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Implementation Of Prompt Ai Assisted By Interactive Games To Strengthen Computational Thinking And Critical Thinking In Indonesian Language Learning Grade Iv Students Of Sd Negeri Karangmloko 1 Ngaglik Sleman

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ABSTRACT

The rapid development of technology in the field of education encourages teachers to create innovative and interactive learning processes that are able to strengthen students' 21st-century skills. This study aims to describe the implementation of Artificial Intelligence prompts assisted by interactive games on the topic of text types in Indonesian language learning to strengthen Computational Thinking and critical thinking skills of fourth-grade students at SD Negeri Karangmloko 1 Ngaglik Sleman. This study employed a descriptive qualitative approach involving fourth-grade students as research subjects. Data were collected through observation, interviews, documentation, and learning activity results. The learning process integrated Artificial Intelligence-based prompts and interactive games to support students in understanding various text types through engaging and technology-supported activities. The findings indicate that the implementation of Artificial Intelligence prompts assisted by interactive games was able to improve students' participation, learning motivation, and understanding of text-type materials. In addition, the learning activities supported the development of Computational Thinking skills, including problem decomposition, pattern recognition, abstraction, and algorithmic thinking. Students also demonstrated improvements in critical thinking skills through questioning activities, problem-solving, idea analysis, and conclusion drawing during the learning process. Therefore, the integration of Artificial Intelligence prompts and interactive games can serve as an innovative learning strategy to create meaningful, interactive, and student-centered learning in elementary schools.

Text Types.

Introduction

The development of digital technology in the era of the industrial revolution 4.0 has had a great influence on various fields of life, including the world of education (Putriani & Hudaidah, 2021). The use of technology in learning is one of the efforts to create a learning process that

is more innovative, interesting, and in accordance with the needs of 21st century students (Said, 2022). Teachers are required not only to be able to deliver learning materials, but also to be able to integrate technology to support students' high-level thinking skills, creativity, communication, collaboration, and problem-solving skills (Putriani & Hudaidah, 2021). The presence of AI provides new opportunities in the world of education, especially in helping teachers structure more adaptive, interactive, and student-centered learning.

Utilization *prompt Artificial Intelligence* can help teachers present a variety of learning activities, learning media, and exercises that suit the needs of students (Tanya Nazaretsky, 2022). In addition, the use of AI is also able to create a more engaging learning experience through the integration of various digital media (Fajriati et al., 2024). The learning practice activity was carried out at SD Negeri Karangmloko 1 Ngaglik Sleman as part of the implementation of technology-based learning innovations in Indonesian language subjects (Fajriati et al., 2024). The school was chosen as the location of the practice because it has a learning environment that supports the development of interactive, student-centered learning (Andini et al., 2024). Learning practice is focused on the material types of texts by applying *prompt Artificial Intelligence* Assisted by interactive games to support the strengthening of skills *Computational Thinking* and critical thinking of grade IV students (Andi Rizky Amaliah & Nabila Putri, 2026). The implementation of practical activities lasted for three days, namely from May 18 to 20, 2026.

In learning Indonesian in elementary school, students are not only required to understand the material theoretically, but also to be able to analyze information, understand the content of the text, and communicate ideas critically (Halimah et al., 2024a). One of the important materials in learning Indonesian in grade IV is the types of text materials (Linggasari & Rochaendi, 2022). This material requires the ability to understand the characteristics of the text, distinguish the form of the text, and identify important information in the reading (Frans et al., 2023). However, in practice, there are still students who have difficulty understanding the types of texts because learning tends to be conventional and does not involve interactive activities.

Based on the results of initial observations at SD Negeri Karangmloko 1 Ngaglik Sleman, the process of learning Indonesian language in text types is still dominated by the use of lecture methods and simple assignments (Kurniawan & Wartini, 2024). This condition causes some students to be less active in learning, easily feel bored, and have not shown optimal critical thinking skills (Susanti et al., 2024). In addition, students' ability to formulate problem-solving steps and understand information patterns also needs to be improved (Ratna Kartika Sari, 2023). To overcome these problems, learning innovations are needed that are able to increase student involvement in the learning process.

