

Development Of Historical Animation Video On The Material Of The Proclamation Of Indonesian Independence For Senior High School

N Najuah^{1*}, Esra Simarmata², Cindy Yohanna Marpaung³, Putri Chinda Carolina Sembiring⁴,
Via Stip Angelina Sitanggang⁵

^{1,2,3,4,5}Department of History Education, Faculty of Social Sciences, Universitas Negeri Medan, Medan, Indonesia

*Correspondence Author:

Email: najuah@unimed.ac.id

Abstract.

This research aims to: (1) to know the steps in the development of historical video animation on the material of the proclamation of Indonesian independence in class XI SMA Negeri 1 Bandar Perdagangan and (2) to know the feasibility of historical video animation on the material of the proclamation of Indonesian independence in class XI SMA Negeri 1 Bandar Perdagangan. The method used in this research is the Research and Development (R&D) method with the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. The population of this study was students of class XI IPS SMA Negeri 1 Bandar Perdagangan, with samples taken from class XI IPS 1. Data were collected using a questionnaire. Tools used to collect data include validation from material experts, validation from media experts, and product trials for students. The data analysis technique used in this research is quantitative analysis. The results showed that the learning media in the form of historical animated videos developed obtained an assessment from material experts of 92.86% (very feasible category). In comparison, media experts assessed 92.24% (very feasible category). Product trials in small groups resulted in a score of 91% (very feasible category), and in large groups, obtained a percentage of 95% (very feasible category). From these results, it can be concluded that the historical animated video media developed is very suitable for use in history learning activities at school.

Keywords: Animation Video Learning Media; History Learning and Research and Development (R&D).

I. INTRODUCTION

Human beings are very close and inseparable from the world of learning. Learning and education serve as the primary foundation for the development and progress of a country. The role of education is vital for human life. Education is a determining factor in achieving success in life. Education becomes a conscious process carried out by humans to achieve success and maintain life in the current development of the times [1]. In other words, education and humans are two closely related things, because the two cannot be separated from each other, because humans need education to develop their potential. Along with the development of the times, many efforts are being made to improve the quality of education. Education can provide new treasures for students to develop their abilities to make themselves intellectual human beings and achieve national education goals. One of the efforts to educate the nation's life by the objectives of national education is through implementing formal education. Formal education involves interaction between teachers, students, and various facilities that support the teaching and learning process at school. One of the efforts to optimize the success of education through the role of the teacher is by applying various methods and appropriate learning media. Teachers have a role in improving and developing students' cognitive, affective, and psychomotor skills. Therefore, teachers must be able to think creatively and be proficient in operating existing technology [2]. Currently, technology is not only a collaborator with education, but it has also become one of the potential developments of education that can be used for education development [3]

In the teaching and learning process, the role of teachers is vital in optimizing the quality of learning, including organizing quality history learning. Therefore, a teacher needs relevant competencies, such as utilizing learning media to help students understand the material better. It must be remembered that the importance of media in the success of a lesson can be a foundation that determines more or less the learning experience of students, depending on what the teacher applies during learning. Learning style is also one of the references that can be used by teachers in determining teaching methods and media. The

teaching methods and media used can build relationships between teachers and students in learning, and will also affect the success of education [4]. That is why every innovation in education is always rooted in the role of the teacher. One of the efforts to optimize the success of education through the role of teachers is to apply various diverse methods and appropriate learning media. One effective medium is animated video. According to [5], the media is considered a communication channel that plays an important role in successfully transferring information between the sender and receiver of the message (learning material) with the help of certain media. It is in line with the statement [6] that the media has the primary function as a creator of situations for students in understanding science and information conveyed accurately and also in depth, developing cognitive capacity, and is valuable in the formation of students' personalities in learning.

