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The Effectiveness of Image-Based Learning Media in Enhancing Student Motivation in Geography Classrooms: A Quasi-Experimental Study

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ABSTRACT
This study aims to examine the effect of image-based learning media on students' learning motivation in Geography at SMA Negeri 4 Pekanbaru. A quantitative approach with a quasi-experimental design was used. The population consisted of 229 grade XI IPS students, with a sample of 77 students selected using a random sampling method. Data were collected using a validated 24-item questionnaire that demonstrated high reliability (Cronbach's Alpha ≥ 0.8) to measure students' learning motivation before and after the intervention. The intervention involved the use of image-based learning media during Geography lessons, where students were presented with visual representations of concepts and phenomena to facilitate understanding and engagement. Descriptive and inferential analyses, including independent t-tests, were conducted to evaluate the results. The findings indicated that the use of image-based media significantly improved students' motivation, with a post-test mean difference of 12.28 ($t = 6.811$, $p = 0.000$) and an effect size of 1.55, indicating a strong practical impact. In conclusion, integrating image-based media into Geography teaching effectively increases student motivation, particularly in understanding complex topics such as natural disasters. Further research is recommended to explore the combination of image-based media with other active learning methods and to examine its impact on cognitive and critical thinking skills at various school levels.

Kata Kunci:
Media Gambar;
Learning Motivation;
Natural Disasters;

ABSTRAK
Penelitian ini bertujuan untuk menguji pengaruh media pembelajaran berbasis gambar terhadap motivasi belajar siswa dalam mata pelajaran Geografi di SMA Negeri 4 Pekanbaru. Pendekatan kuantitatif dengan desain kuasi-eksperimental digunakan. Populasi terdiri dari 229 siswa kelas XI IPS, dengan sampel sebanyak 77 siswa yang dipilih menggunakan metode random sampling. Data dikumpulkan menggunakan kuesioner 24 item yang telah divalidasi dan menunjukkan reliabilitas tinggi (Cronbach's Alpha ≥ 0,8) untuk mengukur motivasi belajar

siswa sebelum dan sesudah intervensi. Intervensi tersebut melibatkan penggunaan media pembelajaran berbasis gambar selama pelajaran Geografi, di mana siswa disajikan dengan representasi visual dari konsep dan fenomena untuk memfasilitasi pemahaman dan keterlibatan. Analisis deskriptif dan inferensial, termasuk uji t independen, dilakukan untuk mengevaluasi hasilnya. Temuan menunjukkan bahwa penggunaan media berbasis gambar secara signifikan meningkatkan motivasi siswa, dengan perbedaan rata-rata pasca-uji sebesar 12,28 (t = 6,811, p = 0,000) dan ukuran efek sebesar 1,55, yang menunjukkan dampak praktis yang kuat. Kesimpulannya, mengintegrasikan media berbasis gambar dalam pengajaran Geografi secara efektif meningkatkan motivasi siswa, khususnya dalam memahami topik kompleks seperti bencana alam. Penelitian selanjutnya direkomendasikan untuk mengeksplorasi kombinasi media berbasis gambar dengan metode pembelajaran aktif lainnya dan untuk menguji pengaruhnya terhadap keterampilan kognitif dan berpikir kritis di berbagai tingkatan sekolah.

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INTRODUCTION

Climate change is one of the greatest challenges to the sustainability of life on Earth, particularly for ecosystems that are highly vulnerable to environmental change, such as tropical rainforests [1]. Tropical rainforests boast extraordinary biodiversity, yet they are also highly sensitive to climate change. Changes in temperature, rainfall patterns, and the frequency of natural disasters can disrupt the natural habitats of various species, which in turn can affect ecosystem stability. Numerous previous studies have shown that climate change threatens the survival of various species in tropical rainforests [2], but few have specifically addressed its impact on biodiversity in an educational context.

One way to increase understanding of the impact of climate change on biodiversity is through effective education, particularly at the secondary school

[1] Paulo Eduardo Menezes-Silva et al., "Different Ways to Die in a Changing World: Consequences of Climate Change for Tree Species Performance and Survival through an Ecophysiological Perspective," *Ecology and Evolution* 9, no. 20 (2019): 11979–99, https://doi.org/https://doi.org/10.1002/ece3.5663.