One of the alternatives that can be implemented is the use of *prompt Artificial Intelligence* Interactive Game-Assisted (Mahalaya & Putri, 2024). Interactive games can create a fun learning atmosphere and foster students' motivation to learn (Rofiqoh & Khairani, 2024). Meanwhile, the use of *prompt Artificial Intelligence* can help teachers provide questions, exercises, and learning activities that support the strengthening of students' thinking skills (Mohamad Nasir, 2024). Through the implementation of AI-assisted learning and interactive games, students are expected to not only understand the material types of text, but also be able to develop their skills *Computational Thinking (Widiyatmoko & Wulandari, 2025a)*. In addition, learning is also expected to be able to develop students' critical thinking skills through the activities of analyzing, evaluating, and concluding the information obtained.

Strengthening Computational Thinking is important in 21st century learning because this ability helps students think logically, systematically, and structurally in solving various problems (Fauzi et al., 2024). Computational Thinking is a thinking process that involves formulating problems and formulating solutions so that they can be solved effectively (Fauzi et al., 2024). This ability generally consists of four main components, namely decomposition, pattern recognition, abstraction, and algorithmic thinking (Apriadi & Majid, 2025). Decomposition helps students break down complex problems into simpler parts, while pattern recognition allows students to find similarities and differences in information (Andrian & Hikmawan, 2021). Abstraction plays a role in helping students choose relevant information and ignore unnecessary information, while algorithmic thinking helps students formulate problem-solving steps logically and systematically (Franchitti, 2024). Therefore, these four aspects are used as indicators in this study because they are relevant to Indonesian language learning activities, especially in the types of text materials that require the ability to identify information, recognize the characteristics of the text, analyze the content of the reading, and compile comprehension in a structured manner.

Method

This study uses a descriptive qualitative approach. This approach is used to describe the implementation of Artificial Intelligence prompts assisted by interactive games on text types in Indonesian language learning to strengthen the Computational Thinking and critical thinking skills of grade IV elementary school students. The research was carried out at SD Negeri Karangmloko 1 Ngaglik Sleman in May 2026. The research subjects consisted of grade IV teachers and grade IV students who were involved in the Indonesian language learning process. The object of the research is focused on the implementation of Artificial Intelligence-assisted learning and interactive games as well as strengthening students' Computational Thinking and critical thinking skills during the learning process.

Data collection techniques are carried out through observation, interviews, documentation, and the results of student learning activities. Observations were made to obtain data on the activities of teachers and students during learning. Interviews were conducted with teachers and several students to find out the responses, constraints, and learning experiences during the implementation of AI-assisted learning and interactive games. Documentation is used to support research data in the form of photos of learning activities, teaching tools, student assignment results, and interactive game use activities.

The implementation of research is carried out through three stages, namely the planning, implementation, and reflection stages. In the planning stage, the researcher compiles learning tools, prepares Artificial Intelligence prompts, text types materials, and interactive game media used in learning. In the implementation phase, teachers apply AI-assisted learning through the use of prompts to generate text samples, trigger questions, text identification exercises, and discussion activities. Furthermore, students participated in interactive game activities in the form of group quizzes, text type identification games, and challenges to find text features. In the reflection stage, the researcher evaluates the learning process and the achievement of learning goals.

Data analysis is carried out descriptively through three stages, namely data reduction, data presentation, and conclusion drawn. Data obtained from observations, interviews, documentation, and the results of learning activities were analyzed to describe the implementation of learning and the strengthening of students' Computational Thinking and critical thinking skills.

The research instruments used included observation sheets for learning activities, semi-structured interview guidelines, and documentation of learning activities. The observation sheets are compiled based on indicators of learning engagement, Computational Thinking, and critical thinking of students. The interview guidelines were used to obtain information about students' learning experiences as well as teachers' responses to the implementation of Artificial Intelligence-assisted learning and interactive games. Documentation is used as supporting data to strengthen the results of observations and interviews. The validity of the data is carried out using triangulation techniques by comparing data from observations, interviews, documentation, and the results of learning activities so that valid and reliable data are obtained.

