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Encouraging student motivation in junior high school by developing virtual field trip

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Abstract
This research aims to develop Virtual Field Trip (VFT) learning media to increase students' learning motivation regarding natural resource use in 8th grade. This media was developed using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The development of 360-degree panoramic image-based VFT media is expected to overcome the limitations of conventional learning. The study was conducted on 32 8th-grade students at SMPN 7 Malang using a one-group pretest-posttest design. The analysis showed a significant increase in students' learning motivation, with the average pretest score increasing from 59 to 80.2 in the posttest. The t-test showed a significant value of 0.000, meaning that VFT media significantly affects learning motivation. These media have been proven to grab students' attention, facilitate understanding of the material, and provide a contextualized learning experience. Although there are barriers, such as the need for Internet connectivity and devices, the results of this study underscore the importance of innovation in learning media to increase student engagement.

Keywords: *learning media; virtual field trip; learning motivation.*

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INTRODUCTION

Merdeka Curriculum in Phase D learning outcomes explains that students are expected to be able to analyze the relationship between regional geographical conditions and community characteristics and understand the potential of natural resources (Aditomo, 2022). In the grade 8 social studies material, environmental materials and natural resources have the characteristics of contextualized material. Unfortunately, up to now, the material has been taught by relying on textbooks and learning media used by teachers, which do not contain contextual content.

The textbooks available in the school only provide general descriptions and information and do not present contextualized content in the students' environment or the media used by teachers.

Contextualized material, if only delivered textually makes students easily bored and difficult to focus on the learning being done, resulting in reduced learning motivation. How teachers maintain students' attention in learning can increase students' interest in learning and motivation to learn (Ricardo & Meilani, 2017). Learning motivation is one of the factors that influence student learning outcomes (Husna & Supriyadi, 2023). According to Clayton Alderfer (in Nashar, 2004:42), learning motivation is the tendency of students to carry out learning activities that are driven by the desire to achieve the best possible achievement or learning results. Learning materials with characteristics that require contextual content have weaknesses if learning is only done in the classroom (Ronggowulan, 2018). The classroom has a small and limited scope, while to introduce geographical conditions and natural resources in the environment around students, field trip learning is needed so that teachers can provide contextual examples. Learning through field trips certainly has many advantages, as it can provide students with different learning experiences and increase their motivation to learn. However, learning this concept also has disadvantages: time, long cost, and being more expensive (Abimanyu et al., 2024; Muhartini et al., 2023).

Contextualized material tends to be easier to understand when presented through media that can effectively display the content. The use of appropriate media can enhance the comprehension of contextualized material. This allows students to grasp the essence of the information the teacher provides more easily (Abidin et al., 2024). Media use is essential in learning because material that is attractively packaged in a medium can increase student motivation and help students understand the material being studied (Daryanto, 2016). The use of media can attract students' interest, thus increasing their motivation to learn (Arsyad, 2016). Research conducted by Surwantini, (2015), learning using visual media has a positive impact on student learning motivation with a high percentage of student learning motivation in both experimental classes of more than 50%. The teacher must give the selection of learning media to be used attention by prioritizing aspects of student needs, student characteristics, and learning requirements (Abidin et al., 2024; Sukirman & Amelia, 2023).

Based on the results of questionnaires and observations in class 8I SMPN 7 Malang, it is known that 60% of students show low learning motivation when learning material on natural resource use and conservation. This can be seen from the habits of students who still often chat with their friends during the learning process. In addition, students often daydream and are not interested in the activities provided. The results of the questionnaire show that most of the students have difficulties understanding the material about the use of natural resources and their conservation, 55%. In addition, 53% of the students found the media used by the teacher less interesting, and 85% of the students wanted more innovative and contextual learning media. The interviews with social studies teachers also show that there is still a lack of student enthusiasm for learning activities, students have difficulty focusing their attention, and student

involvement in learning is minimal. These results are certainly not surprising given that the material to be contextualized has been limited to textual theoretical explanations. On the other hand, this learning motivation is one of the crucial indicators for achieving learning goals and outcomes (Aminingtyas & Dwi Wardhani, 2023; Andriani & Rasto, 2019; Cahyani & Fauziah, 2024).

