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# Application of Interactive Technology in Multimedia-Based Learning Media *Inspect History*

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**ABSTRACT**

The study investigates the impact of Inspect History, an interactive multimedia technology-based learning material, on student learning outcomes at SMA Negeri 9 Palu. The research aims to address students' limited interest and comprehension of standard history education. The study uses a quantitative, quasi-experimental design and involves class X students from two classes. Data analysis uses descriptive and inferential statistical methods. Results show that Inspect History significantly enhances student learning outcomes compared to traditional methods. Students show increased motivation and engagement during the educational process. The study concludes that Inspect History can effectively improve student learning outcomes in history at SMA Negeri 9 Palu and is expected to be utilized by history educators as a learning aid.

***Keywords:*** *Inspect History , interactive multimedia technology, history learning,*

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## INTRODUCTION

History education is one of the important subjects in the national education curriculum because it can shape students' understanding of past events that affect current social, political, and cultural conditions. However, history learning in schools is often considered boring by students, because it tends to be delivered conventionally through lectures and memorization without involving in-depth interaction with the material. As a result, students' interest and motivation in history lessons decline, which affects their low learning outcomes(Brett & Guyver, 2021).

Lack of innovation in classroom learning. Many schools, including SMA Negeri 9 Palu, still apply traditional learning methods that are less responsive to the needs of students in the digital era. This study has an urgency to encourage innovation in the learning process, so that teachers can adapt new approaches that are more relevant to today's digital generation. The results of this study can be the basis for developing more creative and innovative learning methods (Güzer & Caner, 2014).

Interactive multimedia technology offers a potential solution to these challenges. By combining audio, visual, animation, and user interaction elements, interactive multimedia-based learning media can create a more lively and contextual learning experience. One of the learning media designed to utilize this technology is

*Inspect History* . This media allows students to explore history visually and interactively, which not only increases the appeal of learning, but also strengthens the understanding of complex historical concepts (Liu, Chen, & C. Crabbe, 2020).

Previous studies have shown that the use of technology-based learning media can have a positive impact on student learning outcomes. By integrating visual and interactive elements, students can more easily understand the material and are motivated to learn. However, in SMA Negeri 9 Palu, the use of interactive learning media is still relatively minimal, so it is not widely known to what extent it impacts student learning outcomes, especially in history subjects.

Based on this background, this study aims to examine the influence of the use of interactive multimedia technology -based learning media. *Inspect History* on student learning outcomes at SMA Negeri 9 Palu. This study is expected to provide significant contributions to the development of more effective and innovative learning methods, as well as improving the quality of history learning in schools.This background can be used as a basis to strengthen the importance of the research conducted, as well as highlight the relevance of interactive learning media in the context of history education in schools.

## LITERATURE REVIEW

### Definition and Concept of Technology-Based Learning Media

Technology-based learning media includes all forms of digital devices and applications used in the learning process to help students understand the material more effectively and efficiently. These media can be hardware such as computers, projectors, tablets, and interactive whiteboards, as well as software that includes learning applications, simulations, educational games, e-learning platforms, and interactive technology multimedia. This technology allows students to interact with learning materials more actively through text, audio, video, animation, and other interactive elements. According to (Aji Silmi & Hamid, 2023), effective technology-based learning media must follow the principles of multimedia learning technology , namely the delivery of information through a combination of visual and verbal elements. The use of appropriate technology can stimulate student engagement, help them visualize abstract concepts, and provide a richer learning experience.

### The Role of Technology in Learning

Many studies have highlighted the role of technology in supporting classroom learning (Aftab, Latif, Zai, Liaqat, & Luqman, 2024). Some of the important roles identified include:

a. Facilitating Access to Learning Resources

Technology provides extensive access to a variety of learning resources, whether in the form of text, video, scientific articles, or interactive materials. With the help of technology, students can search for information independently, access teaching materials from a wider range of sources, and learn outside the classroom and school hours. E-learning platforms such as Moodle, Edmodo, and Google Classroom allow unlimited access to materials and assignments.

b. Supporting Collaborative Learning

Technology also enables collaborative learning through communication tools such as discussion forums, document sharing applications (Google Docs, Microsoft Teams), and video conferencing. Students can work together on projects or group assignments, share ideas, and develop communication skills without having to meet face-to-face.

