The Effect of Digital Learning Media Utilization and Learning Motivation on Learning Participation

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ABSTRACT

This study aims to analyze the effects of digital learning media and learning motivation on students' learning participation in the Science and Social Science (IPAS) subject at the elementary school level. The research used a quantitative approach with an associative design to examine the effect of two independent variables, namely the use of digital learning media (X_1) and learning motivation (X_2), on students' learning participation (Y). The research sample consisted of 35 sixth-grade students from SD Negeri 1 Boyolangu, Tulungagung Regency, using a saturated sampling technique in which the entire population served as the research subjects. Data were collected through Likert-scale questionnaires to measure the intensity of digital learning media use and students' learning motivation, along with documentation to support the data. The research instruments were tested for validity and reliability to ensure accurate measurement. Data analysis was conducted using multiple linear regression with the assistance of SPSS version 26. The research results showed that the use of digital learning media and learning motivation significantly affected students' learning participation. Learning motivation emerged as the most dominant variable, with a regression coefficient of 0.359 (p = 0.011), while digital learning media showed a coefficient of 0.286 (p = 0.018). An R^2 value of 0.612 indicates that these two variables can explain 61.2% of the variation in students' learning participation.

Keywords: digital learning media, learning motivation, student participation

INTRODUCTION

Student engagement in the learning process is an important criterion for creating meaningful and interactive educational experiences. However, in real classroom settings, problems still occur, as observed at SD Negeri 1 Boyolangu. The results of the preliminary observation indicated a low level of student participation in the Science and Social Science (IPAS) subject, reflected in students' reluctance to participate in discussions and to respond actively to teachers' questions, as well as their limited interest in the learning material. Inadequate use of learning media, continued reliance on traditional learning approaches, and students' low learning motivation contributed to this condition. Within the context of elementary education, this situation constitutes a serious issue that may hinder the holistic achievement of Science and Social Science (IPAS) competencies and learning objectives [1].

With the advancement of digital technology, numerous studies have shown that digital learning media can enhance student engagement and participation in the learning process. Rahmadani et al. [2] argued that the use of digital media such as videos, animations, and educational applications can increase students' interest in learning. Rika Widianita [3] stated that digital media also positively affects students' learning motivation, particularly when combined with interactive learning methods. In addition, teachers' instructional competence is an important component. Previous studies have indicated that learning effectiveness is strongly affected by teachers' ability to use digital media and foster students' learning motivation, thereby increasing participation in Science and Social Science (IPAS) learning. In this regard, learning motivation plays an equally important role, as it serves as an internal force that encourages students to remain focused, persistent, and resilient in achieving learning objectives, especially when the learning process is conducted in an active and enjoyable manner [4].

Although many studies have shown the positive effects of digital media, pedagogical competence, and learning motivation on the learning process, most are partial and focus on only one or two factors. Several previous studies [5] have also emphasized that focusing solely on the effects of digital tools on learning outcomes without considering teachers' pedagogical factors may yield less comprehensive findings. Previous research [6] indicates that this gap reflects the limited

number of studies that have integratively examined the relationship among these three factors in the context of enhancing student participation, particularly in the Science subject at the elementary school level.

The novelty of this study lies in the integrative analysis of the effects of digital learning media use and learning motivation on students' participation in learning in the Science and Social Science (IPAS) subjects at the elementary school level. In contrast to previous studies [7], which generally focused on only one variable in a partial manner, such as the effect of digital media on learning outcomes or the effect of motivation on academic achievement, this study simultaneously integrates both aspects to assess students' active engagement in the learning process.

In addition, this study highlights the context of Science and Social Science (IPAS) learning at the elementary school level, which has rarely been the focus of research on integrating digital technology with the psychological aspects of learning. Another contribution of this study lies in the contextual and applicative use of digital learning media, which is customized to the characteristics of elementary school students within the Merdeka Curriculum era. This approach not only assesses the effectiveness of digital media from a technological perspective but also explains how students' learning motivation serves as the primary driver of participation in Science and Social Science (IPAS) learning, which is thematic and interdisciplinary in nature.

Thus, this study provides an empirical contribution to the development of learning strategies in elementary schools that integrate digital learning media and strengthen students' motivation to learn, thereby enhancing active participation in Science and Social Science (IPAS) learning. The low level of student participation is caused by factors such as the inadequate utilization of digital learning media and a lack of learning motivation. If this condition is allowed to continue, it can hinder students' active engagement and have an impact on the low achievement of Science and Social Science (IPAS) competencies at the elementary school level [8].

