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Utilizing AI-based Graphic Design Platform Features to Enhance Student Engagement in Indonesian Language Learning at the Elementary School Level

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Abstract. The development of artificial intelligence has influenced instructional practices in elementary schools, particularly in the use of more visual, contextual digital learning media. In Indonesian language learning, the limited use of engaging instructional media that aligns with students' characteristics often results in low student engagement, as reflected in insufficient attention, participation, and interaction during classroom activities. Therefore, instructional that support active student engagement are needed. This study aimed to enhance student engagement in Indonesian language learning at the elementary school level by using artificial intelligence features in the Canva application as instructional media. The study employed a qualitative Classroom Action Research approach and involved 31 fifth-grade students at a private elementary school in Indonesia. The research was conducted in two cycles, comprising planning, action implementation, observation, and reflection stages. Instructional media were developed using an AI-based Graphic Design Platform features, including Magic Write, Text to Image, and Magic Design. Data were collected through observations, interviews, questionnaires, and documentation. Data were collected through observations, interviews, and questionnaires. Student engagement was measured across four aspects: behavioural, emotional, cognitive, and agentic. Data analysis used both qualitative and quantitative methods. The findings indicate an improvement in student engagement from Cycle I to Cycle II, in the four aspects: behavioural, emotional, cognitive, and agentic. This study concludes that the AI-based Graphic Design Platform can serve as an effective instructional support medium to enhance student engagement in Indonesian language learning at the elementary school level, while maintaining the teacher's central role in the learning process.

Keywords: AI-based Graphic Design Platform; Classroom Action Research; Elementary School; Indonesian Language Learning; Student Engagement

1. Introduction

Learning in the digital era requires elementary school teachers to adapt to technological developments and to the increasingly diverse characteristics of learners. The challenges faced by twenty-first-century educators have become more complex, as teachers are not only expected to deliver instructional content but also to prepare students with competencies relevant to global demands (Wulansari & Sunarya, 2023). In this context, the role of teachers has shifted from being mere transmitters of knowledge to facilitators of learning who can create active, relevant, and meaningful learning experiences. One essential competency for twenty-first-century learning is the 4C skills—creative thinking, critical thinking, communication, and collaboration (Anagün, 2018). The development of these skills encourages teachers to implement innovative instructional strategies and to utilize technology-based learning media. In line with these demands, the development of artificial intelligence (AI) has begun to influence instructional practices across educational levels, including elementary schools.

Artificial intelligence is a technology designed to simulate human cognitive abilities, such as reasoning and decision-making (Sutojo & Mulyanto, 2011). In educational contexts, AI is understood as a supporting technology that assists teachers in designing and adapting learning materials according to students' needs, without replacing the role of educators (Luckin et al., 2016). Systematic reviews indicate that the use of AI in education has primarily focused on learning support and instructional design rather than substituting teachers' roles (Zawacki-richter et al., 2019). At the elementary school level, the integration of AI creates opportunities for teachers to develop learning media that align with students' cognitive and visual characteristics. Digital transformation encourages the integration of technology-based learning media to ensure that instructional practices remain relevant to contemporary educational demands (Bond et al., 2018). One platform widely used by teachers is Canva, a visual design application equipped with AI features such as *Magic Write*, *Text to Image*, and *Magic Design*. These features enable teachers to produce learning media more quickly, efficiently, and with strong visual appeal.

Previous studies have highlighted that AI-based design platforms have the potential to enhance teachers' creativity and efficiency, particularly in literacy- and language-based learning contexts (Zawacki-richter et al., 2019; Wang et al., 2024). In addition, digital literacy training, including the development of learning media using an AI-based Graphic Design Platform, has been shown to help teachers improve their ability to design effective instructional materials (Antonio et al., 2025). Nevertheless, the use of AI in education should be directed toward meaningful learning that remains centered on teachers' pedagogical roles and students' learning needs (OECD., 2021). Therefore, classroom-based research is needed to examine the utilization of AI features in the AI-based Graphic Design Platform as part of instructional actions aimed at enhancing student engagement in Indonesian language learning at the elementary school level.

1.1. Problem Statement

Indonesian language is a core subject in elementary schools and plays an important role in developing students' communication skills, critical thinking, and creativity. In Grade V, learning the Indonesian language requires engaging, contextual media to actively involve students in the learning process. However, initial observations indicate that instruction remains dominated by conventional learning media, leading to suboptimal student engagement. As a result, students remain passive; they neither volunteer responses nor ask questions. Their facial expressions indicate little interest or enthusiasm for learning. The classroom has not succeeded in promoting active student involvement.

Student engagement is a critical factor in the learning process. It substantially affects academic achievement, knowledge retention, and overall educational success. Research shows that actively engaged students usually perform better academically. Engagement helps deepen understanding, critical thinking, and problem-solving skills (E & Benjamin, 2024; Orji & Vassileva, 2020; Sánchez et al., 2024). Participation in learning activities improves students' ability to retain and use knowledge over time. This is especially true when they join discussions, work on collaborative tasks, and use inquiry-based learning (Srichinda et al., 2026). Besides academic benefits, student engagement develops lifelong learning skills, such as autonomy, responsibility, and adaptability. These skills are essential for professional success (Bin Abdulrahman & Barzansky, 2025; Elshami et al., 2022). Engaged students also enjoy better social and emotional outcomes. They have a stronger sense of belonging, improved well-being, and more meaningful interactions with teachers and peers (Açıkalın & Erçetin, 2018; Nyika & Mwema, 2020). In today's education, especially in technology-enhanced and online settings, keeping students engaged is more important than ever. Engagement influences participation, motivation, and persistence in learning (Gopinathan et al., 2022; Ullah & Anwar, 2020). Thus, fostering student engagement is essential to achieving meaningful, lasting learning outcomes. It is conceptualized as a multidimensional construct that reflects the extent to which students are actively involved in the learning process.