Referring to the problems mentioned above, using technology can be an alternative to answer the problem of providing contextual learning when learning is not possible when conducting field trips. One of the media that can be used is virtual field trips. Many have studied the development of virtual field trip media. However, the analysis of existing virtual field trip media is mostly in video recordings, so users do not get the experience of making direct observations. Like the research on the development of VFT media in the form of videos conducted by Melinda et al. (2018), (Wibowo & Setiawati, 2023), video media has a weakness if the duration is too long, especially if the presentation is less interesting, so students do not have alternative activities to overcome boredom. To overcome this, the Virtual Field Trip (VFT) media developed in the form of 360° photos offers interactive features that allow students not only to see, but also to be freer in making observations of the content, information, photos, and videos presented.

Based on the above description, the urgency of this research is to produce virtual field trip learning media that can provide contextual content to enhance students' learning motivation. The developed Virtual Field Trip media will be created with 360-degree panoramic images using technology such as that used in Google Earth and Google Street View so that users can easily and freely observe (Ashari et al., 2021). Virtual field trips positively affect student learning outcomes compared to traditional media (Cliffe, 2017; Nuryani et al., 2022). In addition, this medium can certainly be an innovation in social studies learning.

METHOD

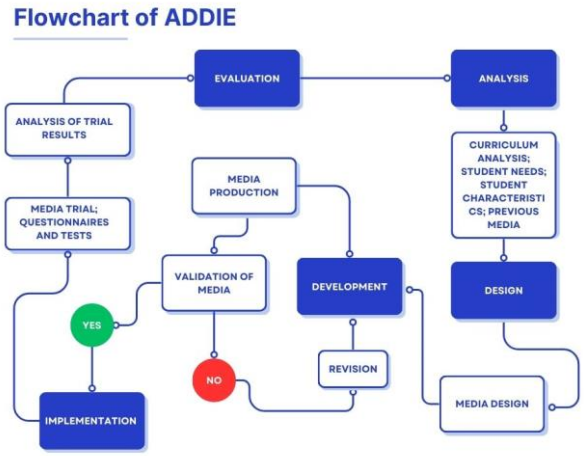


Figure 1. Flowchart of the ADDIE Model

This research is a kind of product-oriented research and development (R&D). The development model used in this study was the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development model. The ADDIE model is considered very suitable for use in media development research because it is structured, systematic, and easy to understand according to the needs of this study (Adeoye et al., 2024). The flowchart of the ADDIE model can be seen in Figure 1 above.

This research was tested on 32 8th-grade students of SMPN 7 Malang. The study was conducted using a one-group pretest-posttest design. Researchers used two types of data, namely qualitative data and quantitative data. Data collection techniques in this study were interviews, observations, questionnaires, and tests, while data collection instruments included interview sheets, observation sheets, questionnaire sheets, and pretest-posttest questions. Questionnaire data collection is measured using Likert's scale interval 1-4 to determine the feasibility level of Virtual Field Trip (VFT) media products by media and materials validators and student responses to the developed media. The following is the formula used to calculate the percentages.

$$P = \frac{S}{N} x\ 100\% \qquad (1)$$

Description:
P : Percentage of Questionnaire Value
S : Total Score Acquisition
N : Total Maximum Score

In addition, after obtaining the percentage, the researcher determines the conclusion of each aspect of the evaluation using the table of validation criteria percentages shown below.

