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Exploring Meaningful Learning Experiences Through the Use of Digital Technology in Indonesian Language Learning in Grade IV of Muhammadiyah 1 Elementary School in Surakarta

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ABSTRACT

Learning Indonesian in elementary school requires meaningful learning experiences that enable students not only to understand concepts but also to relate learning materials to real-life contexts. In the digital era, technology offers potential support for meaningful learning practices. This study aims to explore meaningful learning experiences of fourth-grade students through the use of digital technology in Indonesian language learning at SD Muhammadiyah 1 Surakarta. A descriptive qualitative approach with a phenomenological design was employed. Research participants consisted of teachers and fourth-grade students selected through purposive sampling. Data were collected through in-depth interviews, classroom observations, and documentation, and analyzed using thematic analysis. The findings indicate that digital technology enhances students' cognitive and emotional engagement, facilitates understanding of learning materials, and supports the connection between learning content and students' everyday experiences. Learning activities become more interactive, enjoyable, and relevant, although technical challenges such as unstable internet connections and device differences remain. Overall, digital technology plays an important role in supporting meaningful Indonesian language learning at the elementary school level.

1. Introduction

The theory of meaningful learning, developed by David Ausubel as discussed in Hamida et al. (2022), is relevant to be applied in Indonesian language learning. This model emphasizes learning concepts that are connected to students' prior knowledge and has been shown to stimulate creativity in narrative writing (Najib & Elhefni, 2016). Meaningful learning focuses on comprehensive understanding and the relevance of teaching materials to students' background knowledge (Khoeriyah & Mahmudah, 2023). Its essence lies in promoting deep understanding,

relevance, and the significance of subject matter for learners (Mulyani et al., 2023). Vocabulary mastery also plays a crucial role in communication development, as students with strong vocabulary skills tend to master other language skills more effectively (Novitasari et al., 2024). Technology assisted problem based learning has also been shown to empower student creativity and active engagement in primary education contexts (Al-Zahra & Handayani, 2025).

In the context of elementary education, Indonesian language learning is not merely oriented toward mastering linguistic structures, but also toward developing students' communicative competence, critical thinking, and creativity. Meaningful learning provides a conceptual foundation for achieving these goals because it encourages students to actively construct knowledge rather than passively receive information. Ausubel's cognitive learning theory emphasizes that learning should go beyond memorization and encourage students to internalize concepts, connect new knowledge with existing understanding, and integrate learning with personal experiences (Kumala et al., 2023). When students relate lesson content to their daily lives, learning becomes more relevant and memorable. This relevance is particularly important in Indonesian language instruction, where students are expected to interpret texts, express ideas, and produce meaningful written and oral communication.

Meaningful learning creates a supportive learning environment and facilitates holistic knowledge acquisition, ultimately improving students' capabilities (Najib & Elhefni, 2016). In elementary education, meaningful learning supports students' construction of meaning through activities related to personal, social, and cultural contexts. For example, narrative writing tasks can be linked to students' real-life experiences, local culture, or social interactions, thereby strengthening their engagement and understanding. The development of interactive teaching materials and problem-based digital learning media has further strengthened meaningful learning implementation in Indonesian language instruction (Yani et al., 2026; Rahmi et al., 2025).

The integration of technology into education has become increasingly inseparable in the contemporary era. Technological advancement has enabled the use of various digital media to support learning activities (Agasi et al., 2021). Digital technology facilitates efficient access to learning resources and supports interactive and adaptive learning experiences (Judijanto et al., 2025; Dewi et al., 2022). In primary education, the use of interactive multimedia has been proven to enhance learning outcomes and critical thinking skills (Yunita et al., 2025). Similarly, digital-based interactive games and multimedia applications in Indonesian language learning contribute positively to student engagement and speaking skill development (Sulastri et al., 2025; Rahmi et al., 2025). These findings indicate that digital media can serve not only as supplementary tools but also as transformative instruments that reshape the learning process.