Previous studies have shown that visual media can enhance students' comprehension and engagement in Indonesian language learning, particularly in reading and literacy skills (Kurniati

et al., 2025). The use of an AI-based Graphic Design Platform has the potential to provide a solution for developing contextual visual learning media that align with the characteristics of elementary school students. Nevertheless, most existing studies have focused on product development or teacher training rather than on implementing the AI-based Graphic Design Platform as an instructional action in classroom learning. In addition, studies that specifically examine the use of AI features in the AI-based Graphic Design Platform for Indonesian language learning through a Classroom Action Research (CAR) approach remain limited. Therefore, the research problem addressed in this study is how the use of artificial intelligence features in Canva, as an instructional action, can enhance student engagement in Indonesian language learning at the elementary school level.

1.2. Related Research

A number of previous studies have examined the use of the AI-based Graphic Design Platform in educational contexts. Several studies indicate that training programs on the use of AI-based Graphic Design Platform for teachers, including digital learning media training in elementary schools, can enhance teachers' skills in developing engaging and relevant instructional media (Indrawati et al., 2026; Sreekanthaswamy et al., 2025). A study by Saefudin et al. (2024) reported that Canva for Education was effective for developing comic-based language-teaching materials. Nevertheless, these studies generally emphasize enhancing teachers' capacities rather than directly implementing Canva-based AI as an instructional practice in classroom learning.

Systematic reviews indicate that research on artificial intelligence in education is still dominated by experimental approaches and higher education contexts, while classroom-based studies in elementary education remain relatively limited (Zawacki-richter et al., 2019; Wang et al., 2024; Tan et al., 2024). A study by Hidayati et al. (2023) highlighted the ease of use of Canva as a learning medium in elementary schools, but did not integrate AI features into the media design process.

Based on these studies, a research gap is identified in the limited number of CAR studies examining the use of artificial intelligence features in the AI-based Graphic Design Platform as an instructional practice to enhance student engagement in Indonesian language learning at the elementary school level, particularly in Grade V.

1.3. Research Objectives

Based on the background and the research problem, the objective of this study is to enhance student engagement in Indonesian language learning through the utilization of an AI-based Graphic Design Platform at the elementary school level. This study employs a CAR approach to improve instructional practices through reflective processes. The findings are expected to provide practical contributions for elementary school teachers in the use of AI-based technology in classroom instruction, as well as theoretical contributions to the study of Indonesian language learning and the integration of artificial intelligence in elementary education.

2. Theoretical Framework

This study is grounded in several relevant theoretical perspectives that inform the understanding of the utilization of artificial intelligence features in the AI-based Graphic Design Platform for Indonesian language learning at the elementary school level. The theoretical framework of this study does not aim to quantitatively examine the effectiveness of learning media; rather, it provides a conceptual foundation for understanding the context of Indonesian language learning, the role of instructional media, artificial intelligence in education, and the use of digital design platforms as part of instructional actions in the classroom.

This theoretical framework serves as the basis for designing, implementing, and reflecting on instructional actions within the CAR process that are oriented toward enhancing student engagement in Indonesian language learning at the elementary school level.

2.1. Indonesian Language Learning in Elementary Schools

Indonesian language learning at the elementary school level involves cognitive, affective, and psychomotor processes aimed at developing students' communication and literacy skills. Learning is a conscious effort that results in changes in knowledge, skills, and attitudes through interaction with the learning environment (Dinh & Phuong, 2024; Mahmoudi et al., 2024; Rosli et al., 2022). Accordingly, Indonesian language instruction is designed to actively engage students through the integrated development of listening, speaking, reading, and writing skills (Nurjaya & Widiana, 2021).

Fifth-grade elementary school students are generally in a transitional stage of cognitive development, moving from concrete operational to formal operational thinking. At this stage, students still require visual support and contextual learning experiences to understand abstract linguistic concepts, such as text structure, main ideas, and implicit meaning (Marre et al., 2024). Therefore, teachers are expected to design instructional strategies and learning media that align with students' developmental characteristics and encourage active use of language.

In line with the demands of twenty-first-century education, the integration of technology into Indonesian language learning has become an essential component. The use of technology, including artificial intelligence, can support more meaningful learning when accompanied by adequate teacher digital literacy (Bhimavarapu, 2025; González-Zamar et al., 2020; Maher & Young, 2023). In this context, technology functions as a supportive tool to enhance student engagement in the learning process rather than as a substitute for the teacher's pedagogical role.

2.2. Learning Media

Learning media function as intermediaries in delivering messages and information during the teaching and learning process, enabling students to receive instructional content more effectively (Simangunsong et al., 2025). Learning media may take the form of concrete objects, visual representations, or digital learning resources designed to attract students' attention and enhance their engagement (N. Huda, 2021; Nelson et al., 2022). Learning media are tools that deliver teaching materials, making the learning process smoother and more engaging (Saputri & Qohar, 2020).

The selection of learning media should consider their alignment with instructional objectives, students' characteristics, and visual appeal. Previous studies indicate that the use of relevant and engaging learning media can increase students' learning motivation and create more meaningful learning experiences (Hasan & Bagga, 2021). Multimedia learning theory further emphasizes that the integrated use of text and visuals supports more structured and deeper information processing (Mayer, 2009).

In Indonesian language learning at the elementary school level, visual media such as text-structure posters, story illustrations, infographics, and vocabulary cards play an important role in reducing verbalism and supporting students' comprehension of text-based materials. The use of digital media has increased due to its flexibility, ease of modification, and visual appeal. Presenting information simultaneously through verbal and visual channels can enhance students' cognitive processing, particularly at the elementary school level (Paivio, 2014). When used as instructional support tools, digital learning media can foster teachers' creativity and increase student engagement (Zawacki-richter et al., 2019).