Table 1. Media validation criteria

Percentage	Criteria
76-100	Very Valid
56-75	Valid
40-55	Less Valid
0-39	Not Valid

Source: (El Qorny, 2022)

The following data analysis is about the test results of Virtual Field Trip learning media on students' learning motivation. The pretest-posttest results will be used to evaluate the effect of VFT learning media on students' learning motivation. The goal is to determine the final value rating related to the statement. The pretest-posttest results will then be analyzed using the t-test to determine the significance of the difference between before and after the media application. The following is the hypothesis formulation at the implementation stage.

H_0 : Virtual Field Trip media does not significantly affect students' learning motivation.
H_1 : Virtual Field Trip media has a significant effect on students' learning motivation.

The decision criteria of the t-test with a significance level of 0.05 are as follows:

If the sig. (2-tailed) <a, then VFT media significantly increase students' learning motivation. The t-test analysis activities were carried out using the SPSS application.

RESULTS AND DISCUSSION

Development of Virtual Field Trip (VFT) Learning Media

This developmental research uses the ADDIE model. The first phase of this study was conducted by analyzing the curriculum, needs assessment, student characteristics, and previous media analysis. In the learning outcomes of phase d, students are expected to be able to analyze the relationship between regional geographic conditions and community characteristics and understand the potential of natural resources. In the 8th-grade social studies materials, there are environmental and natural resources materials that have the characteristics of materials that require contextual content. The textbooks available at the school provide only general descriptions and information and do not yet provide contextual content in the students' environment.

Furthermore, student characteristics are analyzed based on student profiling data obtained from the schools, and most students have a visual kinesthetic learning style. The questionnaire results at SMPN 7 Malang show that 85% of the students are more enthusiastic about using innovative and modern learning media. They also prefer field-based learning. However, field-based learning faces several obstacles, such as high costs, safety and security issues, permit requirements, preparation needed in advance, and students' health and mental readiness. Based on the identified obstacles, field-based learning must be presented in the classroom as media containing contextual content (Bachri et al., 2024).

A media analysis evaluates how teachers use learning media in the classroom. The results of the 53% student questionnaire show that the media used by teachers are less exciting and monotonous. In several classroom observations, teachers rely only on PowerPoint media to convey material. According to the research conducted by Anugraha and Sitompul (2024), only a small number of teachers have tried to develop innovative media such as Virtual Field Trip (VFT). This is due to the teachers' lack of interest in reading scientific references on VFT and applying modern technology in the learning process. This indicates that there is a need for innovation in media that can attract students' attention. The media should present contextual content to increase students' motivation in the learning process. One example is VFT media, which is expected to be able to meet these needs (Hasibuan et al., 2023).

The second stage is design, where researchers create a media development planning design. This design aims to facilitate the development of VFT media prototypes. Planning in this stage will provide efficiency in developing products with a clear flow and following the necessary needs (Nurannisaa et al., 2021; Rohmani et al., 2015; Watri et al., 2023). The following media planning design has been made:

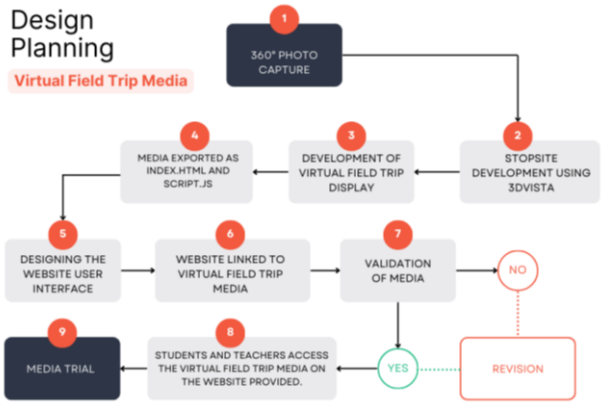


Figure 2. Planning design

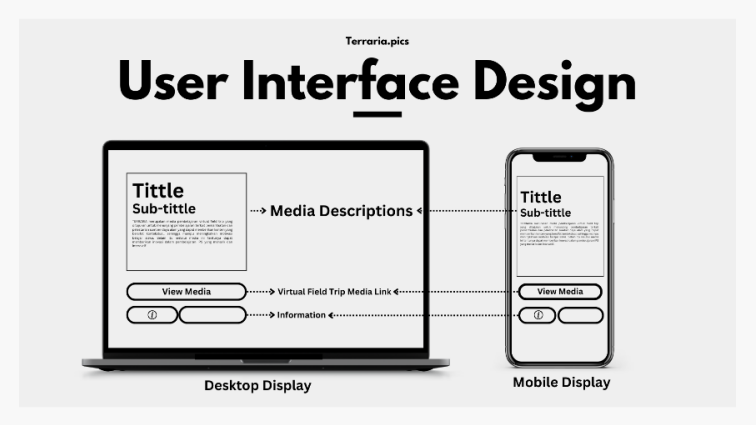


Figure 3. User Interface design

Development in this stage allows VFT media to be accessed anytime and anywhere. The content presented is also adapted to the location around the students so that the material can be delivered contextually.