[2] William F Laurance et al., "An Amazonian Rainforest and Its Fragments as a Laboratory of Global Change," *Biological Reviews* 93, no. 1 (2018): 223–47, https://doi.org/https://doi.org/10.1111/brv.12343.

level [3]. In this effort, the use of appropriate learning media can be an invaluable tool [4]. Visual media, for example, can help students grasp complex concepts, such as the impact of climate change on ecosystems, in a more accessible and engaging way [5]. Previous research has shown that visual media can increase student learning motivation, particularly in subjects related to environmental issues and natural disasters [6].

However, despite research on the effectiveness of visual media in education, there remains a gap in studies regarding its application, particularly in learning about climate change and biodiversity in tropical rainforests. Many studies have overlooked the direct impact of visual media in enhancing student understanding and motivation on such complex topics. This study aims to fill this gap by exploring how the use of visual media can influence student learning motivation on topics about climate change and natural disaster management, as well as their impact on biodiversity in tropical rainforests.

In Geography education, many learning topics require students to understand spatial relationships, environmental processes, and dynamic interactions between humans and nature. Such concepts are often abstract and difficult to comprehend through verbal explanation alone. Therefore, instructional media that can visualize geographical phenomena are needed to facilitate students' understanding and engagement in the learning process. Visual learning media, especially image-based media, are considered effective because they can transform abstract concepts into more concrete representations that are easier for students to interpret and remember[7].

Learning motivation is also recognized as one of the most influential factors affecting students' academic achievement and classroom participation. Students with high learning motivation tend to demonstrate greater concentration, persistence, and enthusiasm during instructional activities.

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[3] Miguel A Ortega et al., "Climate Change Increases Threat to Plant Diversity in Tropical Forests of Central America and Southern Mexico," *PLOS ONE* 19, no. 2 (2024): 1–16, https://doi.org/10.1371/journal.pone.0297840.

[4] Roby Jasmanedi, Eri Barlian, and Randi Kurniawan, "Analysis of Physical Fitness of Elementary School Learners in the Beachside , Plain , and Mountain Areas of Padang City," *Jurnal Penelitian Pendidikan IPA* 11, no. 3 (2025): 19–25, https://doi.org/10.29303/jppipa.v11i3.10374; Padli Padli et al., "The Influence of Environment and Social Interaction on the Formation of Athlete Character: A Descriptive Study," *Revista Iberoamericana de Psicología Del Ejercicio y El Deporte* 19, no. 4 (2024): 430–34.

[5] Tri Prasetyo et al., "The Role Of Multimedia In The Process Physical Education Learning: Study Literature," *Journal Sport Science Indonesia* 3, no. 3 (2024): 493–504, https://doi.org/https://doi.org/10.31258/jassi.3.3.493-504.

[6] Brittany T Trew et al., "Novel Temperatures Are Already Widespread beneath the World's Tropical Forest Canopies," *Nature Climate Change* 14, no. 7 (2024): 753–59, https://doi.org/10.1038/s41558-024-02031-0.

[7] Sanchiz, M., J. Lemarié, A. Chevalier, J. Cegarra, P. V. Paubel, L. Salmerón, and F. Amadieu. "Investigating Multimedia Effects on Concept Map Building: Impact on Map Quality, Information Processing and Learning Outcome." Education and Information Technologies 24, no. 6 (2019): 3645–3667. https://doi.org/10.1007/s10639-019-09943-x.

However, conventional teaching methods that rely heavily on lectures often reduce students' attention and participation, particularly in subjects requiring visualization such as Geography. Previous studies have shown that visual learning aids and multimedia-based instruction can significantly increase student engagement, participation, and learning motivation in classroom settings[8,9].

Furthermore, the development of educational technology in the twenty-first century has encouraged teachers to integrate more interactive and student-centered instructional approaches. The integration of visual media into classroom instruction is not only intended to improve cognitive understanding but also to create meaningful and contextual learning experiences. Through visual representations, students are able to connect theoretical concepts with real environmental conditions, including issues related to climate change, natural disasters, and biodiversity conservation[10]. This contextual learning process is important in Geography education because it helps students develop environmental awareness and critical thinking skills toward contemporary ecological challenges.

Despite the growing use of visual media in education, studies specifically examining its impact on student learning motivation in Geography learning at the senior high school level remain limited. Most previous studies focused more on learning achievement and cognitive outcomes rather than motivational aspects. Therefore, this study seeks to contribute to the existing literature by investigating the effectiveness of image-based learning media in enhancing students' learning motivation, particularly in Geography subjects discussing climate change and natural disaster management.