Moreover, the growing emphasis on digital literacy highlights the need for students to develop competencies in navigating and utilizing digital resources effectively and responsibly. Strengthening digital literacy competencies, including AI-

enhanced digital literacy, is essential to ensure effective and responsible technology use among students (Wardhani et al., 2025). Digital literacy in Indonesian language learning may involve accessing digital texts, evaluating information credibility, composing digital narratives, and engaging in collaborative online discussions. The availability of digital libraries also plays a significant role in supporting literacy development and equitable access to quality learning materials in primary schools (Sari et al., 2025). Through well-managed digital resources, students can expand their vocabulary, improve reading comprehension, and enrich their language experiences beyond printed textbooks.

Despite its considerable potential, technology integration in education faces several challenges, including digital inequality, limited infrastructure, and varying levels of teacher competence (Sari & Munir, 2024; Rafli & Panggabean, 2024). Schools in different regions may experience disparities in internet connectivity, availability of devices, and technical support. In addition, teachers' readiness and digital pedagogical competence significantly influence the effectiveness of technology implementation. Successful integration requires adequate infrastructure, continuous teacher training, and supportive educational policies (Sukmawati & Tarmizi, 2024). In the digital era, teachers are required to transform their instructional strategies to enhance student engagement and optimize technology integration (Arifin & Mustofa, 2025). This transformation includes designing interactive lessons, utilizing multimedia resources, and facilitating collaborative and reflective learning activities.

In Indonesian language learning, technology integration is viewed as a strategic initiative to address contemporary educational challenges and foster engaging learning environments (Nababan et al., 2024). When combined with meaningful learning principles, digital technology can create a dynamic instructional model that emphasizes relevance, interactivity, and student centered learning. Digital learning strategies and interactive media have been shown to enhance students' creativity, reflection, and comprehension in Indonesian language instruction (Luckyardi et al., 2024; Yani et al., 2026). For instance, the use of multimedia storytelling platforms can help students visualize narrative structures, organize ideas, and express themselves more confidently.

The application of meaningful learning supported by digital technology aligns closely with the Merdeka Curriculum, which emphasizes learning autonomy, innovation, and reflective skills. The Merdeka Curriculum encourages teachers to design contextual and learning experiences that respond to students' needs and potentials. In this framework, teachers play a crucial role as facilitators who connect learning concepts with real-life contexts through digital media (Sailin & Mahmor, 2018). By integrating meaningful learning principles with digital tools, teachers can create instructional environments that not only improve academic achievement but also foster students' independence, creativity, and critical thinking.

Based on this context, this study aims to analyze the meaningful learning experiences of fourth-grade students in Indonesian language learning through the use of digital technology at SD Muhammadiyah 1 Surakarta, to identify

instructional innovations and evaluation processes involved, and to examine the development of students' competencies within a digitally supported meaningful learning framework.

2. Methodology

This study uses a descriptive qualitative approach with a phenomenological design to explore the meaningful learning experiences of fourth-grade students at Muhammadiyah 1 Elementary School in Surakarta in Indonesian language learning based on digital technology. The phenomenological design was chosen because it provides space to understand students' subjective experiences in depth through the process of directly appreciating the learning phenomena they experience. This approach is in line with Alase, (2017) view, which emphasizes that qualitative phenomenology allows researchers to capture the essence of human experience authentically through personal narratives and interpretations. The main focus is to understand meaningful learning through the use of digital technology in Indonesian language learning in fourth grade elementary school (Rahman et al., 2025).

The phenomenological method was chosen to explore the subjective meaning of students' experiences that cannot be measured by numbers but are captured through narratives and personal interpretations (Taran & Sunarya, 2025). This approach is suitable for examining how students form their understanding, motivation, and reflections during prosocial digital technology-based learning (Sape, 2024). The phenomenological qualitative approach has been widely used to explore learning experiences and modern learning interactions (Nurfajriani et al., 2024). The subjects of this study were Indonesian language teachers and fourth-grade elementary school students who had implemented digital technology-based learning.

