scientific overview of how ChatGPT is utilized by teachers in developing creative teaching materials; (2) critically analyzes the strengths and limitations of ChatGPT when compared to conventional teaching material development methods. (3) this article offers a practical and responsible approach in utilizing ChatGPT as a pedagogical assistant for fifth grade elementary school teachers. This approach emphasizes the importance of teacher digital literacy, the ability to design appropriate prompts, and the role of teachers as the main controller in selecting and adjusting ChatGPT output to align with the curriculum, student characteristics, and educational values.

This article is structured as follows. The second section discusses a literature review focusing on ChatGPT as a GPT-based generative language model and its role in developing creative teaching materials in elementary schools. The third section explains the research methods used. The fourth section presents the research results and discussion. The final section contains conclusions and recommendations for further research.

2. Literature Review
The Concept of Creative Teaching Materials in Schools

The concept of creative teaching materials in elementary schools is oriented towards developing students' potential to learn actively, independently, and meaningfully. Teaching materials are not merely understood as a collection of lesson materials, but as media developed innovatively and contextually so that students can engage in challenging and enjoyable learning experiences (Fitriani et al., 2024). According to Sari and Pratama (2023), creative teaching materials ideally contain interactive elements such as visualizations, educational games, and project-based activities that encourage students to think critically and collaborate with their classmates. Therefore, creative teaching materials require innovation and interactivity, which can be supported through the use of ChatGPT as a tool for teachers in designing active and meaningful learning in fifth grade elementary schools. In the context of 21st-century learning, teachers are required to be able to create teaching materials that are relevant to current developments and student needs. Wulandari (2024) explains that a creative approach in developing teaching materials can foster creativity, increase learning motivation, and strengthen students' character through activities that foster courage to express opinions and problem-solving skills. This approach emphasizes the importance of pedagogical innovation, emotional engagement, and the use of engaging media so that the learning process occurs not only cognitively but also creates a fun and meaningful learning experience. In the elementary school context, creative learning can be realized through contextual presentation of material, the use of varied media, and challenging and meaningful learning activities. For example, teachers can develop teaching materials in the form of contextual stories close to students' daily lives, problem-based learning, simple projects, or reflective discussions adapted to the developmental level of fifth-grade students. This approach aligns with the characteristics of 21st-century learning which emphasizes creativity, critical thinking, communication, and collaboration (Trilling & Fadel, 2009).

Thus, it can be concluded that creative learning is a learning process that emphasizes innovation, active student involvement, and meaningful learning experiences, which can be optimally supported through the use of ChatGPT as a teacher aid, while still paying attention

to material validation and suitability with the curriculum and characteristics of elementary school students.

Utilization of Technology and Artificial Intelligence in Learning

The use of technology and artificial intelligence (AI) in education has brought significant changes to the way teachers teach and students learn. Technology no longer acts merely as a tool, but rather as an intelligent partner in designing, implementing, and evaluating the learning process (Rudolph et al., 2023). According to Kasneci et al. (2023), the application of AI can create an adaptive learning environment, where the system can adjust the content and pace of learning to suit individual student needs. This enables the creation of personalized learning which is more personal, effective, and responsive to the diversity of student abilities.

Furthermore, the use of ChatGPT as a form of generative AI contributes to improving teacher work efficiency, particularly in assisting with the preparation of teaching materials, designing evaluation questions, generating learning feedback, and developing learning activity ideas quickly and systematically (Kasneci et al., 2023). ChatGPT enables teachers to obtain initial drafts of teaching materials and alternative learning strategies, freeing up their time and energy to focus on student mentoring, character building, and meaningful pedagogical interactions. Thus, ChatGPT can be positioned as a digital pedagogical assistant that supports teacher performance without replacing the professional and humanistic role of educators. With this technology, teachers have greater opportunities to focus on the humanistic aspects of education, such as guiding students in reflective thinking, instilling character values, and building empathetic communication in the classroom. Therefore, the use of technology and AI in learning is not merely about digitizing the learning process, but rather an effort to transform the educational paradigm towards a collaborative, interactive, and innovative system.

Furthermore, the use of digital technology in learning aligns with Indonesian education policy. The Ministry of Education, Culture, Research, and Technology, through its Freedom to Learn policy, emphasizes the importance of utilizing technology to support student-centered learning and strengthen 21st-century competencies (Kemendikbudristek, 2022). Furthermore, UNESCO (2023) emphasized that the use of artificial intelligence in education can improve learning quality if used ethically, responsibly, and under the control of teachers. Therefore, the use of ChatGPT in elementary school learning needs to be carried out in a targeted manner, taking into account material validation, curriculum suitability, and the developmental characteristics of fifth-grade students. Thus, ChatGPT has the potential to support student-centered learning and strengthen 21st-century competencies, particularly in fifth-grade elementary school students.