The purpose of this study was to determine the extent to which visual media can increase student learning motivation in understanding concepts related to climate change and natural disaster management, and to explore its impact on student awareness of the importance of preserving biodiversity in tropical rainforests. This research is expected to make a significant contribution to developing more effective learning methods that can increase student awareness and understanding of these critical environmental issues.

Methods

This study used a quantitative approach with a quasi-experimental method. Table 1 shows the research design used, with two groups: one

[8] Janela, Cuenca Nicole A., et.al., "Quality of Visual Aids and The Engagement of Learners in the Teaching and Learning Process." Asian Journal of Education and Social Studies 50, no. 5 (2024): 489–494. https://doi.org/10.9734/ajess/2024/v50i51378.

[9] Reyandri, Dezla Borja,et.al., "The Power of Visual Literacy: Affirmation Comics to Build English Motivation in Senior High Students." JOLLT Journal of Languages and Language Teaching 13, no. 4 (2025): 2195–2204. https://doi.org/10.33394/jollt.v13i4.17012.

[10] Berardinetti, Valentina. "The Role of Visual Education in Training Processes: A Systematic Review of the Use of Visual Tools to Enhance Learning and Promote the Development of Soft Skills." *Proceedings 139*, no. 1 (2026). https://doi.org/10.3390/proceedings2026139006.

experimental group using images as a medium in geography learning, and one control group using conventional lecture methods.

Table 1. Research Design

Group	Pretest	Intervention	Posttest
Experiment		Visual Media	
Control	✓	Conventional Lectures	✓

The population in this study was 229 students from grade XI IPS at State Senior High School 4 Pekanbaru. Given the large population, the researchers used a random sampling technique to select a representative sample. The sample consisted of 77 students, divided into two groups: an experimental group of 38 students from grade XI IPS 5 and a control group of 39 students from grade XI IPS 6. The samples were selected based on a lottery conducted by student representatives in each class participating in the study.

The instrument used in this study was a questionnaire designed to measure students' learning motivation before and after the image-based treatment. This questionnaire used a Likert scale with five response levels: strongly agree, agree, somewhat agree, disagree, and strongly disagree. This instrument was tested for validity and reliability to ensure measurement accuracy. Validity was tested using the Pearson Product Moment formula [11], while reliability was tested using the alpha formula [12].

The research procedure began with a pre-test to measure students' learning motivation before administering the treatment. The experimental group then received treatment using images in Geography lessons on the types and management of natural disasters. The control group, on the other hand, underwent conventional lecture learning without the use of images. After the learning session, a post-test was administered to measure changes in students' learning motivation. These changes were then analyzed to determine whether there were significant differences between the two groups. Data were collected through a student learning motivation questionnaire administered at the pre- and post-tests to measure changes in students' learning motivation after the treatment.

The validity of the research instrument was tested using the Pearson Product Moment formula to ensure that it accurately measured students' learning motivation. Furthermore, the instrument's reliability was also tested using the alpha formula to measure the consistency of the results obtained from the learning motivation questionnaire. The results of the validity and reliability tests indicate that this research instrument can be used to collect valid and consistent

[11] Rosalind K Humphreys et al., "Underestimation of Pearson's Product Moment Correlation Statistic," *Oecologia* 189, no. 1 (2019): 1–7, https://doi.org/10.1007/s00442-018-4233-0.
[12] Emanuele Cassioli et al., "Cross-Cultural Adaptation and Validation of the French Version of the Menstrual Distress Questionnaire (MEDI-Q).," *Journal of Gynecology Obstetrics and Human Reproduction*, April 2026, 103195, https://doi.org/10.1016/j.jogoh.2026.103195.

data. The validity test results indicated that 24 statements in the student learning motivation questionnaire were valid, as the calculated r for each item was greater than 0.361 (the recommended minimum value for validity in this study). This means that all items in the questionnaire had a fairly strong correlation with the total score, thus being considered valid for use in this study. The reliability test results showed that the Cronbach's Alpha (α) value for the student learning motivation questionnaire was 0.982, which is well above the threshold value of 0.8. This value of 0.982 indicates that the questionnaire instrument has a very high level of consistency, meaning it is highly reliable and can be used to measure student learning motivation.