2.3. Artificial Intelligence in Education

Artificial intelligence (AI) refers to computer-based systems designed to simulate human cognitive abilities, such as reasoning, decision-making, and problem-solving (Luckin et al., 2016). In educational contexts, AI is utilized to support the creation of instructional content, provide visual or textual recommendations, and assist teachers in organizing learning materials.

The integration of AI in education creates opportunities to optimize learning processes by developing more adaptive and contextual instructional materials (Nurhayati et al., 2024). When used appropriately, AI technology can contribute to more effective and meaningful learning experiences (Hanis & Wahyudin, 2024). However, the use of AI in education is

evolutionary, as it supports existing instructional practices without fundamentally altering core pedagogical principles (Roll & Wylie, 2016).

A number of studies indicate that AI in education primarily functions as a supporting technology in instructional design rather than as an autonomous teaching agent (Zawacki-richter et al., 2019; Wang et al., 2024). Therefore, teachers' digital competence, including pedagogical, technical, and reflective aspects, becomes a key factor in the responsible use of AI in educational settings (Redecker, 2017). At the elementary school level, AI can assist teachers in accelerating the development of learning media and enhancing visual quality; however, adequate digital literacy and ethical awareness are required to ensure that its use remains aligned with instructional objectives (Teo, 2019).

2.4. Canva as Learning Media

Canva is a digital design application widely used by teachers to develop instructional media. Numerous studies have shown that Canva is effective as a learning medium in elementary schools, particularly in supporting the presentation of visual content and enhancing student engagement (Heshinta et al., 2025). Digital visual learning media help students understand concepts through the structured integration of text and images, as explained in multimedia learning theory (Mayer, 2009).

Canva provides a flexible digital workspace that enables teachers to design instructional media aligned with learning objectives (A. Huda et al., 2025; Miranda & Enciso, 2023). The platform allows teachers to efficiently produce posters, presentations, infographics, and other illustrative learning media without requiring advanced graphic design skills. In Indonesian language learning, Canva supports the visualization of linguistic concepts such as narrative structure, descriptive elements, and vocabulary.

The integration of artificial intelligence features in Canva further simplifies the design process and enhances the visual consistency of instructional media. Learning media function as a systematic and efficient means of information delivery to support the learning process (Simangunsong et al., 2025). From a CAR perspective, Canva is not positioned as a technological intervention per se, but rather as a supportive medium that enables teachers to reflect on instructional practices and enhance student engagement in Indonesian language learning at the elementary school level.

2.5. Student Engagement

According to recent studies, student engagement comprises four primary dimensions: behavioral, emotional, cognitive, and agentic.

a. Behavioral Engagement

Behavioral engagement refers to students' observable participation in learning activities, including attendance, involvement in classroom discussions, and participation in tasks such as writing, listening, and responding to teacher questions. High behavioral engagement is characterized by consistent involvement in classroom activities (Amor-Pulido et al., 2026). Interaction with teachers and peers, as well as responsiveness to feedback, are also important indicators of behavioral engagement. These behaviors demonstrate students' willingness to participate and contribute to the learning environment (Parjan et al., 2024).

b. Emotional Engagement

Emotional engagement concerns students' affective responses during the learning process, including feelings of interest, enthusiasm, curiosity, and enjoyment. It can also be identified through non-verbal cues such as facial expressions and eye gaze, which indicate levels of interest and involvement (Farag et al., 2021; Qi et al., 2024). Emotionally engaged students typically display positive attitudes toward learning and are more likely to persist in completing tasks. In contrast, lack of interest and boredom are indicative of low emotional engagement.

c. Cognitive Engagement

Cognitive engagement refers to the extent of students' effort in understanding learning material. It involves attention, focus, and the application of deep learning strategies such as critical thinking and problem-solving. Indicators include sustained attention, concentration, and the ability to connect new knowledge with prior understanding (Qi et al., 2024). Cognitively engaged students actively process information, which contributes to improved academic performance.

d. Agentic Engagement

Agentic engagement is a recent dimension emphasizing students' proactive roles in their own learning. It involves taking initiative, expressing preferences, asking questions, and contributing to the direction of instruction (Veiga et al., 2026). Students demonstrating high agentic engagement actively shape their learning experiences by interacting constructively with teachers and the learning environment (Table 1).

Table 1. Aspects, Indicators, and Operational Description of Student Engagement

Aspect	Indicators	Operational Description
Behavioral Engagement	Classroom participation, Raising hands, completing tasks, and Interaction with teacher/peers	Students actively participate in learning activities, respond to questions, and engage in classroom interactions
Emotional Engagement	Interest, enthusiasm, facial expressions, and attention through gaze	Students show positive emotional responses such as enthusiasm, curiosity, and visible interest during learning
Cognitive Engagement	Attention and focus, effort in tasks, critical thinking, and problem-solving	Students demonstrate deep processing of learning material and sustained concentration.
Agentic Engagement	Asking questions, expressing opinions, taking the initiative in learning, and actively participating	Students take the initiative to influence the learning process and actively contribute ideas.

3. Method

3.1. Research Design

This study employed CAR to improve the quality of Indonesian language learning processes at the elementary school level through reflectively planned instructional actions. CAR was selected because it enables teachers and researchers to improve instructional practices based on authentic classroom problems.

The CAR model used in this study was the model proposed by Kemmis et al. (2014), which emphasizes critical reflection and collaborative improvement of practice. The model consists of four main stages: planning, action, observation, and reflection.

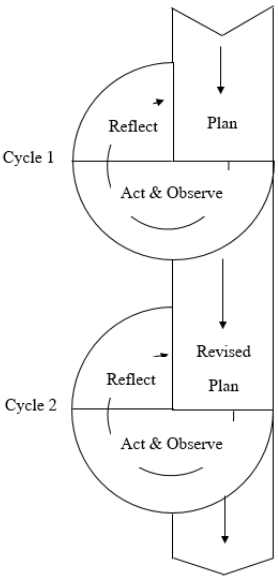

Figure 1. Action Research Cycle (Kemmis, McTaggart, & Nixon, 2014)

The study was conducted in two cycles, with each cycle designed based on reflections from the previous cycle. The instructional actions in this study involved the utilization of artificial intelligence features in the AI-based Graphic Design Platform as instructional media for Indonesian language learning, with a focus on enhancing student engagement throughout the learning process.

