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Multimedia Development of Interactive Learning CTL Based Geographic Lessons in Students Class XI

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ABSTRACT

This study aims to: (1) Determine the feasibility of multimedia interactive learning based on CTL in Geography subjects at SMA Negeri 8 Takengon (2) To determine the effectiveness of interactive multimedia learning based on CTL in improving student learning outcomes in Geography subjects at SMA Negeri 8 Takengon. The stages of this research are the needs analysis stage, the planning stage of interactive multimedia learning based on CTL in geography learning (design), the development stage (develop), and the trial stage (validation). The results of this study indicate (1) The test of the geological material expert is in very good qualifications (90.33%), (2) The test of the instructional media expert is in very good qualification (91.56%), (3) The test of the learning design expert is in very good qualifications (94.44%), (4) individual trials are in poor qualifications (74.64%), (5) small group trials are in good qualifications (79.33%), (6) Field trials are in very good qualifications (97.83%). The results of hypothesis testing prove that there are significant differences between student learning outcomes before using CTL-based interactive learning multimedia and those using CTL-based interactive learning multimedia. This is indicated by the results of data processing $t_{count} = 1.97$, at the significance level $\alpha = 0.05$ $t_{table} = 1.69$. It was concluded that the interactive multimedia learning media based on CTL developed were feasible and effective to improve learning outcomes of Geography at SMA Negeri 8 Takengon.

Keywords: Learning Outcomes, Geography, Multimedia, Interactive, CTL Based

1. INTRODUCTION

Geography Lessons is one of the subjects at the Senior High School (SMA) level, which aims to make students have the ability, 1) Understand spatial, environment and territorial patterns and related processes; 2) Mastering basic skills in obtaining data and information, communicating and applying Geography knowledge; and 3) Showing a caring attitude towards the environment and using natural resources wisely and having tolerance for the cultural diversity of the community (Permendiknas No. 22 of 2003).

To be able to understand the phenomena and processes of Geography, it requires the presence of various media, namely the need for maps, tables, graphics, images, statistical figures and visualization of still images, animations, and films. Geography learning materials are very appropriate when taught using media

that has good visualization, one of them is interactive multimedia media (Prasetya, 2015: 18)

According to Taylor (2006) and Liu (2008), the use of multimedia affects the learning outcomes of Geography. The results show that using multimedia will facilitate one's understanding of Geography.

Based on the above orientation, the problems that occur at SMA Negeri 8 Takengon are in the absence of attractive media that are able to make students understand the material presented by the teacher. CTL-based interactive multimedia learning is one of the most interesting media and its of multimedia is related to the use of more than one kind of media to present information.

Availability will be sought through research and development (R&D) conducted at SMA Negeri 8 Takengon in Geography on the distribution of natural

resources. Through R&D research entitled Development of CTL-based interactive learning multimedia in Geography subjects in class XI students at SMA Negeri 8 Taker¹⁹ Academic Year 2018/2019 it is expected to be able to help students to facilitate understanding of the material presented and teachers to get new media that aims to achieve the criteria, which is determined.

2. THEORETICAL STUDY, FRAMEWORK AND HYPOTHESIS SUBMISSION

2.1 Theoretical Study

2.1.1 Geographic Learning

According to Hamanto (2007: 3) Geography is a description (grafien means describing or describing) about the earth (geos) with all its contents, namely human, which is then added to the animal world and the plant world. In simple terms, it is said that Geography is a science of studying the intricacies of the earth's surface and the reciprocal relationship between humans and their environment.

2.1.2 Learning Media

Daryono (2010: 6) states that learning media are anything (whether humans, objects, or the surrounding environment) that can be used to convey or transmit messages in learning so as to stimulate students' attention, interest, thoughts and feelings in learning activities to achieve goals.

¹³ Hamalik argues that the use of instructional media in the learning process can generate new desires and interests, generate motivation and stimulation of learning activities, and even bring psychological influences on students.

2.1.3 Interactive Multimedia

Mayer (2009: 2) argues that Multimedia in nouns refers to technology to convey material in visual and verbal forms, or also called technology - a tool used to convey material verbally and visually. Munir (2018²) clarifies Mayer's opinion that Multimedia is a combination of various media (file formats) in the form of text, images (vector or bitmap), graphics, sound, animation, video, interaction, etc. which have been packaged into files. digital (computerized), used to convey or deliver messages to the public. The general understanding of multimedia is related to the use of more than one kind of media to present information.

2.1.4 Contextual Teaching Learning

⁷ Sanjaya (2006: 109) states that contextual teaching learning is a learning approach that emphasizes the

process of full student involvement to be able to find the material being studied and relate it to real life situations so as to encourage students to apply it in their lives. Al-Tabany (11¹⁴: 140) states that contextual teaching and learning is a learning concept that helps teachers link the material being taught with students' real-world situations and encourages students to make connections between their knowledge and its application in their daily lives. .