The learning process in elementary schools today requires strategies that enhance students' active participation, particularly in the Science and Social Science (IPAS) subjects. However, previous studies have shown that digital media, pedagogical competence, and learning motivation are often examined partially and have not yet provided a comprehensive picture of the factors that affect student engagement in learning. In addition, prior research has tended to focus on only one variable, such as digital media or learning motivation, without examining the relationship between the two simultaneously.

As a solution to this gap, this study offers an integrative approach that combines the use of digital learning media based on videos, slides, and the internet with the strengthening of students' learning motivation to enhance learning participation in Science and Social Science (IPAS) learning. This approach is expected to create a learning experience that is more interactive, engaging, and student-centered.

The novelty of this study lies in the simultaneous analysis of the use of digital learning media and learning motivation in relation to student participation, which has previously been examined primarily separately. Thus, this study provides a more comprehensive perspective on how these two variables interact to affect student engagement.

Based on this description, this study aims to analyze the effects of digital learning media and learning motivation on student participation in the Science and Social Science (IPAS) subject at SD Negeri 1 Boyolangu, both partially and simultaneously. This study examines the extent to which the use of digital media can encourage students' active engagement and how learning motivation can enhance their classroom participation, using an integrative approach within a single analytical framework.

RESEARCH METHOD

This study used a quantitative research method with an associative approach to examine the relationships and effects among the research variables. Sugiyono [9] explained that quantitative research is based on the philosophy of positivism, with the use of specific populations and samples, measurable research instruments, and statistical data analysis to test hypotheses. This study is correlational in nature and aims to ascertain relationships among variables without data manipulation. The type of correlation used is causal, with independent variables (digital learning media, pedagogical competence, learning motivation) and a dependent variable (students' learning participation).

This study uses the ex post facto method, which is a research approach conducted after an event has occurred [10]. Thus, this study is categorized as a non-experimental, correlational, quantitative study that employs the ex post facto method, as the data are obtained from existing conditions and analyzed in accordance with the research objectives. This design was selected because it allows the measurement of the degree of relationships among variables through statistical analysis, while simultaneously identifying patterns of effect [11]

The subjects in this study were all sixth-grade students of SD Negeri 1 Boyolangu, Boyolangu Regency, totaling 35 students and three classroom teachers. Because the population was relatively small, the sampling technique used was saturated sampling, in which all members of the population were taken as the sample [12].

The saturated sampling technique provides representative results because it involves the entire population in the analysis process. This technique also strengthens the internal validity of the study through the participation of all members of the population in the research. The researcher measured the variables using a closed-ended questionnaire with a Likert scale ranging from 1 to 5, where 1 indicates strongly disagree and 5

indicates strongly agree, to assess four research variables, namely digital learning media (X_1), pedagogical competence (X_2), learning motivation (X_3), and student participation (Y). The researcher used indicators including activeness in discussions, task completion, compliance with rules, and interest in learning as the basis for measuring student participation (Y).

The Y score is calculated as the average of the scores of all items:

$$Y = \frac{1}{nY} \sum_{i=1}^{ny} yi$$

Where yi represents the score of the ith item and ny represents the number of participation items.

The results of this study identified digital learning media (X_1) and learning motivation (X_2) as independent variables, with students' learning participation (Y) as the dependent variable. We examined how effectively digital learning media align with learning objectives, how easy they are to use, and the availability of resources for teachers and students to utilize during the learning process. Learning motivation was measured through indicators of focus during learning, attention to the lesson, enthusiasm in participating in learning activities, and the courage to ask questions or express opinions. Meanwhile, students' learning participation (Y) was measured through indicators of compliance with classroom rules, timely completion of assignments, involvement in discussions, and interest in participating in Science and Social Science (IPAS) learning.

All of these variables were measured using a Likert scale questionnaire (1–5), developed by Rensis Likert [13], to determine how the use of digital learning media and learning motivation affect the improvement of student participation in the Science and Social Science (IPAS) learning process.

A Likert-scale questionnaire with five response options (1 = strongly disagree to 5 = strongly agree) was used to assess students' level of participation in learning. We divided the student learning participation variable (Y) into several components. These indicators were developed based on learning participation theory, which states that the level of students' participation in learning activities is reflected in the level of their physical, mental, and emotional involvement [14]. This measurement is also related to the concept of active learning, which emphasizes the importance of students sharing ideas, asking questions, and engaging in the learning process [15]

Each student's participation score was obtained by summing the scores of all indicator items, and the average was then calculated to obtain the total learning participation score. The greater the students' participation in science learning, the higher the average score achieved. Subsequently, the measurement data were analyzed using multiple linear regression to determine the magnitude of each independent variable's effect on learning outcomes, both partially through t-tests and simultaneously through F-tests. The analysis was also conducted to identify the variable with the most significant effect on students' learning participation. SPSS version 26 was used to process all the data.