Subject selection was conducted using purposive sampling, which is commonly used in exploratory qualitative research Fikri et al., (2025), namely the selection of participants based on the suitability of their experiences with the research focus. Data collection was conducted through in-depth interviews, participatory observation, and documentation. Interviews were used to gain an understanding of the perceptions and experiences of students and teachers regarding meaningful learning. Observations were conducted to see learning activities, interactions, and the use of digital technology in the classroom context directly. Documentation was used to supplement data in the form of photos of activities, students' digital project results, and learning tools.

Data analysis used Thematic Analysis approach Terry et al. (2017) which is flexible and recursive to identify patterns of meaning in meaningful learning experiences. The process began with familiarization with the data through repeated reading of transcripts and observation notes, followed by initial inductive coding to generate descriptive codes related to the impact of digital technology on student motivation and meaning-making. The codes were then grouped into potential themes through repeated review and refinement, with the formation of final themes such as

“emotional engagement through digital interactivity” and “integration of personal experiences with Indonesian language content,” validated through member checking with participants to ensure the accuracy of the interpretation (Fiqri et al., 2025). Data presentation was carried out through the categorization of themes and patterns that emerged from the results of interviews and observations. Furthermore, conclusions were drawn by identifying the deeper meaning of meaningful learning experiences through digital technology. To ensure data validity, source and technique triangulation as well as member checking with participants were carried out. Fikri et al., (2025) emphasized that triangulation of sources is important to avoid researcher interpretation bias. This finding is reinforced by the statement that reconfirmation with participants can strengthen the authenticity of research data. In addition, Adiyani et al., (2025) underline that the combination of thematic analysis and member checking makes the research results more representative of the students' real experiences.

3. Result and Discussion

This study explored meaningful learning experiences through the use of digital technology in Indonesian language learning for fourth-grade students at SD Muhammadiyah 1 Surakarta. The results are presented based on field data obtained from interviews, observations, and documentation, followed by a discussion that interprets the findings within the framework of meaningful learning. To obtain an overview of teachers’ and students’ perceptions regarding meaningful learning and the use of digital technology in Indonesian language instruction, in-depth interviews were conducted. The main aspects explored and the summary of interview findings are presented in Table 1.

Table 1. Interview Questions and Results

Aspect	Summary of Interview Results
Understanding Meaningful Learning	Teachers interpret meaningful learning as a learning process that not only enables students to know the material, but also to understand and apply it in their daily lives.
Differences from Conventional Learning	Meaningful learning emphasizes student activity through practice and direct experience, while conventional learning tends to be lecture-based.
Importance in Elementary School	Meaningful learning is important to implement because Indonesian language material can be directly related to the real-life context of students.
Use of Digital Technology	Teachers utilize digital media such as Canva, Quizizz, spinners, and Wayground in Indonesian language learning.
Student Response and Engagement	Students show positive responses, enthusiasm, activity, and a high level of curiosity during technology-based learning.
Learning Strategy	Teachers design learning by adjusting to the characteristics and learning needs of students so that learning is more meaningful.
Teacher's Role	Teachers act as facilitators and teachers who guide students in the use of digital technology.
Impact on Learning	The use of digital technology increases student activity, motivation, and understanding of Indonesian language material.

Impact on Literacy	Technology aids in understanding the material, but writing skills are still trained through motor activities such as writing and drawing.
Learning Success	Learning success is demonstrated through changes in learning behavior, students' ability to explain the material, and evaluation results that meet the criteria for mastery.

Based on interviews with teachers and student reflections, it was found that meaningful learning through the use of digital technology in Indonesian language learning in grade IV at SD Muhammadiyah 1 Surakarta provided a more active, interactive, and relevant learning experience for students. Teachers explained that meaningful learning emphasizes deep understanding, not just memorization. In practice, teachers involve students in learning activities that encourage active participation, such as practicing making maps, drawing routes from home to school, and reflective activities using digital media such as Canva, Quizizz, Wheel of Names, and Wayground.