c. Accommodating Various Learning Styles

Technology allows teachers to accommodate a variety of student learning styles, including visual, auditory, and kinesthetic learning styles. Video-based learning applications, podcasts, and interactive simulations provide students with the flexibility to learn in a way that best suits their preferences. According to Gardner (1983), with the use of technology, students with multiple intelligences can be better served with a variety of methods.

d. Increasing Student Engagement

One of the challenges in education is to keep students engaged in the learning process. The use of technology-based media, such as educational games, simulations, and interactive applications, can make students more interested and motivated to learn. Research shows that student engagement increases when they use technology that allows active participation, such as simulations, animations, and interactive learning software .

e. Encourage Independent and Flexible Learning

Technology makes it easier for students to learn independently outside of the formal classroom environment. E-learning platforms and online materials provide students with the flexibility to access materials anytime and anywhere. This is in line with the *self-directed learning approach* , where students are responsible for their own learning process, determine their own pace and schedule, and explore topics in greater depth according to their interests.

## METHOD

study uses a quantitative approach with *a quasi-experimental nonequivalent control group design* to determine how the use of interactive multimedia-based learning media to increase student interest in History subjects (Ahmmed, Sinha, Khan, & Islam, 2020). The implementation of learning media carried out in SMA Negeri 9 Palu with a population of class X students and the sample was a sample taken randomly from two classes, each of which was divided into a control group and an experimental group.

*The treatment is* given differently in both classes. The experimental class will use interactive media designed in its learning, while the control class will use the same learning as previously done. This different treatment aims to find out the impact of the application of interactive learning media on the subject of History.

| | | |
|---|---|---|
| **Q1** | **X** | **Q2** |
| **Q3** | | **Q4** |

**Figure 1. Nonequivalent control group design (Sugiyono, 2013)**

Q 1: Learning outcomes of students in the experimental class before treatment Q2: Learning outcomes of students in the experimental class after treatment Q3: Learning outcomes of students in the control class before treatment Q4: Learning outcomes of students in the control class after treatment

Figure 1 shows the experimental design used. The increase in learning outcomes that occurs due to the influence of learning interest caused by the treatment given can be seen from the difference in learning outcomes in each class, namely Q2-Q1 in the experimental class and Q4-Q3 in the control class. Students' learning interest in this case is measured through observation during the learning process.

The development of learning media that will be used in the experimental class is carried out by analyzing everything needed in the Implementation of Interactive Multimedia-Based Learning Media in History Subjects (Alam, Astuti, & Suratman, 2022) development, namely analysis of the objectives and characteristics of the subject, analysis of learning resources, and analysis of learner characteristics. During the development process, media improvements are made , as well as media trials and testing. Development and improvement of media by designing, developing or modifying previous media according to the abilities and characteristics of students.

In the experimental stage, there are 4 aspects that want to be known in this study, namely the benefits and uses of media, the level of ease of media, the level of media attractiveness. Observations were conducted in the control and experimental classes with the aim of determining students' interest in learning History after being given different treatments. Aspects observed from observations of students' interest in learning History. The next step is an interview aimed at one of the teachers by asking questions about the use of History learning media that was used previously and what form/type, opinions about the use of interactive multimedia-based learning media that have been implemented, and the obstacles encountered by teachers when using this multimedia-based learning media. The purpose of this interview is to determine the teacher's response or opinion after the implementation of interactive multimedia-based learning media that has been implemented in History subjects at SMA Negeri 9 Palu . From all the data obtained in this study, it will be analyzed to answer the existing problem formulation. Data processing is carried out by analyzing data from observations, interviews, and questionnaires.

## FINDING AND DISCUSSION

### RESULTS

Results and Discussion of Research and Utilization of Interactive Multimedia Technology-Based Learning Media "Inspect History" at SMA Negeri 9 Palu Research related to the utilization of interactive multimedia technology-based learning media "Inspect History" at SMA Negeri 9 Palu was conducted as an effort to improve the quality of history learning, especially on material about insects. This research focuses on the use of interactive multimedia technology to make it easier for students to understand material that is often considered difficult and abstract.

From the implementation of the learning process, several data analysis results were obtained. The first data analysis is data from observations on the assessment of students' learning interest aspects. Data from observations were obtained using a

checklist from the assessment of interest aspects consisting of 3 indicators, namely student attention, interest, and involvement. Data obtained during the observation of student interest were processed to determine the percentage of student learning interest in the control and experimental classes. Implementation of Interactive Multimedia-Based Learning Media in History Subjects (Riaddin & Umasugi, 2021).