The data obtained from the student learning motivation questionnaire were analyzed using quantitative descriptive analysis to describe the characteristics of the data. To test the hypotheses, a t-test was used to compare the pre-test and post-test results between the experimental and control groups. Homogeneity and normality tests were also conducted to ensure that the data obtained met the statistical assumptions required for hypothesis testing (Riduwan, 2014). Furthermore, to measure the extent of the influence of image media on learning motivation, an effect size calculation was performed using the Cohen's d formula, which is used to determine how much influence the independent variable has on the dependent variable [13].

RESULT AND DISCUSSION

Result

Based on Table 2, student learning motivation in the experimental and control classes is reviewed through pretest and posttest scores. The experimental class showed an average increase from 71.47 in the pretest to 84.87 in the posttest, with a range of scores of 23.33 and 28.33, respectively, and standard deviations of 6.04 and 8.02. Meanwhile, the control class had an average of 73.70 in the pretest and 84.87 in the posttest, with a range of scores of 30.83 and 29.16, and standard deviations of 7.11 and 6.90. These results indicate a change in student learning motivation after the treatment was given to the experimental class.

Table 2. Descriptive Quantitative Study of Learning Motivation in Experimental Class

Group	Test	N	Range	Mean ± Std. Dev.	Varians
Experiment	Pretest	38	23,33	71,47 ± 6.04	36.54
	Posttest	38	28,33	84,87 ± 8.02	64.20
Control	Pretest	39	30.83	73.70 ± 7.11	50.54
	Posttest	39	29.16	84,87 ± 6.90	47.56

[13] Jürgen Groß and Annette Möller, "A Note on Cohen's d From a Partitioned Linear Regression Model," *Journal of Statistical Theory and Practice* 17, no. 2 (2023): 22, https://doi.org/10.1007/s42519-023-00323-w.

Before analyzing the differences in learning motivation between the experimental and control classes, the researcher conducted a normality test using the Lilliefors test as shown in Table 3. The results of the analysis showed that the significance value of the learning motivation pretest for the experimental class was 0.180 and for the control class was 0.200, while in the learning motivation posttest the significance value was 0.115 for the experimental class and 0.200 for the control class. All significance values were greater than 0.05, so it can be concluded that the learning motivation data in both the pretest and posttest were normally distributed.

Table 3. Results of the Normality Test of Learning Motivation

Data	Class	Kolmogorov-Smirnov		
		Statistic	Df	Sig.
Pretest Learning Motivation	Experiment	0.120	38	0.180
	Control	0.083	39	0.200*
Postest Learning Motivation	Experiment	0.129	38	0.115
	Control	0.079	39	0.200*

Furthermore, Table 4 presents a homogeneity test of learning motivation variance conducted using SPSS version 25.0 using the Levene's test. The results obtained a significance value of 0.146, greater than 0.05, thus concluding that the variance of learning motivation data between the experimental and control classes is homogeneous. Based on the results of these normality and homogeneity tests, the data are ready for further analysis using parametric statistical tests.

Table 4. Results of the Homogeneity Test of Learning Motivation

Variable	Levene Statistic	df1	df2	Sig.
Learning Motivation	2,155	1	75	0,146

Table 5. T-Test Results for Differences in Learning Motivation between the Experimental Class and the Control Class

Variable	df1	df2	Sig.	Effect Size
Learning Motivation	1	75	0.146	1.55

The t-test results in Table 5 show that there is a significant difference in the average learning motivation between the experimental class and the control class in the posttest ($t = 6.811$; $df = 75$; $p = 0.000$). The average difference of 12.28 indicates that students' learning motivation in the experimental class increased significantly compared to the control class after being given the treatment. The effect size obtained is $1.55>0.8$, which means that the treatment given to the experimental class has a very strong influence on increasing students' learning

motivation compared to the control class, so that the observed difference is not only statistically significant but also practically meaningful.

The descriptive analysis also indicates that the increase in learning motivation in the experimental class occurred more consistently compared to the control class. This can be observed from the posttest standard deviation values, where the experimental class demonstrated a relatively controlled distribution of scores despite experiencing a substantial increase in mean motivation scores. These findings suggest that the use of image-based learning media was not only effective for high-achieving students but also contributed positively to students with varying motivational characteristics. In other words, image media provided a more inclusive learning experience that was able to engage students more evenly during the Geography learning process.

In addition, the improvement in students' learning motivation after the implementation of image-based media indicates that visual learning activities succeeded in creating a more interactive classroom atmosphere. During the learning process, students showed greater attention and participation when observing visual representations related to natural disasters and environmental phenomena. This condition demonstrates that visual stimuli can support students' concentration and learning enthusiasm, which are reflected in the significant differences between pretest and posttest scores in the experimental class.