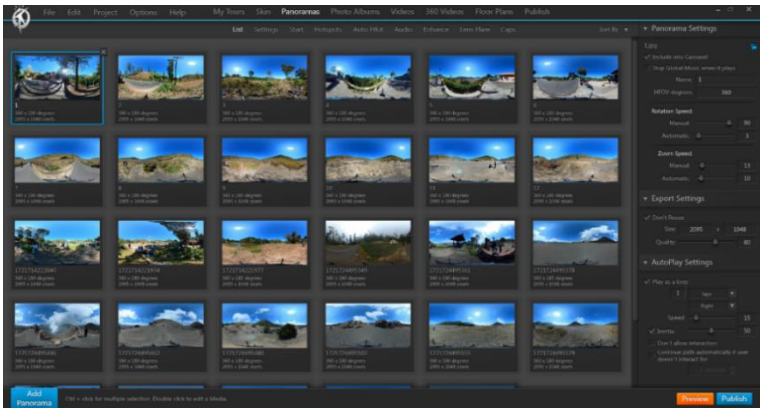


Figure 4. Arranging stops sites in the media

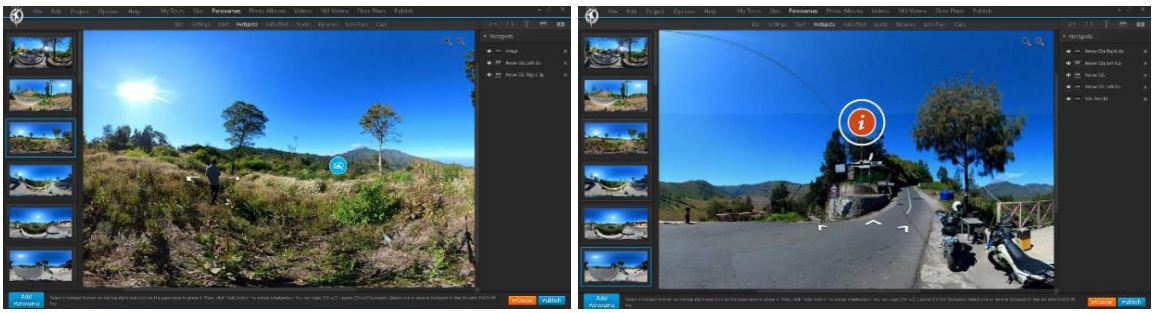


Figure 5. Creating icons and actions on media display

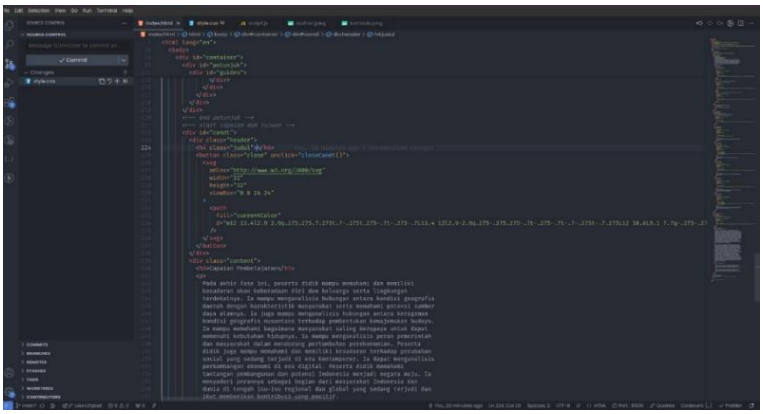


Figure 6. Coding of the website user interface display

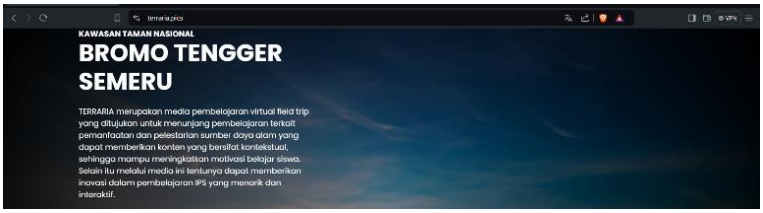


Figure 7. User interface

At this stage, material experts and media experts also carry out validation. The validation results have been carried out as follows:

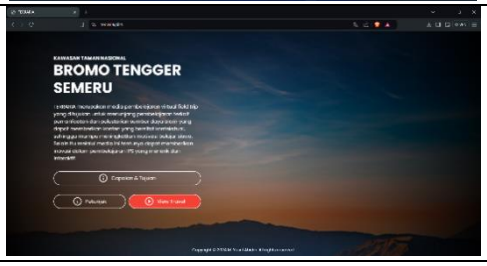
Table 2. Results of media and material validation

Material		Media	
Aspects	**(%) for each aspect**	**Aspects**	**(%) for each aspect**
Material	92.85	Destination	100
Usage	100	View	87.5
Benefits	81.25	Usage	100
(%) Overall	93.75 (Very Valid)	(%) Overall	95 (Very Valid)

Alfi Sahrina, S.Pd, M.Pd (Geography Lecturer, State University of Malang) conducted material validation. to assess the feasibility of material on virtual field trip media. Based on the

validation results (Table 2) with the criteria in (Table 1), the material expert validation obtained a score of 93.75% with a very valid category. Media validation was conducted by Eka Pramono Adi, SIP, M.Si (Lecturer in Educational Technology, State University of Malang) to assess the feasibility of media on virtual field trip media. Based on the results of media expert validation, a score of 95% was obtained with a highly valid category.

Table 3. Media revision

Display	
Before Revision	**After Revision**
	 
	

The high scores obtained in material, purpose, use, and benefits (Table 2) indicate that virtual field trip media is very suitable for learning about natural resources and their conservation. This media can meet the material's learning requirements. However, even though it has received a high score, the researcher still makes revisions according to the direction of the validator so that during the trial, the media presented can facilitate students' understanding of the material being taught.

This stage was implemented by conducting product trials and giving questionnaires about the students' responses to the media. The media can be accessed online through the website https://terraria.pics/. Accessing the media online can facilitate the use of media anywhere and anytime (Das, 2021).