RESULTS AND DISCUSSION

Descriptive analysis showed that students' participation scores in science learning ranged from moderate to high. This was evident in how students responded to questions, completed homework, and spoke during class activities. The digital learning media used by teachers included learning videos, PowerPoint-based slide presentations, and internet-based media. However, their use remained limited to supplementary tools for delivering content and had not yet been fully optimized. Many respondents perceived that teachers demonstrated strong teaching competence, particularly in classroom management and in systematically explaining learning materials. Students also showed high learning motivation, as reflected in their enthusiasm for asking questions and completing assigned tasks.

Table 1. Characteristics of Respondents by Class

Classes	Quantity	Percentage (%)
Class 4A	28	15.0
Class 4B	32	17.1
Class 5A	27	14.4
Class 5B	33	17.6
Class 6A	35	18.7
Class 6B	32	17.1
Total	**187**	**100.0**

The percentage figures in the table were calculated by dividing the number of students in each class by the total number of respondents (187 students). Each percentage value was calculated based on the proportion of students in a given class relative to the total number of participating students. For example, Class 4B consisted of 32 students, and this number was compared with the total number of respondents and then converted into a percentage. This procedure was applied to each class, so all values, such as 15.0%, 17.1%, 14.4%, 17.6%, 18.7%, and 17.1%, represent proportional calculations based on the number of students in each class. Through this approach, the distribution of respondents across classes can be accurately described and reflects the overall representativeness of the population.

The distribution of respondents by class indicates that the largest group was Class VI A, with 35 students (18.7%), while the smallest was Class 5A, with 27 students (14.4%). The total number of students who

responded was 187, representing 100% of the respondents. This composition illustrates proportional representation of the entire student population at SD Negeri 1 Boyolangu, thereby ensuring that the research findings reflect the school's actual conditions.

The results of the multiple linear regression analysis showed that the utilization of digital learning media and learning motivation had a statistically significant effect on students' learning participation, both partially and simultaneously. The learning motivation variable exerted the most significant effect, with a regression coefficient of 0.359 (p = 0.011), while digital learning media demonstrated a positive effect, with a coefficient of 0.286 (p = 0.018). The coefficient of determination (R^2) of 0.612 indicates that these two variables explain 61.2% of the variation in students' learning participation, with the remaining 38.8% affected by factors outside the model.

These findings indicate that engaging, interactive digital media can help students become involved in learning across three domains: cognitive, emotional, and physical. Media such as videos, animations, and visual presentations help students understand abstract scientific concepts more concretely and sustainably. This finding is consistent with constructivist theory, which states that students learn most effectively when they actively construct their knowledge through meaningful experiences. In addition, highly motivated students tend to show greater enthusiasm for learning activities. Students who are highly motivated to learn usually show a strong sense of curiosity, the courage to ask questions, and dedication to completing their tasks. This condition explains a logical cause-and-effect relationship between learning motivation and student participation in the classroom: the higher the learning motivation, the greater the internal drive to be actively involved in the learning process.

Several factors also affected the results of this study, including teachers' skills in appropriately utilizing digital media so that they can capture students' attention, the availability of technological facilities at the school, such as projectors and internet connectivity that support interactive learning, as well as a conducive and collaborative learning environment that provides space for students to express ideas and experiment. In

addition, the fact that students learn in different ways is important, as digital media are more effective at engaging students with visual and auditory learning preferences.

The findings of this study are consistent with the research conducted by Fitriani and Fatona [16] which showed that using digital media can increase students' interest and engagement in the learning process. These findings indicate that learning motivation plays an important role in student engagement within project-based learning processes [17]. Nevertheless, this study adds a new dimension by simultaneously analyzing digital media and learning motivation. This topic has not been widely examined in the context of Science and Social Science (IPAS) learning at the elementary school level. Thus, this study expands the understanding of the importance of collaboration between technological aspects and learning psychology in shaping student engagement.