**Table 1 Students' learning interests**

| Indicator | Dick | My experiment |
|---|---|---|
| **Attention** | **46.3%** | **81.7%** |
| **Interest** | **43.3%** | **73.0%** |
| **Involvement** | **43.0%** | **68.7%** |

Table 1 shows the average percentage of students' interest in learning in the control and experimental classes. From the three aspects of interest, namely attention, interest, and student involvement, the average percentage in the control class is all in the sufficient category and the average number is below 50%. This condition is very different from what happened in the experimental class where all indicators were in the good and very good categories with an average percentage approaching or even more than 70%. This shows that the interest of students in the experimental class with the use of interactive multimedia is much better than students in the control class. The interactive media that has been designed gives a positive impression, where when using interactive media students seem like they are playing when in fact students are also thinking in understanding the material and trying to solve the problems in the media, it's just that students are not aware of it. This is what makes students interested in learning. The increase in learning outcomes also occurred in the experimental class in line with the increase in students' interest in learning. This can be seen from the results of the post-test given to students in the experimental and control classes. To find out how much the students' learning outcomes have increased from the pre-test and post-test in the control and experimental classes, the normalized gain calculation is used. The results of the normalized gain calculation from the control and experimental classes can be seen as follows:

**Table 2 Results Calculation *Gains***

| Class | Pre Test | Post Test | Difference | *Gain (G)* | Information |
|---|---|---|---|---|---|
| **Control** | 51 , 31 | 77 , 06 | 25 , 75 | 0.52885 6 | **Currently** |
| **Experiment** | **50 , 44** | **87 , 56** | **38 , 37** | **0.780037** | **Tall** |

Table 2 m e show results *gain* calculation on class control and experiment . From data mark *pretest* on class control roller And the expression is 5 1, 3 1 and 50.44 Which means second class own to initial capability Which almost same , after given fish *treatment* with giving a posttest obtained *a* difference n value y significa kan ya aitu class control as big as 77.06 with difference 25.75 And experimental class as big as 87.56 with difference 38.37. Be based on data mark *before and after* and *posttest* , in the role of mark *gain (G)* class normativeization experiment of 0.78 0 037 with

category tall, while on class control as big as 0 , 52 8 856 by category currently. Matter This show that improvement results Study in more experimental classes tall from class control although second class increased .

Through interaction And activity Which served by media learning lesson used , student to get to the end in understand draft And can practice implementing the concept History the through no me Which available . Learning with media This Also can done in a manner independent by student and in a way over and over again so that mastery they about draft History the even become more Good . Matter This Which then have an impact on the results of his learning .

The results of the analysis of teacher and student responses show that this interactive learning media is very helpful for teachers in the learning process, is able to attract students' interest and attention, and makes it easier for students to understand the material during independent learning. An interview with a teacher, from the interview, it gave results that the teacher had a positive response regarding the use of interactive multimedia-based learning media as a teacher's aid when teaching, while also making students not easily bored during the learning process and attracting students' attention to stay focused during learning. This interactive multimedia-based learning media has a good purpose, namely to make it easier for students to learn independently, especially in History subjects which have been considered difficult by students, and with this media students become more interested in learning History. Implementation of Interactive Multimedia-Based Learning Media in History Subjects (Husin Lubis & Nurmawati, 2022) Furthermore, to find out students' responses to interactive multimedia-based media using a questionnaire given to the experimental class, there are 6 questions that must be answered by students in the experimental class. The results of the student questionnaire data analysis are shown in the following table:

**Table 3. Results Analysis Questionnaire Student**

| Indicator | Amount Respondent Per Scale | Average Scale | % | Information |
|---|---|---|---|---|
| **Difficulty media** | 67 | 4,19 | 68 , 8% | **Easy** |
| **Media interest** | 73 | 4,56 | 62 , 5% | **Very Interesting** |
| **Enjoyment in the media** | 67 | 4,19 | 56 , 3% | **Like** |
| **Ease of understanding** | 64 | 4 | 75 , 0% | **Easy** |
| **Multiplication and division calculations** | 61 | 3, 81 | 56 , 3% | **Understand** |
| **Boredom in learning** | 65 | 4,06 | 68 , 8% | **No bored/ saturated** |

The explanation of the table data is that it shows the media difficulty level indicator, showing that most students in the experimental class assume that this interactive media is easy to use. The media interest level indicator shows that most students assume that this interactive media is very interesting. The student enjoyment level indicator shows that most students assume that this interactive media is fun. The ease of understanding material indicator shows that in general, students in the

experimental class assume that the material in this interactive media can be easily understood. The material understanding level indicator on the subject of calculating multiplication and division numbers shows that most students in the experimental class assume that with this interactive media, students can understand the material on the History subject, especially the subject of calculating multiplication and division numbers. Finally, the student saturation level indicator in learning using interactive media shows that some students in the experimental class assume that learning History with the help of this interactive media does not make students feel bored.