The results of the homogeneity and normality tests further strengthen the validity of the statistical analysis used in this study. Since all data were normally distributed and homogeneous, the use of parametric analysis through the independent t-test was considered appropriate and reliable. Therefore, the significant difference found between the experimental and control groups can be interpreted as a genuine effect of the treatment rather than being influenced by data distribution bias or unequal variance between groups.

Moreover, the large effect size value (1.55) indicates that the implementation of image-based learning media had a strong practical impact on students' learning motivation. According to Cohen's interpretation, an effect size above 0.8 is categorized as high, meaning that the treatment provided substantial educational influence. This finding implies that image-based media can serve not merely as supplementary teaching aids but as an effective instructional strategy capable of significantly improving students' engagement and motivation in Geography learning contexts.

Discussion

The data analysis showed a significant difference in learning motivation between the experimental and control classes after the treatment, with a t-value of 6.811 ($p = 0.000$) and an effect size of 1.55. This effect size is relatively large, indicating that the use of image-based learning media has a strong influence on increasing student learning motivation. This finding supports the research objective, which was to examine the effect of using image-based media on student learning motivation in Geography at SMA Negeri 4 Pekanbaru.

The increase in learning motivation can be explained by the mechanism of image media, which makes the material more visual and concrete [14]. Image media helps students understand abstract Geography concepts, facilitates information processing, and increases learning engagement [15]. Students become more active in learning because image media stimulates curiosity and interest in learning, leading to greater focus and enthusiasm . Furthermore, image media also provides a real-world context relevant to everyday life, making learning more meaningful and facilitating information retention [16].

In addition to the use of visual media, increased learning motivation is also supported by several supporting factors. These factors include the teacher's readiness to present material in an engaging manner, students' ability to understand visual information, the availability of supporting facilities and infrastructure such as LCDs or drawing boards, and a conducive learning environment [17]. The interaction between visual media and varied learning methods, such as discussions and Q&A sessions, also contributes to strengthening student engagement [18]. With this combination of factors, student learning motivation increases because they perceive the learning process to be more interactive, enjoyable, and relevant to real-life experiences.

This research aligns with previous findings showing that visual learning media can improve motivation and learning achievement. Visual aid-based learning strengthens student understanding and engagement [19]. Furthermore, research found that the use of visual aids in Geography learning significantly improved students' motivation and cognitive skills [20]. Similar results were also

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[14] Valentina Berardinetti, "The Role of Visual Education in Training Processes: A Systematic Review of the Use of Visual Tools to Enhance Learning and Promote the Development of Soft Skills," *Proceedings* 139, no. 1 (2026), https://doi.org/10.3390/proceedings2026139006.

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[16] Gaojie Ye and Shibo Yan, "Multimodal Instruction with AI-Generated Images for Noun Retention: Exploring Semantic Scene and Materiality Effects," *PLOS ONE* 21, no. 4 (2026): 1–14, https://doi.org/10.1371/journal.pone.0334778.

[17] Lars Bo Andersen et al., "Infrastructuring Digital Literacy in K-12 Education: A National Case Study," *International Journal of Child-Computer Interaction* 42 (2024): 100697, https://doi.org/https://doi.org/10.1016/j.ijcci.2024.100697; Alfeu José Feldmann and Jacques de Lima Ferreira, "Plataformas Digitais Na Educação Básica:: Uma Pesquisa Do Tipo Estado Da Arte," *Revista de Educação PUC-Campinas* 30, no. SE-Artigo de Revisão (December 3, 2025), https://doi.org/10.24220/2318-0870v30a2025e15097.

[18] Aline Bilibio Peres et al., "A Contribuição Da Tecnologia Para O Ensino: Desafios Da Integração Da Tecnologia No Ensino, Professores E Tecnologias Digitais Na Educação," *Revista de Geopolítica* 16, no. 5 SE-ARTIGOS (2025): e786, https://doi.org/10.56238/revgeov16n5-029.

[19] Cuenca Nicole A. Janela et al., "Quality of Visual Aids and The Engagement of Learners in the Teaching and Learning Process," *Asian Journal of Education and Social Studies* 50, no. 5 SE-Original Research Article (April 22, 2024): 489–94, https://doi.org/10.9734/ajess/2024/v50i51378.