Table 4. Results of student response questionnaire

Student Questionnaire Results		
Aspect	**Indicator**	**(%) for Each Aspect**
Objective	Does this media increase your motivation to learn?	86.76
	Does this media make you more enthusiastic about learning?	87.50
	Is learning more fun using this media?	85.29
Material	Does this media make it easier for you to understand the material?	86.76
	Does this media contain enough information to support your understanding of the material studied?	82.35
	Does the content presented in this media provide contextual examples?	83.09
Display	Does the appearance of this media interest you?	87.50
	Is the use of letters easy to read, and are the colors in this media attractive?	86.03
Usage	Can this media be accessed quickly, anytime, and anywhere?	83.82
	Are the features in this media easy to use?	82.35
(%) Overall		85.15 (Very Valid)

In the trial, the student response questionnaire results obtained a score of 85.15%. Using this media, students become more excited and motivated to learn. This can be seen from the students' enthusiasm for participating in learning; students actively answer the teacher's questions through observations on VFT media. VFT media can present a new, contextual, practical, and exciting learning atmosphere that facilitates understanding learning materials (Amala et al., 2019; Shojaei et al., 2023).

Figure 8. Media implementation in the classroom

The evaluation stage is carried out to determine the benefits and barriers experienced in using the media. The advantages are (1) can attract students' attention and motivate them; (2) students can understand the material more easily; (3) practical use and save time; (4) students can learn contextually (Wen & Gheisari, 2020). Most of the students' responses were positive and interested in learning using VFT media. However, there are still barriers to using these

media, namely (1) the need for a stable Internet connection to access the media. (2) There is a need for tools in the form of mobile phones and laptops.

Effect of VFT Media on Learning Motivation

Before testing the hypothesis, the researchers conducted a normality test and a paired samples test to determine the significance of VFT media on students' learning motivation.

Table 5. Normality Test

		Kolmogorov-Smirnov			Shapiro-Wilk		
Test	Mean	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	59	0.118	34	.200*	0.957	34	0.202
Posttest	80.2	0.162	34	0.024	0.942	34	0.072

The pretest and posttest scores have a sig>0.005 value, namely 0.200 and 0.024, indicating that the scores obtained are typically distributed. This normality test is a prerequisite for conducting a paired samples test.

Table 6. Paired Sample Test

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pretest - Posttest	-21.2941	8.1446	1.3968	-24.1359	-18.4523	-15.245	33	0.000

Table 6 shows the results of Sig. (2-tailed) The value obtained is 0.000, which is smaller than 0.005, which means that there is an influence between learning media and learning motivation. These results mean that H_0 is rejected and H_1 is accepted.

In the trials, the test scores obtained (Table 5) show an increase in test scores from the average pretest score of 59 and the average posttest score of 80.2. The increase in learning results occurs due to the student's learning motivation; this can be seen when students look enthusiastic about following the learning, students are more focused on the material presented. In addition, students are actively involved in learning because VFT media presents features that are interactive with users. The use of media supports learning to be optimal so that there is a stimulus-response that encourages students to learn (Tasbihah, N. L., & Suprijono, 2021). Learning motivation is closely related to student learning outcomes because motivation is the encouragement of physiological and psychological conditions to achieve specific goals (Obadiora, 2016; Rahim et al., 2023). The increase in learning motivation is influenced by using VFT media (Table 6) in learning (Sriarunrasmee et al., 2015).

CONCLUSION

This study conclusion shows that using Virtual Field Trip (VFT) media in social studies learning can significantly increase students' learning motivation. Through the analysis conducted, it was found that this media meets the contextual content needs of students, especially in understanding the relationship between geographical conditions and community characteristics. However, there are some barriers to using the media, such as the need for an Internet connection and appropriate devices. Pilot test results showed a significant increase in student learning scores, from an average pretest score of 59 to a posttest score of 80.2. These results show that VFT engages students' attention and makes learning more interactive and practical. Increased student motivation to learn contributes to improved learning outcomes. This study shows that virtual field trips are effective in increasing students' motivation and understanding. However, the limitations of this study include a small sample limited to one school and the variability of technology access among students. In addition, the short duration of the study precluded evaluation of the long-term impact. Recommendations for future research could include a larger and more diverse sample, as well as implementing a longitudinal design to evaluate long-term impact. The use of technology variations such as augmented reality (AR) and virtual reality (VR) should also be explored, and further research should consider the role of teacher support as well as technology access issues faced by students.

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