

## **EFFECTIVENESS VIDEO VIRTUAL BASED PROBLEM SOCIAL AND ENVIRONMENT FOR INCREASE CHARACTERISTIC THINKING STUDENT EDUCATION GEOGRAPHY**

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### **ABSTRACT**

**Abstrak:** Kemajuan teknologi informasi dan komunikasi telah merambah ke ranah pendidikan, sehingga mentransformasi pendekatan pembelajaran yang ada di lembaga pendidikan. Tujuan dari penelitian ini adalah untuk menilai efektivitas penggunaan materi pembelajaran video virtual yang didasarkan pada kepedulian sosial dan lingkungan untuk meningkatkan kemampuan berpikir kritis siswa pendidikan geografi. Penelitian ini mengadopsi metodologi Penelitian dan Pengembangan (R&D) yang mencakup tiga fase: perencanaan, pengembangan, dan pengujian. Produk menjalani validasi oleh satu orang ahli media, satu orang ahli materi pelajaran, dan 30 orang mahasiswa S1 Pendidikan Geografi. Pada tahap awal dilakukan uji validasi oleh ahli media dan ahli materi. Selanjutnya efektivitas media dinilai melalui evaluasi pretest-posttest dan angket yang diberikan kepada siswa. Temuannya menunjukkan N-Gain Score sebesar 83%, yang menunjukkan tingkat efektivitas yang tinggi. Hasil kuesioner menunjukkan bahwa siswa menunjukkan tingkat minat yang cukup tinggi, termasuk dalam kategori “tertarik”. Hasil ini menggarisbawahi perbedaan yang signifikan antara hasil pretest dan posttest sebelum pemanfaatan media video virtual yang berfokus pada isu-isu sosial dan lingkungan. Berdasarkan beberapa pengujian, dapat disimpulkan bahwa media video virtual yang menjawab permasalahan sosial dan lingkungan secara efektif berkontribusi dalam meningkatkan kemampuan berpikir kritis pada mahasiswa pendidikan geografi sarjana, menumbuhkan peningkatan minat, dan terbukti cocok untuk diintegrasikan ke dalam proses pembelajaran.

**Kata Kunci:** Efektivitas, Virtual Video, Kemampuan Berfikir Kritis Mahasiswa

**Abstract:** Advances in information and communication technology have penetrated the realm of education, thereby transforming existing learning approaches in educational institutions. The aim of this research is to assess the effectiveness of using virtual video learning materials based on social and environmental concerns to improve the critical thinking skills of geography education students. This research adopts a Research and Development (R&D) methodology which includes three phases: planning, development, and testing. The product underwent validation by one media expert, one subject matter expert, and 30 Geography Education undergraduate students. In the initial stage, validation tests were carried out by media experts and material experts. Furthermore, the effectiveness of the media is assessed through pretest-posttest evaluations and questionnaires given to students. The findings show an N-Gain Score of 83%, which indicates a high level of effectiveness. The results of the questionnaire showed that students showed a fairly high level of interest, falling into the "interested" category. These results underline the significant differences between the pretest and posttest results before the use of virtual video media that focuses on social and environmental issues. Based on several tests, it can be concluded that virtual video media that answers social and environmental problems effectively contributes to improving critical thinking skills among undergraduate geography education students, fosters increased interest, and is proven to be suitable for integration into the learning process.

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**Keywords:** *Effectiveness, Virtual Video, Critical Thinking, Students.*

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## A. BACKGROUND

Technology has advanced significantly, evidenced by the establishment of tech giants competing to create accessible and innovative products. This progress has also transformed education, replacing traditional chalkboards with advanced tools like laptops, projectors, TVs, and various digital learning media such as videos and websites. (Pangestu, 2021). So far this method learning applied by personnel educator in give learning eye lesson geography in in class to student still there is a number of which apply method learning conventional or lecture (Farin et al., 2022). At the college level, many educators still rely on teacher-centered approaches, light discussions, or PowerPoint presentations. In a Bachelor of Education geography class, lectures, Q&A sessions, and group assignments are commonly used. A pre-implementation questionnaire on virtual video-based learning for social issues showed low student interest, with only 5-15% engagement, below 30%. In geography education, there's a push for direct application of social and environmental learning, integrating classroom knowledge with real-world experience for students to apply in daily life, making learning more meaningful. (Yusnia et al., 2017).