These media were chosen because they are easily accessible, interactive, and can attract students' attention during learning. Teachers, who previously acted as the main source of knowledge in the classroom, now have to adapt to a new role as learning facilitators in a digital environment (Prastowo, 2020). Teachers also said that the use of digital technology facilitates the teaching process because it allows for the presentation of material in a visual and attractive way. However, there are several obstacles, such as differences in display between devices and unstable internet speeds. To overcome this, teachers use personal devices and prepare alternative displays via laptops and monitors so that learning can continue effectively. Nevertheless, teachers emphasize that technology is only a tool, while the main source of learning remains textbooks so that students do not lose their basic literacy skills.

According to Nurillahwati, (2022), technology in education has In addition, the interview results show that the role of teachers has changed to become digital facilitators who assist students in utilizing learning media. Students appear to be more active during technology-based evaluation processes, such as when doing quizzes or using interactive applications. Teachers also provide motivation by displaying scores directly so that students feel challenged to get better results. Overall, digital technology-based learning increases student activity and collaboration, although some students prefer individual activities when using digital devices. Research conducted by Udin & Arfanaldy, (2025) reveals that students tend to become passive and their literacy skills do not develop when Teachers dominate learning with conventional lecture methods.

The results of the study show that the application of meaningful learning through the use of digital technology in Indonesian language learning is in line with Ausubel's theory of meaningful learning, in which new knowledge is linked to students' existing experiences and cognitive structures. Teachers act as facilitators who help students construct meaning through exploration and reflection on their learning experiences. The use of digital media such as Canva, Quizizz, and Wayground is an effective tool in creating contextual and relevant learning

experiences. According to the results of Khotimah (2023) research, the integration of digital technology in Indonesian language learning has been proven to increase student participation and help them understand the material more thoroughly.

With this approach, learning no longer focuses on the teacher as the main source of information, but emphasizes a constructive process that allows students to develop their own understanding. This study observes that in addition to having a positive influence on student motivation and understanding, there are also several obstacles faced in the use of digital technology at the elementary school level. Educators experience technical difficulties, including unstable internet connections and variations in display on different devices, a finding also mentioned by Mukmin et al., (2023). To overcome these challenges, teachers take the initiative by using personal devices and developing alternative teaching methods to ensure the smooth running of the learning process. This indicates that the level of readiness of educators is a crucial element for the successful integration of technology in education. In line with this, Citraningsih & Wiranata (2022) also states that digital-based learning allows for the exploration of abilities in utilizing digital technology. With stable internet access, teaching and learning activities can be carried out anytime and anywhere without obstacles.

Furthermore, student reflections show that meaningful learning through digital technology not only improves comprehension of reading material and speaking skills, but also strengthens critical and reflective thinking skills. Students feel more challenged and motivated to explore the material because technology provides immediate feedback and creates a fun learning atmosphere. However, handwriting skills still require special attention, as the use of technology tends to reduce students' fine motor activities. Teachers address this by continuing to provide cursive writing and drawing exercises to maintain a balance between digital skills and manual literacy. Classroom observations were carried out to identify how meaningful learning based on digital technology was implemented during the learning process. The observed aspects and corresponding research findings, along with their scientific interpretations, are summarized in Table 2.

Table 2. Implementation of Meaningful Learning Based on Digital Technology

Aspects observed	Research findings	Scientific interpretation
Student Engagement and Enthusiasm	Students appear to be very active, expressive, and enthusiastic when using digital media such as Canva, Quizizz, Wheel of Names, and Wayground. Students are more confident in asking questions, answering, and exploring during digital learning compared to conventional methods.	The use of digital technology in education can create a more engaging and interactive learning environment. Digital media offers visual and interactive stimuli that increase student participation, making them more eager to engage mentally and emotionally in the learning process.