Results and Discussion

Figure 1. Teacher conveys the implementation flow

This research was carried out on grade IV students of SD Negeri Karangmloko 1 Ngaglik Sleman through the application of Indonesian language learning of text types that integrate Artificial Intelligence (AI) prompts and interactive games. The implementation of learning is carried out to create a more interesting learning experience while supporting the strengthening of students' Computational Thinking and critical thinking skills. In the early stages of learning, teachers use Artificial Intelligence prompts to generate a variety of learning resources, such as text examples, triggering questions, and text identification activities. The use of AI helps teachers provide more diverse and contextual material, making it easier for students to understand the characteristics of different types of text. Furthermore, students participate in a variety of interactive game-based activities designed to strengthen their understanding of concepts through quizzes, group discussions, and text type identification games.

Figure 2. Teacher makes observations

Based on the results of observations during the learning process, it can be seen that there is an increase in student involvement in learning activities. Students show high enthusiasm when participating in technology-based learning activities. Most of the students actively participate in discussions, answer questions, and complete challenges given through interactive games. This situation shows that the use of Artificial Intelligence and interactive

games is able to create a more lively learning atmosphere and encourage active student participation.

> *"I love learning Indonesian with the help of AI and games because the learning is more exciting and easy to understand." (The Son of God)*

In addition to increasing learning engagement, the implementation of learning also has a positive impact on students' understanding of the material types of texts. Students are able to better recognize the characteristics of narrative texts, descriptions, and procedures. The ability of students to identify the purpose of the text, find important information, and distinguish characteristics between types of texts also shows positive developments during the learning process.

Penguatan Computational Thinking

The results of the study show that the application of Artificial Intelligence prompts assisted by interactive games contributes to strengthening students' Computational Thinking skills. This reinforcement can be seen in learning activities that direct students to think logically, systematically, and structured in completing the assigned tasks. The ability to decompose is seen when students are able to break down the content of the text into simpler parts so that information is easier to understand. Students can identify important elements in the text and explain the relationships between the pieces of information found. This ability helps students understand the content of the reading more deeply.

In the aspect of pattern recognition, students are able to find similarities and differences in characteristics between types of text. Through text identification and classification activities, students can recognize certain patterns that are characteristic of each type of text. These findings suggest that students are beginning to be able to use the information obtained to group texts based on their characteristics.

The ability to abstract can be seen from the ability of students to choose information that is considered important and ignore information that is less relevant. Students are able to determine the main ideas and information needed to identify the type of text being studied. Meanwhile, the ability to think algorithmically is seen when students arrange the steps to complete tasks in sequence, both in group discussion activities and when solving challenges contained in interactive games.

Strengthening Critical Thinking

Figure 3. Teacher's Assistance to Students During Learning

> *"I'm happy to be able to try using AI and learning in a different way than usual." (Carisa Hanif Az Zahra/student)*

The implementation of learning also shows that there is a strengthening of students' critical thinking skills. During the learning process, students show greater courage in asking questions and expressing opinions. Students not only provide answers to questions asked by the teacher, but also begin to be able to explain the reasons underlying the answers. The ability to analyze information is seen when students are asked to determine the type of text based on the characteristics contained in the reading. Students are able to connect the information obtained with the knowledge they have previously possessed so that the analysis process becomes more in-depth. In addition, students also show the ability to evaluate information through group discussions and question and answer activities that take place during learning.

The ability to think critically is increasingly seen when students are asked to conclude the content of the reading using their own language. Most students are able to come to logical conclusions based on the information obtained from the text. These results show that Artificial Intelligence-assisted learning and interactive games not only support material understanding, but also provide opportunities for students to develop higher-level thinking skills more optimally.

Figure 4. Students' enthusiasm during learning

"I became more enthusiastic about learning because I could play while understanding the types of texts." (Vania Adara Fahmida/student)

The increase in student participation found in this study shows that the integration of digital technology can be one of the strategies to overcome learning that tends to be monotonous (Sari & Munir, 2024). Learning activities that involve the use of digital media and educational games provide a more meaningful learning experience because students not only passively receive information, but are also directly involved in the process of discovering and understanding concepts (Rambe et al., 2024). This condition is in line with the 21st century learning approach which emphasizes the importance of active involvement of students in building knowledge through authentic learning experiences.