3.2. Research Subjects and Setting

The subjects of this study consisted of 31 fifth-grade students and one Indonesian language teacher at a private elementary school in Indonesia (Table 2). Of those 31 students, 20 were male, and 11 were female, and they were around 11 years old. The teacher served as the implementer of the instructional actions, while the researcher acted as a collaborator who assisted in the planning, observation, and reflection stages of the learning process. The selection of the research subjects was based on initial observations indicating that student engagement in Indonesian language learning was not yet optimal. Therefore, this class was selected as the research setting to improve instructional practices through CAR.

Table 2. The Subjects of the Study

Subject	Age	Number	Percentage
Male	Around 11 years old	20	64.5%
Female	Around 11 years old	11	35.5%

3.3. Research Procedure

The study was conducted in two cycles, each consisting of the following stages.

Cycle I

1. Planning
   The teacher designed the Indonesian language lesson plans and developed instructional media using an AI-based Graphic Design Platform. The features utilized included *Magic Write* for generating initial drafts of learning texts, *Text to Image* for producing contextual visual illustrations, and *Magic Design* for determining the layout and visual composition of the instructional media.
2. Action Implementation
   The AI-based Graphic Design Platform instructional media were implemented in Indonesian language learning activities in the classroom.
3. Observation
   Observations were conducted to examine student engagement during the learning process, focusing on students' attention, participation, and interaction.
4. Reflection
   The observation results were analyzed to identify the strengths and weaknesses of the instructional actions implemented in Cycle I, which then served as the basis for improvements in Cycle II.

Cycle II

1. Planning
   The teacher revised the instructional media based on the reflections from Cycle I, including simplifying the learning texts, enhancing visual clarity, and adjusting instructional strategies.
2. Action Implementation
   The revised instructional media were reimplemented in Indonesian language learning activities.
3. Observation
   Observations were conducted to assess changes in student engagement compared to Cycle I.
4. Reflection
   Reflection was carried out to evaluate the effectiveness of the instructional actions in enhancing student engagement.

3.4. Data Collection

Data were collected using several techniques to ensure the completeness and trustworthiness of the data, as follows:

1. Observation
   Observations were conducted to examine student engagement during Indonesian language learning activities using instructional media created using an AI-based Graphic

Design Platform. The observation sheet used in this study was designed to qualitatively assess students' engagement during the learning process. It was created using a multidimensional model of student engagement that includes behavioral, emotional, cognitive, and agentic aspects. The instrument used a structured qualitative methodology, incorporating guiding questions and narrative field notes, enabling the observer to document students' behaviors, interactions, and responses in an authentic classroom environment. Descriptive, analytical, and reflective notes were used to record data, enabling the researchers to obtain a comprehensive picture of how student engagement changed as instructional actions were implemented. The blueprint for the observation sheet is shown in Table 3.

Table 3. The blueprint of the Observation Sheet

Aspect	Indicators
Behavioral Engagement	Classroom participation, Raising hands, completing tasks, and Interaction with teacher/peers
Emotional Engagement	Interest, enthusiasm, facial expressions, and attention through gaze
Cognitive Engagement	Attention and focus, effort in tasks, critical thinking, and problem-solving
Agentic Engagement	Asking questions, expressing opinions, taking the initiative in learning, and actively participating
Critical Incidents	Important moments that show student engagement improvement

2. Interviews

This study utilized a semi-structured interview guide to investigate the teacher's experiences, perceptions, and challenges in the implementation of AI-based instructional media aimed at enhancing student engagement. Besides, the questions were also created using a multidimensional framework for student engagement that looks at behavioral, emotional, cognitive, and agentic aspects. This format allowed for in-depth probing while ensuring the research goals were met. The blueprint of the interview guide is provided in Table 4.

Table 4. The Blueprint of the Interview Guide

Aspect	Indicators	Interview Questions
Teacher Experience	Frequency of use, types of AI features, implementation strategy, and comparison with conventional media	Q4, Q5, Q6, Q7
Behavioral Engagement	Participation, raising hands, and task involvement	Q8, Q9
Emotional Engagement	Interest, enthusiasm, and facial expression	Q8, Q10
Cognitive Engagement	Focus, understanding, and critical thinking	Q11
Agentic Engagement	Asking questions, expressing ideas, and Initiative	Q12
Perceived Benefits	Visual attractiveness, learning motivation, teaching effectiveness, and content understanding	Q13, Q14, Q15
Challenges	Technical issues, teacher skills, time constraints, and student readiness	Q16, Q17
Adaptation & Recommendation	Improvement strategies, support needed, and future intention	Q18, Q19, Q20, Q21

3. Student Response Questionnaires

Questionnaires were used to collect data on students' responses and levels of engagement. The questionnaire was created using a multidimensional framework for student engagement that includes four main areas: behavioral, emotional, cognitive, and agentic engagement. There were 20 items in total, with 5 items per aspect. Behavioral engagement items examined

how much students participated in and were interested in learning activities. Emotional engagement examined students' interest and engagement in learning and their enjoyment of it. Cognitive engagement was assessed to evaluate students' focus, engagement, and effort. Agentic engagement examined the extent to which students took initiative and actively contributed to the learning process. The questionnaire utilized a five-point Likert scale, spanning from strongly disagree to strongly agree. The collected data were used to conduct a quantitative analysis of student engagement levels, thereby augmenting the qualitative findings from observations and interviews. The questionnaire blueprint is shown in Table 5.