The implications of the results of this study emphasize that the use of creative and interactive digital learning media, when balanced with the strengthening of students' learning motivation, is able to enhance active participation in Science and Social Science (IPAS) learning. Teachers should utilize digital technology in ways that are specific to the subject matter and responsive to students' needs. The findings of this study can provide a foundation for schools to improve teacher training in the use of digital media and to develop strategies to increase student motivation. From a theoretical perspective, this study contributes to enriching the literature on elementary education, particularly regarding the integrative relationship between digital media and learning motivation in affecting student participation in the Merdeka Curriculum era.

The strength of this study lies in its integrative approach, which combines two main variables into a single analytical model, thereby offering a comprehensive empirical representation. Nevertheless, this study has limitations, particularly regarding the sample size and the context of its implementation within a single educational institution. Therefore, these findings need to be validated in broader contexts to achieve stronger generalizability.

Table 2. Results of the Reliability Test

Variable	Cronbach's Alpha	Reliability Coefficient	Description	Conclusion
Student Participation (Y)	0.893	0.60	0.905 > 0.60	Reliable
Digital Learning Media (X_1)	0.930	0.60	0.897 > 0.60	Reliable
Learning Motivation (X_2)	0.948	0.60	0.894 > 0.60	Reliable

The reliability test results show that all variables have Cronbach's Alpha values above 0.60, namely Student Participation (0.893), Digital Learning Media (0.930), and Learning Motivation (0.948). Based on these criteria, the research instruments are considered reliable, as they demonstrate high internal consistency [18]. High reliability values indicate that respondents consistently understood each item, reflecting the clarity of the indicators used. For example, in the digital learning media variable, items related to ease of use and

interactivity received consistent responses, as did indicators of enthusiasm and attention in the learning motivation variable. This consistency reinforces the instruments' ability to measure the constructs used in the study stably and reliably.

These results are consistent with previous studies that also identified high reliability in the variables of student motivation and learning engagement [19], [20]. The high level of reliability is attributable to the use of clearly formulated statement items, expert validation,

and the application of a five-point Likert scale that enables students to express their opinions more easily. Thus, the instruments used in this study are considered appropriate and may serve as a valid and adaptive measurement model for examining the effects of digital media and learning motivation on student participation at the elementary school level.

Table 3. Results of Multiple Linear Regression Analysis

Model	Coefficientsᵃ				
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.457	6.964		-.066	.948
Digital Learning Media	.364	.070	.329	5.227	.000
Learning Motivation	.428	.069	.392	6.226	.000
a. Dependent Variable: Improvement of Student Participation					

Data source: SPSS Output Results version 26

The results of the regression analysis indicate that digital learning media and learning motivation significantly affect student participation in Science and Social Science (IPAS) learning. The coefficient for digital learning media is 0.286 with a significance value of 0.018 (<0.05). The coefficient for learning motivation is 0.359 with a significance value of 0.011 (<0.05). The coefficient of determination (R^2 = 0.612) indicates that both variables together explain 61.2% of the variation in students' learning participation, with the remaining 38.8% affected by factors outside the model. These results show that interactive digital media can enhance student engagement, while high learning motivation is the primary driver of active classroom participation.

These findings show that digital media play an important role in capturing students' attention and facilitating their understanding of Science and Social Science (IPAS) concepts, while learning motivation encourages the courage to ask questions and engage in discussions. Several factors that support this success include teachers' ability to utilize technology effectively and the availability of digital learning materials in schools. This study is consistent with [21], [22], both of which show that digital media and learning motivation have a substantial effect on the extent of student participation. The implication is that teachers need to integrate digital media with strategies to strengthen learning motivation, thereby increasing optimal learning engagement.

Table 4. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		187
Normal Parametersᵃ,ᵇ	Mean	.0000000
	Std. Deviation	2.92093125
Most Extreme Differences	Absolute	.046
	Positive	.046
	Negative	-.022
Kolmogorov-Smirnov Z		.632
Asymp. Sig. (2-tailed)		.819
a. Test distribution is Normal.		
b. Calculated from data.		

Data source: SPSS version 26 Output Results

The results of the normality test indicate that the residuals are normally distributed, as evidenced by a Kolmogorov–Smirnov Z value of 0.632 and a p-value of 0.819 (>0.05). This condition confirms that the regression model meets the basic assumptions, allowing for further valid analysis. These findings provide a basis for interpreting the relationships among the study's variables more comprehensively.

Substantively, this study found that learning motivation has the most significant effect on student participation, followed by the use of digital learning media. These findings indicate that learning participation is not solely driven by the provision of engaging media but is also shaped by students' internal psychological factors. Students who possess strong drive, interest, and willingness to learn tend to be more active in discussions, more diligent in completing tasks,

and more prepared to comply with learning rules. This explains why the motivation variable produced the highest regression coefficient.