"Today's learning was fun because I was able to learn to use technology and discuss with friends." (Fico Ahmas T.H/student)

From the aspect of Computational Thinking, the findings of the study show that AI-assisted learning and interactive games are able to facilitate the development of students' computational thinking skills (Krisna & Yensi, 2026). Decomposition is seen when students are able to break down the information in the text into simpler parts so that they are easier to understand (Widiyatmoko & Wulandari, 2024). This ability is an important foundation in the problem-solving process because it helps students understand a problem in a more structured way (Solehudin et al., 2024). In addition, the ability to recognize patterns develops through the activity of comparing the characteristics of different types of text (Solehudin et al., 2024). Students learn to identify the similarities and differences found in each text so that they can group texts based on their characteristics (Wing, 2023). This process shows that learning

Indonesian language is not only oriented towards mastery of the material, but can also be a means to train analytical thinking skills (Halimah et al., 2024b). Abstraction skills are also seen when students are able to determine key information and ignore less relevant information in the reading (Widiyatmoko & Wulandari, 2025b). Meanwhile, the ability to think algorithmically develops through discussion and challenge solving activities in interactive games that require students to formulate logical and systematic solution steps.

The findings show that the application of Computational Thinking is not limited to subjects related to technology or programming, but can also be integrated in learning Indonesian (Sartina et al., 2023). The activity of understanding the structure of the text, identifying important information, and developing task completion strategies is a form of implementation of Computational Thinking that is relevant to the characteristics of learning in elementary school (Juldial & Haryadi, 2024). From the aspect of critical thinking, this study shows that the use of AI and interactive games provides a wider space for students to develop high-level thinking skills (Syahputra et al., 2025). Students seem to be more active in asking questions, expressing opinions, and giving reasons for the answers given (Halimah et al., 2024c). This activity shows the existence of a reflective thinking process which is one of the indicators of critical thinking ability.

> *"I see students being more courageous to ask questions, discuss, and express opinions during learning activities." (Linda Tri. U/Guru)*

Critical thinking skills are also seen when students analyze the content of the text and determine the type of text based on the characteristics found (Halimah et al., 2024d). In this activity, students not only rely on memorization, but also use reasoning to connect the information obtained with concepts that have been learned previously (Halimah et al., 2024e). In addition, the ability to infer information using their own language shows that students have been able to process information more deeply before coming to a conclusion (Kurniawan & Wartini, 2024). The use of interactive games also contributes to strengthening critical thinking skills because it creates a learning situation that requires students to discuss, exchange opinions, and make decisions together (Sinta Yuni Fitanti, 2025). Through these activities, students learn to consider various alternative answers and provide logical arguments for the choices taken (Halimah et al., 2024f). This process is important in the formation of critical thinking skills because it encourages students not to receive information directly, but to analyze and evaluate it first (Wayudi et al., 2021). Although the implementation of learning showed positive results, the study still faced several obstacles, especially related to the availability of digital devices and the stability of the internet network (Clarin & Baluyos, 2022). The difference in students' ability to utilize technology is also a challenge in the implementation of learning (Kurniawan & Wartini, 2024). However, these obstacles can be minimized through teacher assistance, the implementation of group work, and the selection of learning activities that are in accordance with the characteristics of elementary school students.

Overall, the results of the study show that the implementation of Artificial Intelligence prompts assisted by interactive games is a potential learning innovation to be applied in Indonesian language learning in elementary schools. The integration of technology and educational games not only supports the understanding of the material types of texts, but also contributes to the strengthening of Computational Thinking and critical thinking skills that are an important part of 21st century skills.

Table 1. Computational Thinking Indicators

Aspek Computational Thinking	Indicator
Dekomposisi (Decomposition)	Students are able to break down information in text into small parts
Dekomposisi (Decomposition)	Students are able to identify important elements in the text
Pengenalan Pola (Pattern Recognition)	Students are able to find similarities and differences between types of texts
Pengenalan Pola (Pattern Recognition)	Students are able to recognize the characteristics of each text
Abstraksi (Abstraction)	Students are able to select important information in the text
Abstraksi (Abstraction)	Students are able to ignore irrelevant information
Algorithmic Thinking	Students are able to systematically arrange task completion steps
Algorithmic Thinking	Students are able to determine strategies in completing games or tasks

The ability of Computational Thinking in this study is measured through four main aspects, namely decomposition, pattern recognition, abstraction, and algorithmic thinking. Each aspect is described into indicators that are used to observe students' abilities during the learning process. The decomposition aspect is shown through the ability of students to break down the information contained in the text into simpler parts so that it is easier to understand. In addition, students are also expected to be able to identify the important elements contained in the text as a basis for understanding the content of the reading as a whole. The pattern recognition aspect is observed through the ability of students to find similarities and differences between the types of texts studied. This ability also includes the ability to recognize characteristics or characteristics that distinguish one type of text from another. Through pattern recognition, students can group texts based on their characteristics. In the aspect of abstraction, students are expected to be able to choose relevant and important information from a text and ignore information that is not needed. This ability helps students to focus on key information so that understanding the content of the text becomes more effective.