Table 5. The blueprint of the Questionnaire

Aspect	Indicators	Item
Behavioral Engagement	Classroom participation, raising hands, completing tasks, and interaction with teacher/peers	1,2,3,4,5
Emotional Engagement	Interest, enthusiasm, facial expressions, and attention through gaze	6,7,8,9,10
Cognitive Engagement	Attention and focus, effort in tasks, critical thinking, and problem-solving	11,12,13,14,15
Agentic Engagement	Asking questions, expressing opinions, taking the initiative in learning, and actively participating	16,17,18,19,20

3.5. Data Analysis

In this study, there are two types of data: qualitative and quantitative. Qualitative data from interviews and observations were analyzed qualitatively using an interactive data analysis model that includes data condensation, data display, and conclusion drawing and verification (Miles et al., 2014). The analysis was carried out continuously from the data collection stage until the completion of the study to ensure coherence among the data, instructional actions, and reflective outcomes. Meanwhile, quantitative data from the questionnaire results were analyzed quantitatively using descriptive statistics to obtain mean scores and percentages. The mean scores were then categorized using the 5-point Likert scale, as shown in Table 6. To facilitate quantitative data analysis, the data were analyzed using SPSS version 20 for Windows.

Table 6. Likert Scale Category for Interpretation

Mean Score	Category	Interpretation
1.00 – 1.80	Very Low	Students show very minimal engagement; almost no participation, interest, or initiative.
1.81 – 2.60	Low	Students show low engagement, limited participation, and low interest
2.61 – 3.40	Moderate	Students show sufficient engagement, but participation and interest are not yet optimal, and they are inconsistent.
3.41 – 4.20	High	Students show good engagement; active participation, interest, and understanding are evident.
4.21 – 5.00	Very High	Students show excellent engagement; highly active, motivated, and proactive in learning.

3.6 Validity and Reliability

Specifically, for the questionnaire used to quantitatively assess student engagement, validity and reliability tests were conducted to ensure its reliability. These validity and reliability tests involved 30 students from other classes, who were not the subjects of this study. The validity test results were conducted using Pearson Product-Moment Correlation. With a sample size of N = 30, the critical value of r-table at a significance level of 0.05 is 0.361. The results indicate that all 20 questionnaire items have r values> 0.361, indicating that all items are valid. Meanwhile, reliability testing was conducted using Cronbach's Alpha. The reliability test results showed that the Cronbach's alpha of 0.89 indicates high reliability, as it exceeds the commonly accepted threshold of 0.70.

3.7. Trustworthiness of the Data

The trustworthiness of the data in this study was ensured through Technique Triangulation. Data were collected through observations, interviews, and questionnaires to ensure the consistency of the findings (Lincoln & Guba, 1985). In this study, observations were conducted in the classroom to examine how students engage, focusing on their behavioral, emotional, cognitive, and agentic engagement. The semi-structured interviews with the teacher were done to better understand the implementation process, the problems that arose, and how the teacher perceived student engagement had changed. At the same time, students were given questionnaires to assess their engagement during the teaching and learning process.

4. Findings

This section presents the findings of the CAR conducted in two cycles. The research findings focus on changes in student engagement in Indonesian language learning through the utilization of artificial intelligence features in the AI-based Graphic Design Platform. The data were obtained from observations of student engagement, student response questionnaires, teacher interviews, and documentation of instructional media.

4.1. The Results of Pre-Observation

The results of the pre-observation in this study served as the basis for researchers to determine appropriate AI-based Graphic Design Platform interventions to improve student engagement. Therefore, during the pre-observation phase, observations and interviews were conducted to identify the initial state of student engagement, the challenges teachers faced in improving it, and teachers' experiences using the AI-based Graphic Design Platform in learning. The observations and interviews revealed that student engagement was relatively low. This was confirmed by the low level of student participation and attention during the learning process. This was further reinforced by the interview results, which indicated that student engagement remained low, as seen in the interview excerpts in Table 7.

Table 7. Interview Results Regarding Student Engagement

Aspect	Excerpt	Interpretation
Behavioral	"If I ask a question, usually no one raises their hand."	Very low participation
	"The children are mostly quiet during class."	Low activity
Emotional	"They seem less interested in the lesson."	Low interest
	"Their expressions are normal, not very enthusiastic."	Low enthusiasm
Cognitive	"Sometimes they don't focus when I explain."	Low focus
Agentic	"Rarely does anyone ask a question."	No initiative to ask questions
	"They just wait, not actively participating."	Not proactive

Regarding the challenges teachers face in increasing student engagement, several obstacles were identified. One major obstacle is the limited use of innovative learning media, including AI-based technology. Teachers feel they lack the skills to integrate such technology into their learning. Furthermore, time constraints and a lack of training are also significant barriers. This situation makes it difficult for teachers to create engaging learning that encourages active student engagement. A summary of the interview results, highlighting the challenges faced by these teachers, is presented in Table 8.

Table 8. Interview Results Regarding Obstacles Faced by Teachers

Excerpt	Interpretation
"I don't really understand how to use AI, let alone how to create learning media."	Limited teacher competency
"Time to prepare media is also limited."	Time constraints

"Sometimes internet access is also a problem."	Technical constraints
"It's also difficult to engage students."	Student challenges
"I still have difficulty creating engaging learning."	Difficulty in increasing engagement

Upon further questioning regarding teachers' experiences using the AI-based Graphic Design Platform, it was found that they had limited experience. Teachers reported having very limited experience using Canva, particularly its artificial intelligence (AI)-based features, in the learning process. Teachers stated that the AI-based Graphic Design Platform's use was not yet a routine part of their teaching practice, and that the use of AI features was almost never done. Learning was still dominated by conventional methods such as textbooks and oral explanations. This situation indicates that the integration of technology, particularly AI, into learning is not yet optimal and remains in the early stages of adoption. A summary of the interview results is provided in Table 9.