Understanding of Material	Students stated that it was easier to understand Indonesian language material when it was presented through images, videos, and digital simulations. Material such as wind directions, travel routes, and descriptive texts were easier to understand through visual examples.	Presenting material visually and multimodally helps students build a more concrete understanding of abstract concepts. Digital media allows students to associate information with visual representations so that the process of understanding the material is more effective and in-depth.
The Role of Teachers as Digital Facilitators	Teachers assist students in using digital applications, provide additional explanations when device displays differ, and provide immediate digital reflection and evaluation. Teachers become guides, not the sole source of material.	The role of teachers has shifted from being conveyors of information to facilitators of learning. Teachers serve as mentors who guide the learning process of students, ensuring that the use of technology remains in line with learning objectives and student needs.
Student Social Interaction	Students are more active in discussing, asking questions, and checking their friends' answers during digital evaluation activities. However, in device-based activities, students prefer to work individually.	Digital learning activities can enhance social interaction at certain stages, especially during discussions and evaluations. However, the use of digital devices also encourages student independence in learning, so strategies are needed to maintain a balance between social interaction and collaborative work.
Classroom Situation and Enthusiasm for Learning	The classroom atmosphere became more lively, less monotonous, and more focused. Students focus on following the instructions on the screen and enthusiastically complete digital challenges such as quizzes and educational games.	Digital technology creates a more dynamic learning environment and enjoyable. Interactive elements and challenges in digital learning increase student motivation and help maintain their focus and engagement throughout the learning process.

Based on interviews with fourth-grade teachers, a comprehensive understanding of the concept of meaningful learning and its implementation through the use of digital technology was obtained. Teachers explained that meaningful learning is not merely the delivery of material, but a process that enables students to truly understand information and apply it in their daily lives. This understanding shows that the teacher has internalized an important concept in Ausubel's learning theory, namely the importance of connecting new information with students' cognitive structures and real experiences. The teacher emphasized that learning will be meaningful when students have the opportunity to construct meaning through direct experiences that are relevant to the context of their lives. The teacher also described how digital technology is used in Indonesian language learning to support meaningful learning. Applications such as Canva, Quizizz, digital spinners, and Wayground were chosen because they are easily accessible, free, and have a visual appearance that is attractive to students. The application of the Canva platform is not limited to the education sector but can also be applied in various other domains. This is supported by the findings of Sholeh & Susanti, (2020) research, which confirms Canva's capability in designing visual material for social media platforms.

Furthermore, this application facilitates the creation of various types of graphic designs, including logos, posters, advertising promotional materials, and so on. These features clearly indicate the flexibility of the Canva platform. In fact, Canva is also often used to produce certificate designs. Meanwhile, the use of the Quizizz application in the evaluation process is considered capable of creating a positive and entertaining experience for students during tests. Generally, evaluation activities are often considered uninteresting by students, but through the Quizizz platform, the evaluation process can be presented in a more engaging way. This finding was reported by Jati et al., (2022), who interviewed educators about the use of Quizizz in online evaluation. The majority of teachers' responses indicated that the application was very helpful and increased engagement. In addition to the aspect of interest, the use of Quizizz in evaluation also has a positive impact on student learning outcomes, as emphasized in Julianisa & Winanto, (2022).