The atmosphere of the learning process based environment in a way reality and social of course far more interesting and will create atmosphere class which active on participant educate, so that require educator use varied media or learning models (Sugiarto et al., 2023) In 21st-century geography education policy, one of the three main pillars is geography skills, which includes the ability to identify and pose geographical questions and analyze data to solve problems. Thus, there is a critical need for media and supportive technologies to enhance these skills (Anggraeni et al., 2023). Moment this, teachers must can use technology information and communications (ICT) as well the application for supports the learning process. the purpose of matter This is for increase motivation and interest study students, as well reduce potency possible problems appear during the learning process (Lesmana, C., Arpan, M., Ambiyar, A., Wakhinuddin, W., & Fatmawati, 2019). Efforts to integrate ICT in education are crucial. ICT-based learning media, including audio, visual, presentations, and internet platforms, are indispensable in supporting global competitiveness (Magdalena et al., 2021). Utilization technology and use media learning based virtual in field education will become efficient way for repair results learning and quality education in all level start from education base until college tall (Fransisca, 2022).

According to (Mochammad Machfud, 2021) Utilization instructional media video virtual has be wrong one media proven teaching lots used good in in country nor in outside country. In matter this proven by study from (Saputra & Setyawan, 2021). The use of virtual video or YouTube as learning media can engage and interest students in geography, stimulating critical thinking and understanding. With technological advancements, various learning media can help students easily grasp abstract concepts without face-to-face interaction or needing to be at specific observation locations. Thus, using technology in learning is highly effective and efficient (Yusuf Suharto, Y., & Insani, 2022).Supported with results research previously actualized by (Nurhuda, Riana T Mangesa, 2020) Research conducted on undergraduate students of the JTIK FT study program at Makassar State University using virtual video-based learning shows significant improvement in learning outcomes. The study compared group A (control) with a posttest score of 61.84% and group B (experimental) with a score of 85.26%, indicating that the application of video media effectively enhances teaching and learning outcomes in the Faculty of Engineering. (Suasty & Ahmad Alfian Hadi, 2020).

Using YouTube or virtual videos in language teaching effectively improves students' skills in guessing the main idea, organizing thoughts, and selecting suitable vocabulary. This makes virtual videos valuable for improving writing quality, especially in English. Given these benefits, there is a critical need to transition from a Teacher-Centered to a Student-Centered learning approach, aligning with the growing integration of technology in education (Ishak & Khalid, 2021).(Sunami & Aslam, 2021) Video learning stimulates student interest, prevents boredom, and enhances material comprehension. It accommodates diverse learning styles such as auditory, visual, and kinesthetic by presenting engaging tutorial videos that combine text, images, and sound (Ridha et al., 2021). Implementation utilization video learning this is on students in eye lesson geography which more concrete. So that in a way No direct, video virtual the capable trigger ability think critical students, besides that student Later will solution to problems going on inside video the so that matter this capable increase power pull and also ability think critical in a way no directly (Nur Fitri Andarukmi, Dianti Lintang Penatas, Elmawati Situmorang, Inaisya Putri Hartono, Niken Wahyuningsih, Rafly Kholid, Zaura Salsalvibilla, 2021).

One of reason for utilise progress technology as means learning is the benefits of this virtual learning video (Ma'rifah & Mawardi, 2022). Therefore that's, effort innovative For increase quality education through use of media in the learning process in the classroom must done. One of for example is use of learning media virtual video based (Rustaman, 2020) According to study previously, the use of virtual video was basically is use technology developing learning over time for increase education. Media can help student study more good in various context . (Ahnaf et al., 2021). Especially now, with technology accessible anytime and anywhere, it is crucial to think critically about our environment. To respond to the development of knowledge and technology, these skills are needed to solve social and environmental problems in our community. (Sumarmi et al., 2019).