ChatGPT as a Support Tool for Teachers in Developing Teaching Materials

ChatGPT as a Supporting Tool for Teachers in Developing Teaching Materials ChatGPT, a generative language model based on Natural Language Processing, can be utilized as a supporting tool for fifth-grade elementary school teachers in developing teaching materials for various subjects, such as Indonesian, Natural Sciences (IPA), Social Sciences (IPS), Pancasila Education, and thematic learning. In Indonesian, ChatGPT can help teachers compose reading texts appropriate to students' reading ability levels, create examples of narrative or explanatory texts, and design reading comprehension questions that encourage students' critical thinking skills (Kasneci et al., 2023; Sari & Pratama, 2023). This utilization is relevant because ChatGPT's generative capabilities allow for the adjustment of language and text difficulty levels to suit the characteristics of elementary school students.

In science and social studies subjects, ChatGPT can be used to help compile material summaries, contextual case examples, and discussion questions related to students' daily lives, such as environmental topics, natural events, and social activities. Tlili et al. (2023) stated that ChatGPT can support conceptual-based learning through structured and adaptable information presentation. This aligns with the needs of fifth-grade students who are in the concrete operational development stage towards formal, thus requiring clear and contextual material.

In presenting teaching materials, ChatGPT supports the development of various learning media, such as PowerPoint presentation (PPT) frameworks, Student Worksheets (LKPD), concise modules, and practice question banks. For example, ChatGPT can help teachers develop a PPT framework for the "Water Cycle" material for fifth grade, which includes learning objectives, key conceptual points, supporting illustrations, and reflective questions at the end of the lesson (Dwivedi et al., 2023). Furthermore, in developing LKPD, ChatGPT can generate simple activities such as prompt questions, environmental observation tasks, and mini-projects that encourage active student engagement (Bahari, 2024).

The use of ChatGPT in these teaching materials is considered relevant for fifthgrade elementary school students because it helps teachers present material simply, systematically,

and engagingly, in accordance with the characteristics of students' cognitive development. Kasneci et al. (2023) emphasized that the use of ChatGPT can improve the efficiency of learning planning and enrich the variety of materials, as long as teachers continue to validate and adjust the system's output. Thus, ChatGPT functions as a pedagogical support tool that strengthens teachers' creativity in developing materials.

Based on these theories, it can be concluded that ChatGPT is a GPT-based generative language model that has the potential to be a pedagogical assistant in developing teaching materials, but its use in elementary schools still requires validation and teacher supervision to ensure it is in accordance with learning objectives and student characteristics.   In addition to multimedia theory, which emphasizes the combination of text and visuals to enhance student understanding (Mayer, 2009), the development of teaching materials is also often carried out through information technology, such as interactive presentations and learning videos, which are considered capable of increasing student learning engagement (Smaldino et al., 2015). However, this approach still has limitations because it requires a relatively long design time and is highly dependent on the creativity of individual teachers, and is not yet able to provide a variety of materials quickly and personally.

As technology advances, ChatGPT, a generative language model based on the Generative Pre-trained Transformer (GPT), offers a more adaptive approach to developing teaching materials. Kasneci et al. (2023) explain that ChatGPT can assist teachers in efficiently developing teaching materials, evaluation questions, and learning ideas through text-based interactions. This finding aligns with the views of Holmes et al. (2019) who stated that artificial intelligence-based technology can function as a teacher's assistant in lesson planning, as long as it remains under the control and supervision of educators. However, Zhai (2022) cautions that ChatGPT as a generative AI also has limitations, particularly the potential for inaccurate information and a lack of appropriateness to the learning context if used without teacher validation.

Based on these studies, it can be concluded that ChatGPT has great potential as a pedagogical assistant in developing more efficient, varied, and contextual teaching materials in elementary schools. However, ChatGPT must be used wisely, with teachers remaining the primary controller to ensure the quality, accuracy, and appropriateness of the materials to students' needs and characteristics.

3. Research Method

Data collection was conducted through two methods: a literature review and a Google Form-based questionnaire. The literature review was conducted by reviewing various scientific journals related to the use of artificial intelligence technology in education through trusted sources such as Google Scholar, Scopus, and Indonesian University Repositories. Meanwhile, a questionnaire was distributed to fifth-grade elementary school teachers who had used or were familiar with ChatGPT as a learning aid. The questionnaire contained a combination of open-ended and closed-ended questions that explored teachers' understanding, benefits, and challenges in implementing ChatGPT in the classroom. All data were analyzed using qualitative descriptive analysis methods, through the steps of reduction, presentation, and drawing conclusions, to produce a clear picture of the extent to which ChatGPT can help teachers increase creativity in developing teaching materials in elementary schools.