Furthermore, a study conducted by Nasution et al., (2021) on university students shows that the Quizizz application contributes to improving students' critical thinking capabilities when compared to conventional learning methods. Students showed an increase in critical thinking in the application of theory, were able to articulate ideas/concepts during discussions, and had a broader perspective. In line with this, Zhao, (2019) stated that "Overall, this study found that Quizizz is considered to have a positive impact on student engagement and learning outcomes in accounting class." Quizizz is considered to have made a significant positive contribution to student participation and academic progress. Students believe that using Quizizz has contributed to improving their learning process. Compared to doing exercises on paper, Quizizz is considered more effective. Furthermore, student reactions during quiz sessions were very positive. This was reflected in the enthusiasm of students in completing quizzes through the Quizizz application, in which all students actively participated. The learning atmosphere resembles a game with the addition of music and instant score displays at the end of the quiz. Additionally, students' competitive spirit is sharpened through information about scores and rankings that can be shared in groups. This means that the use of both applications in the learning process, especially for fable texts, can be improved. To overcome these challenges, teachers developed various adaptation strategies, such as participating in online training, forming learning communities with fellow teachers, and utilizing social media as an educational tool (Wardana et al., 2025).

The interview results showed that most teachers felt helped by the digital community collaboration, which became a space for sharing information and technical support. Teachers are also increasingly open to independent learning through online resources. This strategy shows that teachers are highly aware of the importance of mastering digital competencies in maintaining the relevance of their role amid technological advances (Maulana et al., 2025). This transformation indicates that educators have significant capacity for continuous improvement and innovation in delivering relevant and substantial learning experiences in the digital age. In its implementation, educators are required to adapt to various digital tools and platforms, including Learning Management Systems (LMS), interactive instructional applications, education-oriented social media, and artificial intelligence (AI)-supported technology (Al Fadillah & Akbar, 2024). The use of

these technologies makes the learning process more interactive and multimodal, allowing students to understand the material through a combination of visuals, audio, and hands-on practice. The high level of engagement shows that students are not only following the teacher's instructions but are also actively participating, exploring, and interacting with the learning material. This positive response indicates that the use of technology in Indonesian language learning plays an important role in building students' intrinsic motivation and helping them understand the material in a more interesting and enjoyable way. However, the implementation of digital technology is not without its obstacles. Teachers revealed that differences in the interface between students' devices and internet instability were obstacles in the learning process.

These technical obstacles are common challenges in the integration of technology in elementary schools, especially in classes where students have a variety of personal devices. Overall, the interview results show that teachers have a strong understanding of the principles of meaningful learning and are able to apply them through the use of digital technology. The use of interactive and digital media has succeeded in increasing student engagement, strengthening conceptual understanding, and providing learning experiences that are more relevant to students' lives. Despite technical obstacles, teachers' readiness to manage digital learning has ensured that the learning process remains effective. These findings indicate that the integration of digital technology is a potential strategy for strengthening the implementation of meaningful learning in Indonesian language learning in elementary schools.

The Indonesian language plays a crucial role as the primary means of communication in various aspects of life, particularly in the fields of education and public administration. Developing solid Indonesian language skills from an early age not only contributes to improving students' literacy, but also provides an essential foundation for their success in learning other subjects. One important observation is that students show higher motivation in Indonesian language learning activities. Achieving proficiency in the four aspects of communicative skills, namely speaking, listening, reading, and writing, is a process of information transfer facilitated through the application of these communication techniques. Alwi et al. (2023) reported that the implementation of digital media in the learning process was able to generate greater enthusiasm among students when compared to conventional teaching methods. Kori et al. (2025) stated that using digital-based learning media by combining audio-visual components make it easier for students to understand and master learning materials. By utilizing digital media, students can actively participate in the learning process.

For example, students can learn with interactive quizzes or learning simulations, which can certainly increase enthusiasm and student engagement. In terms of understanding the material, students stated that they found it easier to understand Indonesian language learning when the material was presented through visualizations, videos, interactive simulations, or concrete digital examples. For example, the concepts of wind direction, travel routes, and descriptive texts became clearer when displayed with moving images and explorable digital maps. Digital

media provides opportunities for students to visualize abstract concepts and connect them to real-world contexts, thereby accelerating the understanding process. Fitria and Diena, (2024) found that the use of visual media in technology-based learning helps students understand text structure in a more focused manner. Thus, digital media is not only a tool but also a means to deepen understanding through multimodal learning. To further examine instructional innovation and evaluation processes in digital technology-based meaningful learning, interview data from teachers were analyzed thematically. The focus of questions, selected interview excerpts, and analytical interpretations are presented in Table 3.