Learning through problem-focused videos social and environmental can

increase interest and interest student. This is supported by facts that video interesting attention student with exists displays real life topics with surrounding events (Andriani et al., 2024). Based on background behind problem the problem based virtual video social and environment This very appropriate If implemented to student Education geography, because video learning used more conkirt with discuss problem social and environmental events that occur around them them , so from the process of observation and analysis the will trigger ability for their critical thinking, all at once ability in problem solving or solution problem. Based on background problem the so, research this done with objective for knowing “ *Effectiveness Based Virtual Video Problem Social and Environmental For Increasing Critical Thinking of Geography Education Students*”.

## B. IMPLEMENTATION METHOD

This study is type study development or research and development (R&D). According to (Andriani et al., 2024), In this study, ten developmental stages were identified, with focus on three main stages: planning, development, and testing. The subjects were 30 second-semester Bachelor of Education geography students at Malang State University. The method employed was a questionnaire or checklist, assessed using a four-scale assessment by experts in educational material and media. Additionally, needs were analyzed through a review of the curriculum and classroom observations prior to the research to understand student conditions. Students were requested to provide feedback on the developed product. (Retnowati et al., 2016).

In study this, method analysis data descriptive quantitative used For evaluate results evaluation appropriateness through average calculation. The goal is evaluate the feasibility of virtual learning media, especially learning videos that have been modifie. Findings from analysis This made base For increase the quality of the virtual learning media (Suarsini et al., 2020). Data for evaluate ability think critical student obtained through instrument test, that is pretest-posttest test consisting of from test objective or essay . Test this used for measure ability think critical which applied in test effectiveness media learning from results study participant educate (Nurhuda, Riana T Mangesa, 2020). The instrument used includes a six-question essay test in Google Form format for both pretest and posttest assessments. Data from these tests were analyzed using the N-Gain Score Test to evaluate improvements in students' critical thinking abilities. Additionally, a Likert scale questionnaire was employed for non-test technical instrument evaluation.

**Table 1.** Conditions Scoring

Score (100%)	Category
30- 35	ST (Very Interested )
25- 30	Q ( Interested )
20- 25	TT (No Interested )
10- 20	STT (Very No Interested )

( Source : Sudjiono, 2016)

Next, the Likert scale scores were used to calculate the average among sample test subjects and transformed into an evaluation statement to assess the quality and benefits of the products produced, based on user feedback. The Likert scale table determined the percentage evaluation of whether the product is suitable as a learning medium.

**Table 2 .** Table Scale Indicator Appropriateness Product

Score (100%)	Category
0- 20	No Worthy
21- 40	Not enough Worthy
41- 60	Enough Worthy
61- 80	Worthy
81- 100	Very Worthy

( Source : Sudjiono, 2016)

Analysis data ability think critical participant educate done with compare mark pretest and posttest. N-Gain is the formula used for measure change or enhancement ability from pretest to posttest.anyway t h e N-Gain formula is :

$$N\_Gain = \frac{Posttest - Pretest}{Pretest + Posttest}$$

With category acquisition indicator as following :

**Table 3 .** Criteria N- Gain

Criteria	Intervals Coefficient
G-High	(<g> ) >0.70
G-Medium	0.070 ≥ (<g> ) ≥ 0.30
G- Low	(<g> < 0, 30 )

( Source : Arizona et al., 2020)

## C. RESULTS AND DISCUSSION

### RESULTS

Research and development (R&D) carried out by researchers aim for make problem - focused virtual video products social and environmental with objective increase critical thinking abilities student. With use student virtual video can using virtual video in learning with method synchronous or real-time or asynchronous. Condition this certain beneficial for student because make get information more easy and flexible (Darung et al., 2020) The research aims to develop virtual videos focusing on social and environmental issues to enhance students' critical thinking skills. These videos facilitate teachers in clearly explaining objectives with flexibility. Rooted in local wisdom, the learning approach aims to foster social awareness and innovative problem-solving abilities through social principles and theories. (Suarsini et al., 2020).