2.2 Relevant Research

1. Taylor and Brandon (2006) found the use of interactive learning in making Geography learning outcomes more effective.
2. Liu and Xuan (2008) state that Geography learning can be optimized by using interactive learning designs.
3. Silva (2015) states that Geography learning can be improved by using an interactive learning model based on digital media

2.3 Framework of Thinking

The development of interactive multimedia learning based on CTL, the teacher first provides a pre-test to determine student weaknesses related to the material to be taught and informs anyone who has weaknesses related to the subject to be studied, after the teacher informs the pre-test results then the teacher provides motivation so that students self-introspection with the results obtained and must improve the direction of learning, attitudes in order to achieve learning goals and students must prepare themselves to restart the learning process as well as the teaching staff who have prepared the materials to be studied. The teacher continued to explain the learning material using interactive media using the Adobe Flash application and gave questions / cases that were found after the presentation of the material so that students began to search for answers to questions that the teacher had given, the final result of the teacher evaluated the results of the answers submitted by students

Process as well as the teaching staff who have prepared the materials to be studied. The teacher continued to explain the learning material using interactive media using the Adobe Flash application and gave questions / cases that were found after the presentation of the material so that students began to search for answers to questions that the teacher had given, the final result of the teacher evaluated the results of the answers submitted by students and gave an assessment To students, the happiness of students after getting a value that matches the ability of each student from the Geography lesson teacher using interactive media and students celebrating their success in learning Geography.

2.4 Hypothesis

Based on the above framework, the hypothesis is:

1. CTL-based interactive multimedia learning media is suitable for learning Geography at the Competency Standards for the Distribution and Management of Natural Resources in class XI SMA.
2. Interactive multimedia learning media based on CTL is effective for improving learning outcomes Geography Competency Standards for the Distribution and Management of Natural Resources in class XI students of SMA Negeri 8 Takengon for the 2018/2019 academic year.

3. RESEARCH METHODOLOGY

3.1 Development Style

Research and Development (RnD). development research is a method for producing certain products or perfecting existing products and testing the effectiveness of these products.

Researchers conducted research and development of interactive video learning resources on Geography subjects with the material distribution and management of natural resources. This was known through validation by material experts, media experts, design experts, and student use trials.

3.2 Place and time of research

This research was conducted at SMA Negeri 8 Takengon which is located at Jalan Buntul Gelengang, Kec. Bebesen Kab. Central Aceh with NPSN: 10102267. The research subjects were students of class XI-2 in the odd semester of the 2018/2019 academic year at SMA Negeri 8 Takengon. When the research took place from July-October 2019.

3.3 Product Development Model

The development of interactive learning products uses the Bord and Gall model with the Dick and Carey Model learning design. The steps in the development stages are as follows (1) Conducting research which includes (a) Identification of Needs, (b) Conducting learning analysis, (c) Identifying characters, (d) Basic competencies, (e) Developing learning materials. (2) making software designs which include (a) making naska, (d) making software, (c) making flowcharts. (3) Collecting materials which include (a) Image collection, (b) Video recording and collection. (4) Developing and making learning media. (5) Product reviews and trials. (6) Test the effectiveness of the product.

3.4 Product Development Procedures

The product development procedure that will be taken to produce interactive learning media products is divided into 6 stages, namely: (1) conducting preliminary research; (2) designing software; (3) collection of materials; (4) create and produce interactive learning media; (5) review or field testing in the context of evaluative and product revision, formative evaluation continues during the development process starting from the analysis, design, production and implementation stages until results are obtained in accordance with the stated objectives; and (6) product effectiveness test

3.5 The Product Trial Stage

The product development procedure that will be taken to produce interactive learning media products is divided into 6 stages, namely: (1) conducting preliminary research; (2) designing software; (3) collection of materials; (4) create and produce interactive learning media; (5) review or field testing in the context of evaluative and product revision, formative evaluation continues during the development process starting from the analysis, design, production and implementation stages until results are obtained in accordance with the stated objectives; and (6) product effectiveness test

4. RESEARCH RESULT AND DISCUSSION

Geography Lessons is one of the subjects at the Senior High School (SMA) level, which aims to make students have the ability, 1) Understand spatial, environmental and territorial patterns and related processes; 2) Mastering basic skills in obtaining data and information, communicating and applying Geography knowledge; and 3) Showing a caring attitude towards the environment and using natural resources wisely and having tolerance for the cultural diversity of the community (Permendiknas No. 22 of 2003).

4.1 Analysis Data

4.1.1 Preliminary Studies



Fig. 1 Teacher Needs Analysis



Fig. 2. Students Needs Analysis

4.1.2 Data From Material Expert Validation

Data from the material expert validation above can be seen that the quality of the guidelines and information is in the criteria of 96% "Very Good" and multimedia content / material is in the criteria of 90% "Very Good", while for the quality of the evaluation is in the criteria of 85% "Very Good"

4.1.3 Data Form Media Expert Validation

Data from software expert validation can be seen that the information guide is 96%, program performance is 88% and assessment on systematics, aesthetics, and design principles is 86.45% in the criteria of "Very Good".