Table 3. Innovation and Evaluation Process of Digital Technology-Based Meaningful Learning

Focus of Questions	Teacher Interview Excerpts	Researcher Analysis
Teachers' Understanding of Meaningful Learning	Teachers stated that meaningful learning is a process in which students not only know the material, but truly understand and are able to apply it in their daily lives.	This statement shows that teachers understand meaningful learning according to Ausubel's concept, namely learning that enables students to connect the material with real experiences so that a lasting knowledge structure is created.
The Difference Between Meaningful and Conventional Learning	Teachers emphasize that conventional learning tends to be lecture-centered, while meaningful learning requires students to be active through hands-on practice and exploration of activities.	This confirms a paradigm shift from teacher-centered to student-centered learning, where students become active subjects in constructing knowledge.
Use of digital technology	The teacher explained that he uses Canva, Quizizz, spinners, and Wayground because they are easy for students to understand, free, and able to increase student interest in learning.	These digital media support interactive and multimodal learning, thereby facilitating understanding of concepts through visuals, audio, and hands-on practice.
Student Response to Technology	Teachers stated that students were very expressive, active, and always curious when learning using digital technology.	The positive response of students reflects a high level of engagement, which is a strong indicator of meaningful learning and intrinsic motivation.
Challenges in Technology Use	Teachers reported challenges such as differences in device displays and unstable internet connections.	Technical challenges are common in technology integration; however, teachers' ability to overcome these challenges demonstrates their readiness for digital pedagogical competence.

Reflective results regarding students' feelings when using technology show significant affective changes in the learning atmosphere. Many students explicitly

reported feeling happy, entertained, and more enthusiastic when learning was presented through applications or digital media compared to traditional lecture methods. These positive feelings are not merely a superficial reaction to “something new,” but rather indicate an increased emotional attachment to the learning process: students are more enthusiastic about starting tasks, less prone to boredom, and tend to maintain focus on learning activities for longer periods of time. From a learning perspective.

Meaningfully, this type of affective condition is important because emotional involvement is often a prerequisite for deeper cognitive involvement—when students feel comfortable and motivated, they more willing to invest mental time in linking new concepts to personal experiences. In Indonesian language learning, digital media plays an important role in increasing student engagement. Research shows that the use of digital media, such as social media platforms and interactive learning applications, can enrich students' learning experiences and maintain their motivation (Manu, 2023). In-depth analysis reveals how digital technology not only increases positive emotions and understanding but also overcomes literacy barriers for more inclusive learning (Dewi et al., 2023). One important aspect of digital media is its ability to encourage student engagement through interesting and interactive content. Digital storytelling and educational games are examples of methods that have been proven effective in increasing student motivation to learn.

In terms of material comprehension, student responses confirm that the visual and multimodal elements provided by technology accelerate the process of meaning formation. Many students report that animations, short videos, interactive maps, or moving illustrations help them “see” previously abstract concepts, making them easier to process and remember. The cognitive processes observed in the field include: breaking down concepts into interrelated visual pieces, associating daily experiences with visual elements, and forming mental schemas that are richer than if the material were only conveyed verbally. This phenomenon is also evident in students' ability to provide concrete examples after digital learning sessions—they are able to describe travel routes, organize story steps, or explain sequences of events in more detail. Engaging learning processes and effective use of technology can stimulate intrinsic motivation in students Hima, (2017). This internal motivation to learn is crucial in supporting students to achieve optimal learning outcomes in line with the set targets. The ability to analyze, acquire, manage, evaluate, and convey information through communication and digital devices can be developed through an understanding of digital literacy Soraya et al., (2023). Digital literacy contributes to increased individual productivity Training et al., (2020). In addition, the internet facilitates students in providing, accessing, and disseminating relevant information, thereby simplifying the learning process.