### Results Appropriateness Media Video Virtual Based Problem Social And Environment.

Before being implemented, this product has passed a feasibility test and validation stage by media experts and material experts (Verawati, 2020) The validation results show that this video media is suitable for use with several improvements that have been made based on recommendations from the validator.

## A. Results Validation Media

Validation test media experts and experts material on virtual video based problem social and environmental done in one lecturer eye studying geography. The result can seen here.

Aspect	Indicator	Don't Butir	Average Percentage	Criteria
<b>Visual</b>	1. Appropriateness of text selection in video	1	55%	Decent Enough
	2. Suitability of image and animation settings	2		
	3. The written animation displayed is clear and attractive	3		
	4. Illustrations are easy to understand and appropriate	4		
	5. with the surrounding environmental and social conditions	5		
<b>Audio</b>	6. The suitability of the accompanying music to the narrative	6	80%	Worth it
	7. Clear sound	7		
	8. Between sound and appropriate animation	8		
<b>Quality</b>	9. The quality of the video resolution is good	9	70%	Worth it
<b>Head</b>	10. Material complies with RPS	10	83%	Very Worth It
	11. The material presented was well received and able to attract critical thinking skills	11		
	12. The material presented is in accordance with environmental and social conditions	12		
<b>Rate-Rata</b>			72%	Worth it

**Figure Table 1.** Media Expert Validation Results.

Based on results According to results average validation in a way whole in on, There is criteria "Worthy" with an average of 72%. Advice from media experts is to add content and animation to the material (Andriani et al., 2024).

## B. Validation expert material

Validation expert material done on one lecturer eye studying geography following evaluation results validation of expertise in virtual video based problem social and environmental.

**Table 4.** Material Validation Test Results

Aspect	Indicators	Ques tion Item No	Average Percentage	Criteria
<b>Content Eligibilit y</b>	Conformity of content with KD and indicators	1	80%	Worth it
	Illustrations are appropriate to the material and social and environmental conditions	2		
	Memorable video performance	4		
<b>Feasibili</b>	Ease of understanding the	3	85%	Very

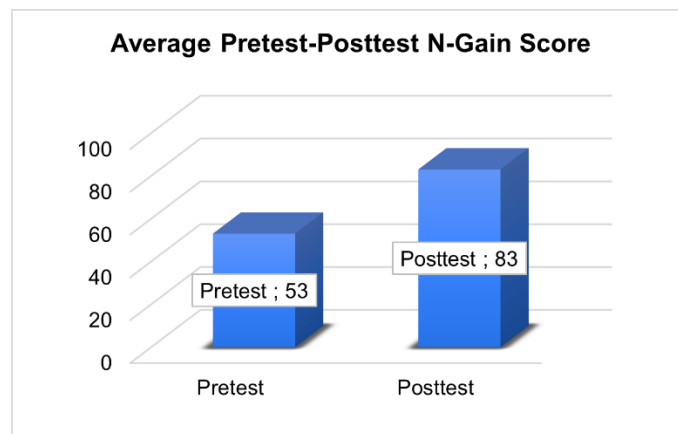
<b>ty of Presentation</b>	meaning conveyed in using problem-based virtual video media				Worth It
	Appropriate combination of colors , writing and images	5			
	Video sound is clear				
<b>Language Qualification</b>	The sentence structure conveyed in the video is coherent	7	87%		Very Worth It
	The language used is easy to understand	6			
	Language according to EYD	8			
	<b>Rate-Average</b>		84%		Very Worth It

Validation tests by material experts show an average results of 84% which indicates this video is very suitable for use. Material experts recommend making the problem more real and relevant for students by adding aspects of the lives of residents in the neighborhood.