Table 9. Interview Results regarding Teacher Experiences Using Canva

Excerpt	Interpretation
"I rarely use Canva, only occasionally at most."	The teacher does not use Canva regularly
"I've never tried Canva's AI features."	No experience with AI
"I usually just use a book and explain things in class."	Long-term learning
"I'm not used to using digital media like that."	Low technology integration

Overall, interview results indicate that low student engagement is influenced by the limited use of innovative learning media, particularly the AI-based Graphic Design Platform. Teachers are unfamiliar with this technology, leading to conventional learning methods that are less effective at engaging students. Consequently, students become passive, less interested, and show little initiative in the learning process. Furthermore, limited competence, time, and technical support are key factors hindering teachers' efforts to improve student engagement.

4.2. Findings of Cycle I

The implementation of instructional actions in Cycle I indicated that the instructional media created by the AI-based Graphic Design Platform began to attract students' attention; however, student engagement had not yet reached an optimal level. At this stage, the teacher utilized the *Magic Write* feature to generate initial drafts of learning texts, *Text to Image* to produce visual illustrations relevant to the learning materials, and *Magic Design* to organize the layout of the instructional media.

The questionnaire results revealed that students began to respond positively to the implementation of the AI-based Graphic Design Platform in the learning process. In general, they began to enjoy learning. In terms of behavioral engagement, students began paying more attention and performing better on assignments. However, active participation, such as asking or answering questions, was still limited. In terms of emotional engagement, students responded positively to the use of the AI-based Graphic Design Platform. The use of images made students more interested and more engaged in the learning process. However, not all students showed high enthusiasm. Furthermore, in terms of cognitive engagement, students' focus and understanding were found to be improving. In terms of emotional engagement, student initiative was still low. Students still waited for the teacher's instructions when interacting in class. A summary of the questionnaire results is shown in Table 10.

Table 10. Results of Cycle I Questionnaire

Aspect	Mean Score	Category	Interpretation
Behavioral Engagement	3.10	Moderate	Students showed attention and task completion, but low active participation.
Emotional Engagement	3.45	Moderate–High	Students were interested and enjoyed the media, but their enthusiasm was not consistent.

Cognitive Engagement	3.20	Moderate	Students had adequate focus, but still needed teacher support to understand the material.
Agentic Engagement	2.85	Low–Moderate	Students showed low initiative in asking questions and expressing ideas
Overall Engagement	3.15	Moderate	Engagement began to develop, but was not yet optimal

Looking at the mean score frequency, as shown in Table 11, indicates that all students (100%) show increased attention and participation, but the level of engagement remains moderate. These findings indicate that students were still in the adaptation stage to using AI-based visual learning media.

Table 11. Student Engagement Mean Score Frequency in Cycle I

Mean Score	Frequency	Percent (%)	Category
3	2	6,45	Moderate
3.1	16	51,61	Moderate
3.2	8	25,81	Moderate
3.3	5	16,13	Moderate
Total	31	100	

The questionnaire results are supported by the observation results. Observation results showed that some students paid attention to the instructional media, but active participation in discussions and learning interactions remained limited. Several students tended to be passive and followed the teacher's instructions without providing significant verbal responses. The learning texts generated by the Magic Write feature were still relatively lengthy, which led some students to need additional explanation from the teacher to understand the content. Classroom interaction in Cycle I was still largely dominated by the teacher, while student-to-student interaction had not yet developed optimally.

Interviews with the teacher revealed that the use of the AI-based Graphic Design Platform accelerated the development of instructional media. The AI-based Graphic Design Platform has captured students' attention, but their participation remains low and passive. Interest in learning has increased, but their enthusiasm is inconsistent. In terms of comprehension, students are beginning to have a better understanding, and their focus is also improving, but not evenly. Furthermore, the content presented needs to be adjusted to the students' level. In terms of interaction, students' engagement remains limited, and they still wait for teacher direction. Therefore, in general, the interview findings confirm that while the AI-based Graphic Design Platform has improved the visual quality and efficiency of instructional media, its impact on enhancing student engagement, particularly in active participation and initiative, remains limited and requires further instructional refinement. The summary of the interview results is provided in Table 12.

Table 12. Interview Results of Cycle I

Aspect	Excerpt	Interpretation
Behavioral Engagement	"When using the AI-based Graphic Design Platform, students started to pay attention to the visuals."	The media attracts students' attention.
	"However, few students were willing to answer questions."	Participation is still low
	"Most just followed the instructions without much interaction."	Students tend to be passive
Emotional Engagement	"The children seemed more engaged because the visuals were appealing."	Increasing interest in learning
	"They seemed enthusiastic at first, but not all of them persisted until the end."	Enthusiasm is not yet consistent.

	"Their expressions were more positive than before."	Emotional responses are starting to develop
Cognitive Engagement	"The media helped with comprehension, but additional explanations were still needed."	Understanding is not optimal
	"The texts from Magic Write were still too long for fifth-grade students."	Content is not yet at the students' level.
	"Some students focused, but others still had difficulty following."	Focus is not evenly distributed
Agentic Engagement	"Students still rarely ask questions."	The initiative to ask questions is low
	"Not many dared to express their opinions."	Expression of ideas is still limited
	"They were still waiting for the teacher's direction."	High dependence on teachers

Based on the results of Cycle I observations and reflections, several weaknesses in the implementation of instructional actions were identified. These included: (1) learning texts that were still relatively dense, (2) visual illustrations that were not yet fully integrated into discussion activities, and (3) instructional strategies that remained teacher-centered. Therefore, improvements were required in Cycle II by simplifying instructional media content, enhancing visual clarity with illustrations relevant to students' everyday contexts, and increasing the number of learning activities to encourage greater student participation.