Meanwhile, the aspect of algorithmic thinking is shown through the ability of students to arrange task completion steps systematically and logically. In addition, students are also expected to be able to determine the right strategy in completing games and tasks given during the learning process. This ability reflects students' skills in planning and implementing problem-solving steps in a structured manner. These four aspects are used as a reference to identify and describe the strengthening of students' Computational Thinking skills during the implementation of Indonesian language learning assisted by Artificial Intelligence prompts and interactive games.

Table 2. Critical Thinking Indicators

Critical Thinking Aspects	Indicator
Ask Questions	Pupils actively ask questions during learning

Analyzing Information	Pupils are able to understand and analyse the content of the text
Evaluating Information	Students are able to provide responses or reasons for answers
Drawing Conclusions	Students are able to deduce the content of the text using their own language
Troubleshooting	Students are able to complete learning assignments and challenges
Submit an Opinion	Students are able to express their opinions in group discussions

The ability to think critically in this study was measured through six main aspects, namely asking questions, analyzing information, evaluating information, drawing conclusions, solving problems, and expressing opinions. These six aspects are used as indicators to observe the development of students' critical thinking skills during the Indonesian language learning process with the help of Artificial Intelligence prompts and interactive games. The aspect of asking questions is shown through the students' activeness in asking questions during learning activities. This ability reflects the student's curiosity and involvement in understanding the material being studied. Students who actively ask questions show that there is an effort to obtain more in-depth information about the learning material. The aspect of analyzing information is observed through the student's ability to understand the content of the text and identify the information contained in it. In this indicator, students are expected to be able to connect the various information obtained so that they can understand the content of reading in more depth and systematically.

The aspect of evaluating information is shown through the ability of students to give responses, reasons, or explanations to the answers submitted. This ability shows that students not only receive information directly, but are also able to consider and assess information based on their understanding. Furthermore, the aspect of drawing conclusions is observed through the ability of students to deduce the content of the text using their own language. This ability shows that students are able to process the information obtained and formulate the core of information logically and sequentially. Meanwhile, the aspect of solving problems is shown through students' ability to complete tasks and learning challenges given during the learning process. The aspect of expressing opinions is observed through the ability of students to convey ideas, ideas, or responses in group discussion activities. This ability reflects the students' courage in conveying their thoughts and the ability to provide relevant arguments on the topic being discussed. All of these indicators are used as a reference to describe the strengthening of students' critical thinking skills during the implementation of learning.

Conclusion

The implementation of Artificial Intelligence prompts assisted by interactive games on text types in Indonesian language learning in grade IV of SD Negeri Karangmloko 1 Ngaglik Sleman is able to create a more interactive, interesting, and student-centered learning process. The use of Artificial Intelligence helps teachers in providing more varied learning materials and activities, while interactive games increase student engagement and enthusiasm during learning.

The application of this learning also contributes to strengthening students' Computational Thinking skills. This reinforcement can be seen through the ability of students

to decompose information into simpler parts (decomposition), recognize patterns and characteristics of various types of text (pattern recognition), select relevant information (abstraction), and systematically formulate steps to complete tasks (algorithmic thinking). Learning activities that combine text analysis and interactive games provide opportunities for students to develop logical and structured thinking skills.

In addition, the implementation of Artificial Intelligence-assisted learning and interactive games also supports strengthening students' critical thinking skills. This is shown by the increased participation of students in asking questions, analyzing information, giving reasons for answers, summarizing the content of the text using their own language, completing learning tasks, and expressing opinions in discussion activities. Thus, the integration of Artificial Intelligence and interactive games not only helps to improve students' understanding of text-type material, but also supports the development of 21st century thinking skills that include Computational Thinking and critical thinking.

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