**DISCUSSION**

From the results of the overall analysis of the student questionnaire, it shows that most of the experimental class students at SMA NEGERI 9 PALU have a positive response to the application of interactive media that has been designed in History learning. This happens because this interactive media attracts more attention and interest from students compared to previously used media. The various advantages of this multimedia-based interactive learning media make it possible for students to be actively involved in teaching and learning activities in the classroom, attract students' attention and interest in learning, and are able to improve student learning outcomes. Thus, from the overall research data that has been obtained, it can be concluded that the application of multimedia-based interactive learning media at SMA NEGERI 9 PALU is able to increase students' interest in learning History subjects.

Advantages of “Inspect History ” Learning Media Interactive learning media such as “Inspect History” has advantages in terms of visualization and interaction, which can replace conventional lecture methods that tend to be monotonous. Students can interact directly with learning materials through simulations in the Google Room, so they can see firsthand how the History mastery can be learned visually and interactively (Munawar & Hendrawan, 2020).

Interactive learning media such as “Inspect History” has several advantages that make it superior compared to conventional lecture methods that are often considered monotonous. One of its main advantages is the visualization and interaction capabilities provided by this media. In history learning, which often involves abstract concepts or past events, this media allows students to see and feel these events through attractive and clear visual displays.

With "Inspect History," students can interact directly with learning materials through simulations integrated into digital platforms such as Google Classroom. They not only listen to teacher explanations, but can also explore the material independently using various interactive features. This simulation allows students to explore various historical events, important figures, and societal developments in more depth. For example, students can follow the flow of local historical events, watch visual reconstructions of community life during a certain period, or analyze the relationship between historical events through interactive diagrams (Kingsley & Boone, 2008).

The advantage of this visualization is that it is very helpful in simplifying complex material, making it easier for students to understand and remember it. The animations and simulations provided by “Inspect History” provide a more realistic picture of how people lived in the past, without having to rely solely on imagination.

Students can see how a historical event impacts social and cultural life, in an interesting and easy-to-understand way.

In addition, the interaction that occurs between students and learning media makes the learning process more dynamic and participatory. Students are encouraged to actively interact with the material, either through simulations, quizzes, or collaborative activities in digital space. They not only act as recipients of information, but also as participants who are directly involved in the learning process. This changes the role of the teacher from the main center of learning to a facilitator who guides and supports the student's exploration process (Putra, Ruminiati, & Al Atok, 2017).

With media such as “Inspect History,” the process of learning history becomes more lively, interactive, and interesting. This advantage makes learning more varied and makes it easier for students to understand the material presented visually, without feeling burdened by the monotonous way of delivery. As a result, the learning experience becomes more meaningful, effective, and relevant to the needs of students in this digital era.

## CONCLUSION

Interactive multimedia-based learning media can increase students' interest in learning multiplication and division operations in elementary school mathematics subjects because it provides meaningful experiences through attractive displays and fun activities through games. Students' interest in learning using these media is included in the very good category in terms of student attention to learning with a percentage of 81.7% and 73% in terms of student interest, while the aspect of student involvement in learning is in the good category with a percentage of 69.7%. This condition is very different when compared to the control class, where in all aspects of interest the percentage of students is below 50%.

interactive multimedia technology-based learning media "Inspect History" at SMA Negeri 9 Palu has a positive impact on the teaching and learning process, both for students and teachers. For students, the use of this media enriches the learning experience by presenting more interesting, visual, and interactive historical materials. Students can actively participate in the learning process, understand historical materials more quickly and efficiently, and engage in simulations that develop critical and creative thinking skills.

For teachers, this research improves competence in utilizing technology to create more innovative teaching methods. Teachers become more confident in integrating interactive technology multimedia media into learning, so that learning becomes more varied and relevant to current technological developments.

However, there are several challenges that need to be considered, such as limited infrastructure in schools and the need for further research to ensure that the implementation of this learning media can take place effectively and sustainably.

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