4.3. Findings of Cycle II

In Cycle II, the teacher revised the instructional media created by using the AI-based Graphic Design Platform in response to Cycle I reflections. The revisions included simplifying the learning texts generated through *Magic Write*, which enabled students to understand the learning content more easily without extensive additional explanations from the teacher; adjusting the *Text to Image* illustrations to reflect students' everyday life contexts; and improving the media layout using *Magic Design* to make it clearer and more structured. These improvements helped students focus on key information and allowed the learning process to proceed more directly. As a result, students appeared more attentive to the instructional media, actively participated in group discussions, and engaged more with both the teacher and their classmates.

The results of the student response questionnaire in Cycle II demonstrate a significant improvement in student engagement following the revision of the instructional media. The enhancements, particularly the simplification of learning texts, the contextualization of visual illustrations, and the improved layout, contributed to a more effective and engaging learning environment. In terms of behavioral engagement, students showed a notable increase in active participation. They paid closer attention to the instructional media, were more involved in completing tasks, and actively participated in group discussions. Regarding emotional engagement, students expressed greater interest and enjoyment during the learning process. The use of visually appealing and contextually relevant media made learning more enjoyable and meaningful. In terms of cognitive engagement, students demonstrated improved focus and understanding of the learning material. The simplification of texts generated through Magic Write allowed students to grasp key concepts more easily without relying heavily on teacher explanations. For agentic engagement, a significant improvement was observed in students' initiative. Students were more confident in asking questions, expressing opinions, and participating in discussions. Overall, the findings indicate that student engagement in Cycle II was high (see Table 13), reflecting the effectiveness of the revised instructional media.

Table 13. Results of Cycle II Questionnaire

Aspect	Mean Score	Category	Interpretation

Behavioral Engagement	4.20	High	Students actively participated and engaged in discussions
Emotional Engagement	4.35	High	Students showed strong interest and enjoyment
Cognitive Engagement	4.10	High	Students demonstrated better understanding and focus
Agentic Engagement	4.05	High	Students showed increased initiative and confidence
Overall Engagement	4.18	High	Student engagement improved significantly

Judging from the frequency table in Table 14, 67.74% of students' engagement falls into the high category, while the remaining 32.26% are in the very high category. Compared to Cycle I, this data indicates an increase in student engagement. In Cycle I, student engagement was only moderate. In Cycle II, there were no longer any students with moderate engagement.

Table 14. Student Engagement Mean Score Frequency in Cycle II

Mean Score	Frequency	Percent	Category
4.1	10	32,26	High
4.2	11	35,48	High
4.3	10	32,26	Very High
Total	31	100	

The questionnaire results were supported by the observation results. Observation results indicated a clear improvement in student engagement compared to Cycle I. Students showed greater attention to the instructional media, were more confident in expressing their opinions, and were more actively involved in group discussions. Interaction between students and the teacher also increased, as indicated by a higher frequency of student questions and responses during the learning process. The pattern of classroom interaction in Cycle II became more dialogic, with the teacher assuming the role of a facilitator who actively encouraged student engagement.

The Cycle II interview results also indicate substantial improvements in student engagement. From a behavioral engagement perspective, the teacher observed that students became more actively involved in classroom activities. Students paid closer attention to the instructional media, participated more frequently in discussions, and showed greater involvement in completing tasks. Compared to Cycle I, where students tended to be passive, Cycle II demonstrated a shift toward more active participation. In terms of emotional engagement, the teacher noted that students showed increased interest and enthusiasm during the lesson. The use of visually appealing and contextually relevant media made learning more enjoyable, creating a more positive classroom atmosphere. Students appeared more motivated and engaged throughout the learning process. Regarding cognitive engagement, the teacher emphasized that simplifying learning texts significantly improved students' understanding. Students were able to grasp the material more easily without requiring extensive additional explanations. The clearer structure of the instructional media also helped students focus on key concepts, resulting in more effective learning. From the perspective of agentic engagement, the teacher reported a notable increase in students' initiative. Students became more confident in asking questions, expressing their opinions, and participating in discussions. The classroom interaction pattern also shifted, with the teacher acting more as a facilitator while students took a more active role in the learning process. This indicates that students had begun to develop greater ownership of their learning. The summary of the interview results is provided in Table 15.

Table 15. The Summary of the Interview Results in Cycle II

Aspect	Excerpt	Interpretation
Behavioral Engagement	"In cycle II, students were more active in participating in the lesson."	Participation increased significantly
	"Group discussions were more lively, and students began to become more involved."	Increased engagement in discussions
	"They were more focused on the media being presented."	Increased attention
Emotional Engagement	"Students seemed more interested because the material was closer to their lives."	Increased interest
	"The classroom atmosphere became more lively, and students were more enthusiastic."	High enthusiasm
	"Their expressions looked happy during the lesson."	Positive emotional responses
Cognitive Engagement	"After the text was simplified, students grasped the material more quickly."	Increased understanding
	"They were able to focus better because the presentation was clearer."	Increased focus
	"I didn't need to explain as much as before."	More effective media
Agentic Engagement	"Students began to ask questions when they didn't understand."	Increased initiative in asking questions
	"Some students have begun to express their opinions."	Increased expression of ideas
	"They are more active without always having to be directed."	Increased independence

Overall, the findings indicate an improvement in student engagement from Cycle I to Cycle II. This improvement was evident in students' attention, participation, and interaction during Indonesian language learning activities. The use of artificial intelligence features in the AI-based Graphic Design Platform contributed to the development of more engaging, contextual, and easier-to-understand instructional media. In addition, the refinement of instructional actions based on reflective outcomes in each cycle further enhanced student engagement. Therefore, the use of the AI-based Graphic Design Platform to create instructional media can support a more active and meaningful learning process in fifth-grade classrooms.