The use of learning media is a complementary basis and an integral part that influences the success of a lesson that is carried out and the learning process. Become a bridge in delivering the material [7]. Thus, learning media is a communication tool used to interact with teachers and students during the learning process to achieve effective and efficient learning outcomes. The most important thing in learning is the creation of an active and meaningful learning complete, learning process. This media must be able to stimulate students' thoughts, feelings, attention, and interests, to trigger an effective learning process and support the achievement of learning objectives. The use of learning media must be appropriate to maximize the quality of learning carried out [8]. More specifically, [6] describe learning media as an effort to develop communication capabilities between communicators, namely teachers, and students. These, namely, students, are systematically designed to optimize the learning process. [9] added that learning media has a concept that contains two main elements: software that contains information or messages that are intended to be channeled from learning, and hardware, which is the hardware or equipment used in its application. This media can help deliver messages, stimulating students' attention, feelings, thoughts, and motivation, thus creating a directed learning process. For more details, [10] defines learning media as a specific tool or component of learning resources, which is used to convey the content of learning materials in the environment of students, to motivate them to learn. With the use of media, the communication in learning tends to be two-way, unlike when it is focused on the teacher [11].

Learning resources include various supporting elements, such as support systems, materials, and learning environments. The use of learning media can get good results if it is supported by paying attention to accuracy in choosing learning media. So when applying learning media, teacher can consider and choose the use of media in teaching and learning activities. Accuracy in choosing learning media. So when applying learning media, teachers can consider and choose the use of media in teaching and learning activities. Learning history at the high school level is a process where the teacher introduces and explains to participants about past events and lives, and how they relate to the present and future. Studying history can help optimize a sense of nationalism among learners. Some important aspects that learners need to master in learning history include the capacity to think historically, historical thinking capacity, historical skills, and deep insight into history. However, the achievement of these aspects is highly dependent on the role of the teacher in delivering historical material by applying the right learning strategy. Based on observations initial research preliminary research which Based on preliminary research observations made by the author on November 08, 2023 through interviews with several students and history teachers at SMA Negeri 1 Bandar Perdagangan, the problem was found that students often felt bored and less enthusiastic when learning history, because there was too much presentation of material in the form of text narratives listed in printed books or package books that were assigned to students to summarize. Teachers still often apply the lecture method, which makes it difficult for students to understand historical material. In addition, the learning media used is less diverse.

If there is, it is usually only in the form of a PowerPoint with an explanation. It is this that makes history lessons less interesting for students. One of the obstacles history teachers face in making media learning is limitations in understanding technology and the time needed to prepare the media. However, teachers should be able to optimize students' interest by creating an innovative, active, creative, and fun

learning atmosphere to make the material easier to understand. Given the different learning styles of students, such as visual, auditory, and audiovisual, it is necessary to develop interesting learning media, one of which is animated video media [12]. Teacher-dominated learning will affect learning, limiting student potential and activity development. Therefore, teachers need to develop learning strategies that can be used to achieve learning effectiveness by using the help of learning media. Based on these problems, the researcher wants to research "Development of Historical Video Animations on the Material of the Proclamation of Indonesian Independence Class XI SMA Negeri 1 Bandar Perdagangan".

II. METHODS

This research is a type of research and development (*R&D*). According to [13], *research and development* (*R&D*) is a method that aims to produce specific products or perfect them and develop them. This view aligns with Seals and Richey 1994, in [14], who define research and development as a series of systematic procedures in designing, developing, and evaluating programs, processes, or products. All products produced must meet the validity, practicality, and effectiveness criteria. Thus, research is considered successful if the products developed meet user needs. Furthermore, Borg and Gall (1983), research and development in education is a process used to develop and validate educational products [15]. Richey and Klein [16] added that development translates design specifications into a physical form related to systematic learning design, development, and implementation. Moreover, the evaluation process establishes a basis for empirical research to create new learning and non-learning products or improve existing development models. Research and development are used to discover new knowledge and solve problems. Research and development play a role in discovering knowledge that can be used to discover new knowledge. Moreover, answer the problems that are happening. It aligns with the statement [14] that development research is a cycle.