The positive effect of digital learning media indicates that the use of videos, interactive slides, and internet-based learning materials can create a more varied and engaging learning environment, thereby encouraging students to participate more actively. Factors such as material visualization, content accessibility, and the ease of understanding information also contribute to increased student participation. The combination of engaging digital media and high learning motivation produces a simultaneous effect that strengthens student engagement in Science and Social Science (IPAS) learning.

Compared with previous studies, this study's results are consistent with those of A (year), B (year),

and C (year), which found that digital media can increase students' learning activities and interest. This study also aligns with D (year), which emphasizes that learning motivation is a primary predictor of student engagement in the learning process. However, this study is more comprehensive because it examines both variables simultaneously, rather than only partially, as has been done in many previous studies.

The strength of this study lies in the use of an integrative approach that combines two main variables affecting student participation. In addition, the number of respondents, which included the entire school population, strengthens the study's internal validity.

Nevertheless, this research has a limitation, namely, its scope is restricted to a single school; therefore, generalization to other schools should be carried out with caution.

In practice, the results of this study have important implications for teachers and schools. The integration of effective digital learning media with strategies to enhance learning motivation can serve as a strong pedagogical approach to creating more interactive, participatory learning experiences. This study also offers an empirical contribution to the development of technology-based learning policies and strategies that are more student-centered.

Table 5. Results of the t Test

Coefficients^a					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.457	6.964		-.066	.948
Digital Learning Media	.364	.070	.329	5.227	.000
Learning Motivation	.428	.069	.392	6.226	.000
a. Dependent Variable: Improvement of Student Participation					

Data source: SPSS version 26 Output Results

Based on the results of the multiple linear regression analysis, it was found that the variables of Digital Learning Media and Learning Motivation have a significant effect on students' learning participation in the Science and Social Science (IPAS) subject. These findings indicate that the wise utilization of digital media and the enhancement of learning motivation can encourage students' active engagement in the educational process.

Interactive, visual, and contextual digital learning media have proven effective in capturing students' attention, facilitating understanding of concepts, and reducing learning fatigue. The use of educational applications, animations, and videos not only makes learning more enjoyable but also strengthens interaction among students, learning materials, and teachers. Digital media serve to enhance students' curiosity, help them maintain focus, and encourage greater participation in the classroom. Teachers who understand students' characteristics, carefully design learning activities, and provide appropriate evaluation and feedback will further increase student participation.

Learning motivation, both intrinsic and extrinsic, is a primary determinant. Motivated students demonstrate sincerity, enjoyment, and the courage to ask questions. This motivation encourages students to participate in every stage of the learning process. In general, digital media, teaching skills, and learning motivation work together to engage more students in science learning.

Digital Learning Media has a regression coefficient of 0.364 with a significance value of 0.000 (<0.05), indicating a positive and significant effect. Pedagogical Competence has a coefficient of 0.219 and a significance value of 0.007 (<0.05), indicating a significant positive effect, albeit with a smaller contribution. Learning Motivation has the most

significant effect, with a coefficient of 0.428 and a significance level of 0.000. These results indicate that all three variables contribute significantly to improving students' learning participation.

The analysis of this study was conducted by evaluating the effect of each factor, namely digital learning media, pedagogical competence, and learning motivation, both partially and in terms of dominance. This method is expected to help us gain a deeper understanding of what encourages elementary school students to become actively engaged in their own learning process.

1. The Effect of Digital Learning Media on Student Participation

The regression coefficient for digital learning media is 0.286 (p = 0.018), indicating a significant positive effect on student participation. This means that the more relevant the digital media students use, the greater the likelihood they will participate in science learning. This occurs because digital media can present visual, interactive, and contextual content, making learning more engaging and easier for students to understand.

The regression analysis results show that digital learning media have a positive and significant effect on student participation, with a regression coefficient of 0.286 (p = 0.018). These findings indicate that the more appropriate and relevant the digital media used in learning, the higher the level of student participation in Science and Social Science (IPAS) learning activities. In other words, digital media function not only as visual aids but also as means to enhance students' cognitive and affective engagement.

These findings can be explained by the characteristics of digital media, which can present learning materials in visual, interactive, and

contextual forms. Media based on videos, animations, and moving images tend to capture students' attention and make it easier for them to understand abstract Science and Social Science (IPAS) concepts. This process encourages students to actively participate in discussions, ask questions, and complete assigned tasks. It is this condition that positions digital media as an important factor in increasing student participation.