4. Results and Discussion

Based on the questionnaire completed by respondents, namely high school teachers, it can be seen that the majority of respondents are familiar with and use ChatGPT in a learning context. All respondents who completed the questionnaire answered "Yes" when asked whether they had ever used ChatGPT, with the dominant frequency of use being for daily learning purposes. This indicates that ChatGPT is no longer just a new tool for teachers, but has become part of their lesson planning process.

In terms of its use, respondents explained that they most frequently use ChatGPT to find ideas for open-ended materials, organize learning materials, create questions or exercises, and compile Student Worksheets (LKPD). This data illustrates that ChatGPT plays a creative role in the teaching preparation phase (open-ended material preparation phase), particularly in providing varied and relevant ideas and text content.

Furthermore, respondents' opinions regarding the effectiveness of ChatGPT in developing teaching materials showed a very positive response. The majority of respondents stated

that ChatGPT was "very helpful" and had a significant impact on the quality of the teaching materials they created. Before using ChatGPT, teachers generally compiled teaching materials manually by relying on textbooks and limited references, resulting in a long design process and limited material variety. After using ChatGPT, respondents felt an increase in time efficiency and ease in generating new ideas, because ChatGPT was able to quickly generate text drafts, material summaries, example learning activities, and learning scenarios. These changes indicate that ChatGPT plays an effective assistant tool in enriching teaching content, increasing the variety and creativity of teaching materials, and helping teachers design more engaging and valuable learning for students. Respondents also identified the main advantage of using ChatGPT as the tool's ability to accelerate the process of creating teaching materials by providing new inspiration and references that can be tailored to class needs.

In this way, teachers can save time and energy typically spent developing materials from scratch. However, several respondents also mentioned challenges or obstacles, such as the need to understand the appropriate prompts so that ChatGPT output aligns with the desired learning context. This suggests that to achieve maximum benefits, teachers need to be competent in formulating effective prompts (prompt engineering). Furthermore, some respondents also felt that ChatGPT output still requires review and adjustment, making it not a complete replacement for teachers, but rather a supporting tool that aids the creative process of developing teaching materials. In the respondents' view, ChatGPT is suitable for use as an aid for elementary school teachers, particularly in accelerating and enriching the process of developing teaching materials.

Overall, the results of this questionnaire indicate that elementary school teachers perceive ChatGPT's use as a positive and beneficial tool, particularly in assisting in the development of more creative and efficient teaching materials. These findings indicate that integrating generative technologies like ChatGPT into teaching practices can support increased teacher productivity in designing learning materials, provided they are accompanied by a sufficient understanding of its use.

5. Comparison

The use of ChatGPT brings significant changes compared to the old methods used by teachers. Before this technology, fifth-grade teachers typically spent a lot of time and effort manually compiling teaching materials or relying solely on available textbooks. While these old methods were structured, they often lacked variety and required a significant amount of creativity on the part of teachers. With ChatGPT, this process has become much easier because teachers can receive instant assistance in compiling materials, creating questions, and designing more engaging classroom activities.

The most significant difference lies in the time efficiency and diversity of ideas generated. While teachers previously had to design learning materials independently from scratch, ChatGPT can now help provide a variety of references, examples, and alternative materials in a relatively short time. However, conventional methods still play a crucial role in ensuring the material's alignment with the curriculum and learning context. Therefore, the use of ChatGPT is not intended to replace existing learning methods, but rather to strengthen the role of teachers as creative, reflective, and efficient learning designers and managers.

6. Conclusion

This study shows that ChatGPT significantly assists fifth-grade elementary school teachers in developing creative teaching materials. All respondents stated that they frequently use it for ideas on materials, questions, and worksheets (LKPD), resulting in faster and more varied teaching preparation compared to the traditional manual method. This finding directly supports the study's objective, which is to prove ChatGPT's effectiveness as a digital assistant that enhances teacher creativity while remaining curriculum-compliant, as evidenced by the positive responses of the majority of teachers who felt the results were "very helpful." The main contribution is a practical guide to utilizing AI in elementary schools, which has resulted in increased teacher productivity and more engaging learning for students. However, there are limitations such as the need for good prompt skills and manual adjustment of AI results for accuracy. Furthermore, this study was only questionnaire-based without direct classroom testing. Therefore, further research is recommended to examine the impact of ChatGPT use through classroom learning applications, for example by comparing student learning outcomes, student engagement levels, or the quality of student assignments between classes using ChatGPT-assisted teaching materials and classes using conventional teaching materials.

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