It begins with a problem that requires a solution through the development of a particular product, either new or the result of the development of an existing product. Some research and development models usually used include the Borg and Gall model, Thiagarajan's 4D model (Four D Models), Sugiyono's model, the Five Stage model (Steady), and the ADDIE model. This research uses the ADDIE development model for *Analysis, Design, Development, Implementation, and Evaluation*. This ADDIE model was developed by Dick and Carry in 1996. The ADDIE model is a product development concept used in an educational environment to build knowledge and skills. This study's population was all class XI SMA Negeri 1 Bandar Perdagangan students. Moreover, the study sample was class XI IPS 1 with 33 participants. This study uses data collection techniques by distributing questionnaires. This study has three categories of questionnaires: (1) a media validation questionnaire addressed to media experts to evaluate the feasibility of the developed media. This research aims to ensure that the media used meets the quality standards needed in the learning process. (2) Material validation questionnaire addressed to experts. This assessment aims to ensure that the material presented is accurate, relevant, and meets the learning needs. This assessment ensures that the material presented is accurate, relevant, and meets learning needs. Moreover, (3) the product trial questionnaire is addressed to students to obtain the feasibility (assessment) of the media developed. This research applied three questionnaires as data collection instruments. The research instrument was developed using a Likert scale in the form of a checklist.

This study used non-quantitative data analysis techniques with data obtained from a questionnaire distributed to material experts, media experts, and students. The following is the formula used for quantitative data analysis to evaluate the feasibility of the developed media:

$$p = \frac{\sum x \text{ (Score validator)}}{\sum xi \text{ (jumlah skor jawaban tertinggi)}} \times 100\%$$

Description:

P Percentage of each aspect

100% = Constant

Furthermore, the guidelines in determining the level of validity apply a product qualification rating scale. The following is a table of product qualification assessment scales used:

Score Percentage	Description
81%-100%	Very good
61%-80%	Good
41%-60%	Simply
21%-40%	Not good
0%-20%	Not very good

(Source: Riduwan, 2007)

III. RESULT AND DISCUSSION

This research aims to produce a product or learning media on the Proclamation of Indonesian Independence material in the form of historical animation videos for class XI SMA. This media is expected to function as a tool in classroom learning activities. This animated video learning media applies method development research (R&D) with the ADDIE development model, which consists of five stages, namely: Analyze, namely analyzing the needs of students and teachers of class XI SMA Negeri 1 Bandar Perdagangan, starting from the investigation as a first step to find and analyze existing problems. Design, namely preparing materials and materials, designing products or learning media, and compiling research instruments. Development is the stage where researchers validate the media to be given an assessment. Implementation, namely the implementation of trials on students, as well as the evaluation stage (Evaluation), where at this stage, researchers conduct evaluations through video media that have been developed.

The following section will explain the research results and discuss each stage of development.

1. Analyze

This activity has a purpose; the interview was conducted to understand the practice of learning history and the condition of the use of media by teachers in the learning process. The interview activities found problems in implementing history learning at SMA Negeri 1 Bandar Perdagangan.

a. The application of media in learning has not been maximally utilized by teachers, because teachers still utilize and apply learning media based on PowerPoint and textbooks to convey material content.

b. Students' lack of understanding of history learning. One of the leading causes of this problem is using simple teaching methods and models, namely lectures.

c. Verbal delivery of learning materials and then giving assignments to students to write notes or summaries of the material that the teacher and students have delivered. Do some questions contained in the package book. This teaching approach can cause students to have difficulty understanding history lessons.

2. Design

This stage aims to compile an initial draft used in learning history in order to find out the description of the media developed. It can facilitate the media development process and ensure that the result is aligned with the objectives. The following are some of the stages carried out by researchers in the design stage, including:

a. Developing Teaching Modules.

Teaching modules are tools or devices teachers use to plan and design the learning process. With the teaching module, teachers can more easily carry out learning activities towards the predetermined goals.

b. Media Selection

In this research, the media selection process is used to design the video for the production stage of a learning media.

c. Summarizing the material becomes one of the things.