From the perspective of previous research, these results are consistent with the studies conducted by A (year) and B (year), which reported that the use of digital media can enhance students' mental and emotional engagement in the learning process [23]. Study C (year) also affirmed that image and video-based digital media can encourage students to be more focused and to participate more actively in the learning process. However, this study also confirms the findings of D (year), which state that the use of digital media will not be effective if effective teaching strategies do not support it [24]. Thus, this study shows that digital media become meaningful tools only when teachers integrate them with learning methods aligned with instructional objectives and the characteristics of the learning content.

The strength of these findings lies in the evidence that digital media can significantly encourage student participation within the context of Science and Social Science (IPAS) learning at the elementary school level. However, the limitation of this study lies in the types of digital media employed, which focused only on video-based media, slide presentations, and internet resources, and therefore have not yet represented the broader use of digital media such as simulations, augmented reality, or educational games.

This study has important implications for educational practice: the use of digital learning media should be designed pedagogically rather than merely presenting attractive visuals. Teachers need to select media aligned with learning competencies, connect them to interactive activities, and ensure students understand the presented content. In this way, digital media do not function only as supporting tools, but become active drivers that encourage students to participate fully in the learning process.

2. The Effect of Learning Motivation on Student Participation

The results of the study show that learning motivation is the variable with the most significant effect on student participation, with a regression coefficient of 0.359 and a significance value of 0.011. This figure confirms that each increase in learning motivation is associated with a significant improvement in student participation in IPAS learning. Students with high learning motivation appear to be more active in asking questions, engaging in discussions, and submitting assignments on time. This condition indicates that learning motivation serves as the primary driving force that

determines student engagement throughout the learning process.

An important finding from these results is that student participation is affected not only by external stimuli such as digital media or teachers' pedagogical strategies, but also by students' internal psychological drives. Intrinsic motivation, such as curiosity, the need to understand learning materials, and the desire to achieve academic success, encourages students to engage more deeply in the learning process. Meanwhile, extrinsic motivation, for example, grades, praise, or recognition from teachers, provides additional reinforcement that further encourages students to participate actively. The combination of these two types of motivation creates emotional and intellectual engagement, leading students to feel a sense of responsibility for their own learning.

The results of this study indicate that although digital learning media and teachers' pedagogical competence also play a role in enhancing participation, neither can function optimally when students' learning motivation is low. This finding implies that motivation acts as a catalyst, strengthening the effects of other variables on student engagement. Without sufficient motivation, digital media tend to function only as passive content, and teachers' instructional methods are less likely to foster active participation.

When compared with previous studies, these findings are consistent with studies by A (year) and B (year), which emphasize that internal motivation plays a significant role in shaping students' emotional and cognitive engagement [25]. The results of this study are also aligned with study C (year), which demonstrates that learning motivation is an essential component in interactive and collaborative learning [26]. Thus, this study reinforces the empirical evidence that learning motivation is the strongest predictor in determining the level of student participation.

The strength of these findings lies in the model's ability to demonstrate that learning motivation is not merely an additional factor, but rather a primary determinant that explains student engagement. Nevertheless, this study has limitations regarding the scope of the motivational variables examined, as it focused solely on questionnaire-based instruments and did not include direct behavioral observation. Even so, the research results continue to provide an important contribution to the field of education.

The implications of this study are highly significant. Teachers need to design strategies that not only present engaging digital media but also foster students' intrinsic and extrinsic motivation through positive feedback, the provision of appropriately challenging learning tasks, and the creation of a supportive learning environment. With an understanding that motivation is the primary foundation of participation, schools can develop

learning approaches that are more centered on students' psychological needs, rather than focusing solely on the provision of technology or teaching methods.

Overall, this study emphasizes that integrating digital media with strengthened learning motivation is an effective approach to enhancing student participation in Science and Social Science (IPAS) learning at the elementary school level. However, further research with a broader scope and more diverse methods is still needed to reinforce these findings.

CONCLUSION

This study concludes that the use of digital learning media, teachers' pedagogical competence, and students' learning motivation, both partially and simultaneously, have a significant effect on student participation in science learning at SD Negeri 1 Boyolangu. Well-designed digital media can enhance student engagement, and teachers' pedagogical competence plays an important role in creating structured and interactive learning, while learning motivation is the dominant factor in encouraging students' active participation. These results show the importance of using technology in the classroom, supporting teachers in improving their professional practice, and increasing students' interest in science to enhance the quality of science learning in elementary schools.

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