5. Discussion

This research investigated the impact of the AI-based Graphic Design Platform for creating instructional media on student engagement in Indonesian language acquisition at the elementary level. Cycle I results showed that the AI-based Graphic Design Platform received strong initial interest, but overall engagement was only moderate. Students seemed to be passive, didn't take the lead, and relied on the teacher for direction. After Cycle II, when we changed the instructional media by making learning texts easier to read, putting visuals in context, and improving the layout, student engagement increased significantly across all areas. Students became more attentive, actively contributed to discussions, comprehended material more deeply, and showed greater confidence in sharing ideas. The way students and teachers interacted in the classroom changed from being led by the teacher to being more conversational and focused on the students.

The findings correspond with the multidimensional theory of student engagement, which identifies behavioral, emotional, cognitive, and agentic components as vital for effective learning (Antúnez et al., 2017; Hong et al., 2020; Jones, 2021). The improvements seen in Cycle II support the idea that well-made instructional media can enhance all aspects of engagement simultaneously. Furthermore, these results corroborate previous studies demonstrating a robust correlation among student engagement, academic success, and deep learning (Campeanu et al., 2023; Mattanah et al., 2024; Xiaoxiao & Dongdai, 2020; Zhao

et al., 2020). The observed enhancement in students' focus and comprehension following media revisions illustrates that cognitive engagement can be augmented through intentional instructional design.

The findings corroborate research regarding the efficacy of visual and technology-enhanced environments in fostering engagement, particularly in digital settings (Balasubramani et al., 2025; Cabeleira, 2025; Zangana & Mustafa, 2025). AI features such as Magic Write, Text-to-Image, and Magic Design enabled the creation of engaging, interactive materials that boosted students' emotional and behavioral participation. Additionally, the increase in student initiative and participation in Cycle II exemplifies agentic engagement, highlighting students' proactive roles in influencing their learning (Veiga et al., 2026).

The strong connection between this study and earlier research suggests that using technology, especially AI-based tools, can make students more interested in their work if done carefully. Cycle I findings elucidate a critical distinction: the mere introduction of technology does not ensure increased engagement.

This finding partially contradicts research suggesting that digital tools inherently enhance motivation and participation (Ullah & Anwar, 2020). In this study, engagement in Cycle I was moderate due to the complexity of the texts and the inadequate alignment between the media and the students' cognitive levels. These results demonstrate that instructional design is more important than just having technology. The big jump in Cycle II shows that students are more interested in AI tools when they are used in both teaching and learning. Organizing information strategically, streamlining content, and putting visuals in context were all important steps in changing the way people learn. This supports the idea that students learn best when the materials are appropriate for them (Ageev et al., 2025; Apatiga & Vu, 2022; Srichinda et al., 2026).

This study emphasizes the significance of synchronizing AI-driven instructional media with students' cognitive and developmental phases. Teachers shouldn't just use content made by AI; they should actively change and improve materials to get the most out of them. The results also show that combining visual and contextual elements significantly strengthens engagement. For practitioners, the study shows that AI-based Graphic Design Platform features can create dynamic learning environments if teachers get the right training. Schools should offer professional development to help teachers improve their digital and teaching skills. The findings suggest that institutions should incorporate AI-based tools into curricula, particularly in elementary education, and provide clear guidance and robust support systems to facilitate effective implementation.

This study significantly advances theoretical frameworks in educational technology and student engagement. First, it broadens the multidimensional student engagement framework by demonstrating that AI-based instructional media can improve behavioral, emotional, cognitive, and agentic engagement in elementary contexts. Second, it contributes to the literature on technology-enhanced learning by recognizing instructional adaptation as a crucial connection between the implementation of AI tools and student engagement results. Third, it provides evidence that agentic engagement is an important outcome in AI-supported settings, especially for young learners. Lastly, it links the growth of AI media to what happens in the classroom by stressing the importance of iterative refinement through CAR and the role of reflective teaching in improving learning outcomes.

6. Conclusion

This study concludes that the utilization of artificial intelligence features in the AI-based Graphic Design Platform can enhance student engagement in Indonesian language learning at the elementary school level. The improvement in student engagement was reflected in changes in learning behaviors between Cycle I and Cycle II, particularly in terms of students' attention, participation, and interaction during the learning process. The use of the AI-based Graphic Design Platform as a tool for creating instructional media contributed to the creation of more engaging and contextual learning experiences. However, the teacher's role remains a key

factor in the success of the learning process. Teachers need to select, edit, and adapt AI-generated content to ensure alignment with instructional objectives and the characteristics of elementary school students. Therefore, AI features in the AI-based Graphic Design Platform function as supportive instructional media rather than as substitutes for the teacher's pedagogical role.

Limitations

This study has several limitations. First, the research was conducted in only one fifth-grade class at a single elementary school; therefore, the findings cannot be broadly generalized. Second, the focus of this study was limited to student engagement in the learning process and did not examine in depth the impact of the AI-based Graphic Design Platform on students' learning outcomes. Third, this study did not explore in detail variations in students' digital literacy levels, which may influence their responses to the AI-based instructional media.

Recommendations

Based on the research findings and the identified limitations, several recommendations can be proposed. Elementary school teachers are encouraged to utilize the AI-based Graphic Design Platform as supportive instructional media in Indonesian language learning while carefully considering content appropriateness and ethical principles in the use of artificial intelligence. Schools and policymakers are expected to support the enhancement of teachers' digital literacy through continuous professional development and training programs. Future studies are recommended to involve a larger number of classes or schools and to include learning outcome indicators in order to obtain a more comprehensive understanding of the use of artificial intelligence in Indonesian language learning at the elementary school level.

Conflict of Interest Statement

The author(s) declare(s) that there is no conflict of interest.

Declaration of Generative AI and AI-assisted Technologies

This manuscript was prepared with the assistance of Generative AI Grammarly. The AI was used to assist in language refinement and content organization. All intellectual contributions, critical analyses, and final revisions were conducted by the authors. The authors take full responsibility for the accuracy, originality, and integrity of the content presented in this work.

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