**DISCUSSION**

**Effectiveness Video Virtual Based Problem Social And Environment For Student.**

The effectiveness of virtual video-based media on social and environmental issues was evaluated through pretest-posttest results with Geography Education undergraduates. Students watched the video, took notes, and their critical thinking abilities improved, as documented in the following table:

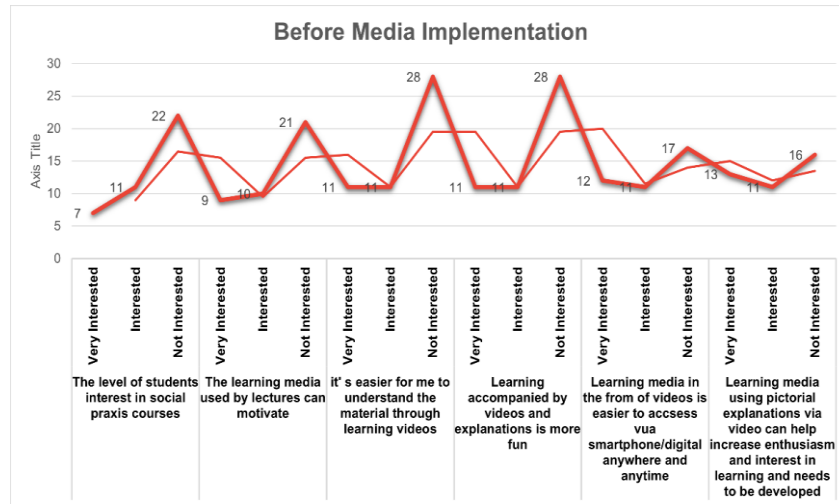


**Figure 2.** Average Pretest-Posttest N-Gain Score

Figure 2 shows that out of 30 students, the pretest results indicated Underperformance below the minimum standards at 53%, while the posttest results showed a significant improvement at 83%, classified as high. This demonstrates a substantial N-Gain score between the pretest and posttest, highlighting the students' enhanced critical thinking abilities. These findings also corroborate a previous study conducted by [ researcher ]. (Andriani et al., 2024) Virtual video laboratories significantly enhance students' conceptual mastery and critical thinking skills in science, as evidenced by the experimental group's 80.77% average critical thinking ability compared to 76.31% in the control group. Other studies also indicate that online video-based learning

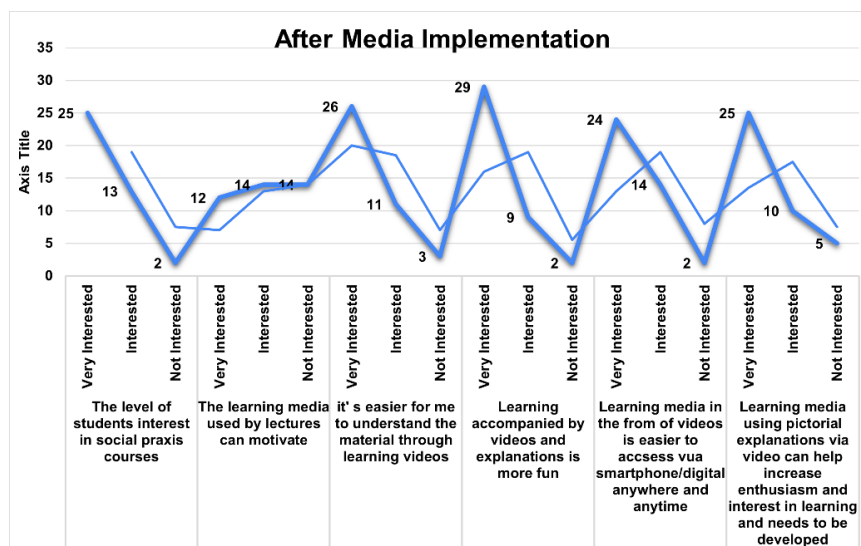
media can increase student engagement and enhance learning quality (Afif, 2019).

Using virtual video-based media significantly boosts students' interest and motivation in learning about social and environmental issues, as shown in pre- and post-implementation questionnaires given to geography education undergraduates, as illustrated in the accompanying image.