4.1.4 Data Form Inctrucional Design Expert Validation

Data from the design expert validation can be seen that the learning design is 97.5%, the information design is 87.5% and the design percentage is 9.83% in the "Very Good" criteria.

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4.1.5 Data Form Individual Trailds

Individual trials were conducted at SMA Negeri 8 Takengon. Individual trials were conducted on 3 students who were taken randomly from class XI where 1 student had high achievement and 2 students had low achievement. In individual trials are in the criteria of 74.47% "Not Good"

4.1.6 Data From Small Group

Small group trials were conducted at SMA Negeri 8 Takengon in the same class. Small group trials were carried out on 9 students consisting of 3 high achieving students and 3 medium achieving students and 3 low achieving students. In the small group trial, the criteria were 79.33% "Good".

4.1.7 Data Form Large Group

The main trial was carried out by first correcting existing deficiencies found in the initial product trials, individual and small group trials. The main trial was carried out at SMA Negeri 8 Takengon class XI-2, totaling 32 students. In the large group trial was in the criteria of 97.83% "Very Good".

4.2 Product Effectiveness Test Result

4.2.1 Initial Test

1. Student Result Data Before Using Power Point Media

Table I. Student result data class xi-3 before using power point media

Interval	Absolute Frequency	Relative Frequency
16-19	4	12,5
20-23	7	21,87
24-27	10	31,26
28-31	7	21,87
32-35	4	12,5
Total	32	100

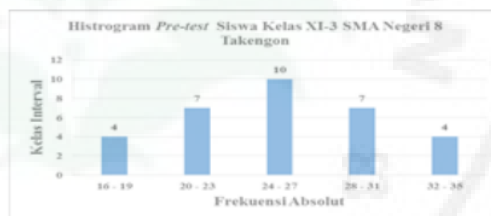


Fig. 3. Student Result Data Class XI-3 Before Using Power Point

2. Student Result Data Before Multimedia Learning Interaktif Basic CTL

Table II. Student result data class x1-3 before multimedia learning interactive basic CTL

Interval	Absolute Frequency	Relative Frequency
17-20	7	2,87
21-24	8	25
25-28	10	31,25
29-32	4	21,5
33-36	3	9,37
Total	32	100

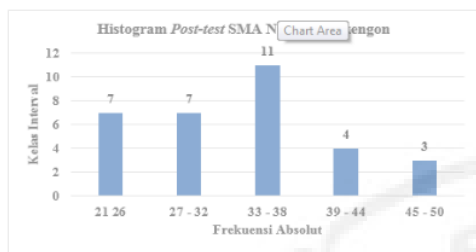


Fig. 4. Result Pre-Test Student Class XI-2 Before Multimedia Learning Interaktif Basic CTL

4.2.2 Final Test

1. Student Reselut Data After Using Power Point

Table III. Student result data class xi-3 after using power point

Interval	Absolute Frequency	Relative Frequency
21-26	7	21,87
27-32	7	21,87
33-38	11	34,37
39-44	4	12,5
45-50	3	9,37
jumlah	32	100

Interaktif Bsic CTL

Table IV. Student Result Data Class XI-3 After Multimedia Learning Interactive Basic CTL

Interval	Absolute Frequency	Relative Frequency
26-34	6	18,75
35-40	8	25
41-46	10	31,25
47-52	4	12,5
53-58	4	12,5
jumlah	32	100

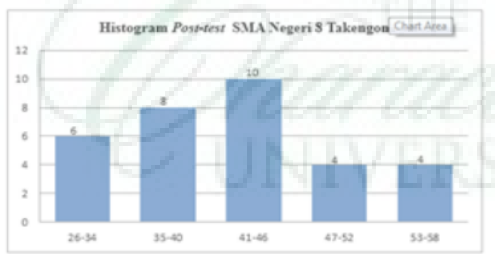


Fig. 5. The Result Pre-Test Student Class XI-2 After use Multimedia Learning Interactive Basic CTL

5. CONCLUSION AND SUGGESTION

5.1 Conclusion

Based on the formulation, the purpose of the discussion, results and discussion of research on the development of interactive multimedia learning media on Geography subjects that have been tested in class XI-2 SMA Negeri 8 Takengon, it can be concluded as follows:

1. The development of interactive multimedia learning based on CTL is stated to be good in product and suitable for use in class XI students of SMA Negeri 8 Takengon for learning Geography.
2. The use of interactive multimedia learning based on CTL is more effective to improve student learning outcomes. references should be consistent within the article and follow the same style. List all the references with full details.

5.2 Suggestion

Based on the conclusions and implications as stated, several things are suggested as follows:

1. Geography teachers are expected to be able to create and develop interactive multimedia learning media based on CTL in Geography subjects to improve learning outcomes of Geography.
2. Principals are advised to support teachers in developing a learning process based on information and communication technology
3. Students are advised to study interactive multimedia learning media based on CTL in Geography subjects to facilitate the learning process of Geography.
4. For the perfection and sustainability of this research it is recommended that researchers research the continued development of interactive multimedia learning media based on CTL in the content section and carry out wider trials with a larger sample in order to obtain a learning model that can be carried out widely.

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