The digital environment in schools also plays an important role in facilitating student engagement The quality and resources provided by the digital environment can affect the effectiveness of digital media in increasing student engagement. Studies show that a well-developed digital environment can support the optimal use of digital media, making students feel more involved and motivated in the learning process Al-adwan et al., (2021). Thus, integrating digital media into Indonesian

language learning increases student engagement and helps them develop communication and collaboration skills that are important in modern education (Shetye & Indrakanti, 2023). However, it should be noted that the use of digital media must also be balanced with a strong understanding of digital literacy. Students need to be equipped with the skills to use digital media effectively and responsibly, so that they can take advantage of the potential of digital media without falling into its negative impacts (Rahayu, 2023). Therefore, educators must actively guide students to use digital media wisely and productively in the context of learning.

Digital barriers in education refer to issues that prevent students from accessing, applying, and mastering technology. These barriers can take many forms, and their impact is significant. Students often experience difficulties in obtaining digital tools. The availability and quality of internet connections are crucial factors in the use of technology for education. In a number of areas in Central Java, especially those in rural and remote areas, internet infrastructure is often minimal, resulting in slow and unreliable internet connection speeds and quality. This situation can hinder students' participation in online learning and access to digital resources (Handayani, 2020). Digital literacy is a fundamental skill for 21st-century learners, as limited access to technology, insufficient digital skills, and the lack of locally relevant learning materials can negatively affect students' learning outcomes and widen academic and socioeconomic disparities. Students' reflective responses were analyzed to examine competency development and learning actions resulting from meaningful learning supported by digital technology, as presented in Table 4.

Table 4. Competency Development and Learning Actions for Meaningful Learning Based on Digital Technology

Reflection Category	Student Reflective Statements	Scientific Interpretation
Feelings when Using Technology	Students said that they enjoyed learning using digital applications more because learning became more exciting and less boring.	This reflection shows that digital technology can increase students' affective engagement, which plays an important role in creating meaningful learning.
Understanding the Material	Some students explained that they understood the material more quickly when it was accompanied by pictures, animations, or digital simulations.	Digital visualization strengthens students' mental representations, thereby facilitating their understanding of abstract concepts, in accordance with Paivio's dual-coding theory.
Involvement in Activities	Students admitted to being more active when activities were conducted through digital quizzes or educational games because they feel challenged to get the best grades.	This shows that gamification of learning increases competitive motivation
Difficulties Encountered	Some students reported difficulties when devices were slow or when the display differed from the teacher's explanation.	Which encourages students to actively participate in the learning process. These obstacles reflect students' need for digital literacy, especially in adapting to devices and navigating applications.

4. Conclusion

Based on the findings of this study, it can be concluded that the use of digital technology in teaching Indonesian language in grade IV of SD Muhammadiyah 1 Surakarta can provide an interesting learning experience for students. The use of digital media, such as interactive and visual applications, improves students' cognitive, emotional, and reflective abilities, so that learning does not only focus on conceptual understanding but also on the ability to connect the material with everyday experiences. As a result, the purpose of this study is to analyze how students learn through digital technology. The research findings show that the implementation of meaningful technology-based education has succeeded in increasing students' motivation and enthusiasm for the learning process while improving their understanding of Indonesian language material. The role of teachers as facilitators is key in directing the use of technology to remain in line with learning objectives and student needs. Digital innovation in education and assessment is also useful in creating a more interactive, contextual, and relevant learning environment. However, this study also revealed several differences, particularly related to technical aspects such as differences in devices and internet network stability, as well as a decline in students' motor skills due to the dominance of digital devices. Although these obstacles can be overcome through teacher adaptation strategies, this shows that the success of meaningful digital technology-based education requires a balance between the use of technology and traditional learning activities. Overall, this study shows that the integration of digital technology is an effective and promising strategy for improving Indonesian language teaching in elementary schools instruction in primary.

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