**Figure 3.** Before Media Implementation

The study concluded that using only PPT and verbal delivery by lecturers was ineffective for classroom learning. Additionally, student interest in geography was low, averaging 5-15% before implementing video-based learning media, impacting their engagement in the subject (Suasty & Ahmad Alfian Hadi, 2020) As for the results after given implementation of virtual learning media is as following :



**Figure 4.** After Media Implementation

Based on pre- and post-questionnaire results, implementing video-based learning showed notable improvements: student interest in geography rose from 25% to 30%, comprehension of material increased from 26% to 30%, and accessibility to video learning ranged from 27% to 30%. Overall, virtual



video learning significantly boosted student motivation by 26%, highlighting its transformative impact in integrating real-world social and environmental issues into education (Firmaningsih & Wasikin, 2021 ). Learning videos focused on sustainability in a problem-based learning model for ecosystem materials significantly boosted students' cognitive interest and study outcomes. Experiments showed higher interest in the experimental class compared to the control class, with students deeply engaging in problem-solving and proposing solutions.

Using virtual video learning media enhances students' critical thinking skills, concentration levels, and comprehension of environmental and social issues through engaging visuals and auditory cues, significantly surpassing traditional methods (Anggraeni et al., 2023), 2 ) Factors influencing the success of virtual learning videos include the design's appeal to students, quality content, language clarity, and relevance to real-life situations. These factors ensure student engagement and enhance their understanding of the taught material. (Yusnia et al., 2017), 3) Using technology through virtual videos focusing on social issues can stimulate interaction and discussion among participants in education. These videos uplift environmental and social issues without directly triggering the need for participants to analyze and reflect. This approach helps enhance their understanding and strengthens the positive impact of using video media (Burhayani et al., 2023)

4) Virtual video learning content development must prioritize social aspects and community engagement for successful implementation. The material presented in videos should be innovative, creative, and technologically relevant to meet learning objectives and current student needs. This ensures that virtual video-based learning is effective and maximally beneficial (Priyanto, 2017). Using videos enhances geography learning significantly, boosting student interest. Integrating technology improves educators' professional competence and supports quality education globally (Salsabila, 2021). There is integration between technology information and communication in Education defined as knowledge for teachers to communicate progress technology and how student obtain knowledge in use ICT in class (Nana Sudjana, 2014).

Innovative learning media development is crucial for student education quality in the digital era. Virtual learning media focusing on real social issues naturally enhances students' independence and digital communication skills. This approach integrates digital technology into learning models, empowering educators to define learning objectives effectively (Sunardi et al., 2019). Matter This naturally, supported with results research previously which done by (Lestari & Putri, 2019). The study results demonstrate that using video-based e-learning is more effective than conventional education methods. Students who engaged with e-learning videos showed significantly greater learning enhancement compared to those using traditional methods. (Theodoridis & Kraemer, 2021) In connection with study conducted by (Apriansyah, 2020) Research shows that video-based learning media for food plating is valuable

for student study and practice. Implementing problem-focused virtual videos on environmental and social issues enhances critical thinking, boosts student interest, improves academic performance in geography classes, and promotes social awareness through constructive solutions.

Based on the research findings, experts in education are advised to prioritize the use of video-based learning media, which has proven effective in enhancing student focus during study sessions. Integration of interactive features and personalized evaluation are crucial for its successful implementation. Thus, leveraging virtual video media in the context of societal issues is essential for enhancing learning relevance and engagement, ensuring high-quality educational experiences for present and future generations.

#### **D. CONCLUSIONS AND SUGGESTIONS**

This research aims to assess the effectiveness of using virtual learning videos that focus on social and environmental issues to improve the critical thinking skills of geography education students. Based on the research results, it can be concluded that this virtual video media is effective in improving students' critical skills. This is demonstrated by an increase in the N-Gain score of 83%, which shows a high level of effectiveness. Apart from that, the level of students' interest in learning using this media is also quite high, being in the "interested" category. Therefore, virtual video media that focuses on social and environmental issues proves suitable for integration into the learning process.

The suggestions that can be given to future writers are: It is recommended to continue updating and developing video content by adding more animations and illustrations that are relevant to the material. It is also important to continue to evaluate the effectiveness of this media on a regular basis, as well as collect feedback from students for further improvement.

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