[20] N Ya Ageev et al., "Научная Статья | Original Paper The Impact of Using Different Types of Learning Materials on the Characteristics of Learning Activity : A Review of Current Research

reported, who showed that students learning with visual aids were more motivated than those using conventional lecture methods [21].

Another important aspect explaining the effectiveness of image-based learning media is its alignment with cognitive learning theory, particularly Dual Coding Theory proposed by Paivio, which states that information presented simultaneously through verbal and visual channels is processed more effectively in memory. In the context of Geography learning, visual representations of climate change impacts, biodiversity loss, and natural disasters enable students to connect abstract concepts with concrete environmental phenomena. This dual representation strengthens students' attention and comprehension, which subsequently contributes to higher learning motivation and sustained engagement during classroom activities[22]. The findings of this study therefore reinforce the argument that visual-based instruction can reduce cognitive abstraction and increase meaningful learning experiences for students.

In addition, the findings can also be interpreted through the perspective of constructivist learning theory, which emphasizes that students actively construct knowledge through interaction with learning materials and their environment. The use of image media encourages students to observe, interpret, and relate visual information to prior knowledge and real-world environmental issues. Such active cognitive involvement increases students' sense of curiosity and autonomy in learning, both of which are important indicators of intrinsic motivation. This condition is particularly relevant in Geography education because many topics, including climate change and disaster mitigation, require contextual understanding rather than memorization alone.

The strong effect size obtained in this study (1.55) also indicates that image-based media do not merely provide short-term attraction but substantially influence students' psychological readiness to learn. According to multimedia learning theory developed by Mayer, students learn more effectively when instructional materials integrate words and visuals in a coherent manner. The combination of visual illustrations and teacher explanations likely helped students organize information more efficiently, reduce cognitive overload, and improve focus during instruction. Consequently, students became more enthusiastic and

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Влияние Использования Различных Типов Учебных Материалов На Характеристики Учебной Деятель," *Psychological Science and Education* 30, no. 6 (2025): 105–16, https://doi.org/https://doi.org/10.17759/pse.2025300606.

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participative throughout the learning process, which ultimately enhanced their motivation scores in the experimental group.

Furthermore, the integration of image media in Geography learning is highly relevant to twenty-first century educational demands that emphasize visual literacy and digital competence. Modern students are increasingly accustomed to receiving information through visual and multimedia formats. Therefore, learning environments that utilize visual aids tend to be perceived as more interactive and relatable to students' daily experiences. This relevance between instructional media and students' learning preferences may explain why the experimental group demonstrated significantly higher motivation levels compared to students exposed only to conventional lecture methods. These findings suggest that teachers should not only focus on content delivery but also consider how learning experiences are designed to accommodate students' cognitive and motivational characteristics.

The results of this study also imply that image-based learning media may contribute indirectly to students' environmental awareness and attitudes toward sustainability issues. By visualizing the real impacts of climate change, deforestation, and biodiversity loss, students are more likely to develop emotional engagement with environmental problems. Emotional engagement is an important component in Geography education because it can foster empathy, environmental responsibility, and long-term learning interest. Therefore, the use of visual media should not merely be viewed as a technical instructional aid, but also as a pedagogical strategy to cultivate environmental consciousness and active citizenship among students.

The implications of these findings emphasize the importance of teachers systematically using visual aids to increase learning motivation, especially in abstract subjects like Geography. The use of visual aids not only increases student interest and engagement but can also encourage more active and student-centered learning, thereby improving overall learning outcomes. Therefore, schools and teachers are advised to integrate visual aids into lesson plans and provide teacher training to improve the effective use of visual aids.

CONCLUSION

The use of image-based learning media significantly increased student learning motivation in Geography at SMA Negeri 4 Pekanbaru. The experimental class receiving the image-based learning media treatment showed a higher average increase in learning motivation compared to the control class, with a statistically significant difference and a large effect size (1.55), indicating a strong and practically meaningful effect. This increase in motivation was driven by the ability of image-based learning media to make material more concrete, engaging, and relevant, and was supported by teacher preparedness, active learning interactions,

and a conducive learning environment. These findings emphasize the importance of integrating visual media into learning strategies, especially for abstract material, to increase student interest, engagement, and learning outcomes.

Further research is recommended to explore the use of image-based learning media in combination with other learning methods, such as project-based learning or collaborative learning, and examine its impact on students' cognitive aspects and critical thinking skills. Further research could also expand the population and subjects across different schools or educational levels to assess the generalizability of the effectiveness of image-based learning media in increasing learning motivation more broadly.

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