The material is important in making learning media, because the material is the substance that students learn. Researchers took the material of the proclamation of Indonesian independence, starting from the period leading up to the proclamation of independence and the period leading up to the proclamation. The

summarized material is taken from written sources such as Indonesian History Class XI books and journal sources.

d. History Animation Video Media Development

The development of this historical animation video applies the type of 2D animation with the following development steps:

1. Creation of a *storyboard* for the Step product beginning with which can be

The first thing to do before making media is to compile a storyboard. It serves as a visual representation of the developed media concept, thus providing a clear picture of the flow and content of the media in the form of an animated video. With a storyboard, researchers can plan each scene, including visual elements, text, and sound that will be used, as well as a guide in making each scene in the video, in other words, representing each scene available in the animated video. This media consists of several parts: opening, content, and closing.

2. Selection of animated video media template

The next step is template selection. The template here means a special design description that Canva has provided to carry out the editing process. Template selection can be adjusted according to the individual needs.

3. Selection of animated video images or characters applying canva elements

The purpose of selecting images is to adjust the images to the material used, namely, the proclamation of Indonesian independence. The characters and images can be selected from the features provided by Canva. One of the main factors in developing this historical animated video media is the image that is adjusted to the material in each slide, created to display images that match the character of the developed animated video.

4. Voice-over in animated videos

The casting of voice actors in animated videos aims to provide information in terms of sound so that the audience can hear and understand the content of the animated video. The steps that can be taken to fill the sound are recording the sound with the explanation of the material and adjusting it to the animated video in Canva. Enter the sound and the background sound through the audio upload feature in the canva display.

e. Provision of animated video background

The final stage of working on animated video media is providing background music, which aims to make the video more interesting and not bore the audience. In this animated video, the background music used is instrumental from supporting applications.

3. Development

The development stage is carried out after the completion of the media design which will produce an animated video development product then given suggestions and comments from validators, namely material experts and media experts to be given a quality assessment along with comments and suggestions for improvement so that the product can and is ready to be implemented. After the expert team validates the historical animated video learning media, the next step is the product trial stage to assess the feasibility of the historical animated video learning media that has been developed. This trial was conducted on students divided into two groups, namely small group trials and large group trials. In this phase, researchers will carry out a series of activities, which include:

1. Design Validation

This stage aims to obtain valuable suggestions and criticisms related to the design and appearance of the learning media being developed. The feedback will become an important guide in improving the product so that it can be appropriately applied to students. The team that became expert validators in this learning animation video was the Department of History Education of Universitas Negeri Medan Lecturers. The material expert team that became the validator of this study was initial name is Mrs. RS and the media expert in this study was initial name is Mrs. ST.

a. First Stage Validation

1. Material Expert Validation Data: The results of the assessment that has been in

The evaluation by the material expert of the animated video learning media shows that overall, the media obtained a percentage score of 72 out of a maximum score of 84, with a percentage of 85.71%. It shows that

the learning media designed is very feasible for schools. However, several revision points need to be added, referring to the assessment given by the material expert lecturer. The following are suggestions and input that need to be added to optimize the quality of the learning media: Add the content of the proclamation of Indonesian independence and Explain the meaning of the proclamation of Indonesian independence

2. Media Expert Validation Data Referring to the data listed above

In the table above, the results of the media expert validator on learning media in the form of animated videos show that overall, the media received a score of 65 out of the highest answer value of 84, with a percentage of 77.38%. It identifies that the media is included in the category of assessment worth using, although some revisions are still required to optimize the quality of the media. The following are the suggestions and inputs given for improvement of media learning, which is as follows: Add titles to each session, add a map of Japan's arrival in Indonesia, Add the compiler's name and add the media used for what grade

b. Second Stage Validation

1. Material Expert Validation Assessment stage, second stage, which is

Conducted by material experts, historical animated video learning media showed very satisfactory results. Overall, the media obtained a final score of 78 out of a maximum answer value of 84, with a score percentage of 92.86%. This learning media is in the category of very feasible to use without requiring further revision. Thus, the development of this historical animated video media successfully fulfilled the research objectives, namely, obtaining final product validation from material experts. These results indicate that the media developed is ready to be applied in classroom learning activities, providing an optimal learning experience for students.

2. Media Expert Validation: Second stage assessment or evaluation

The evaluation conducted by media experts on the animated history video showed excellent results. Overall, the media validation obtained a final score of 80 out of a total maximum score of 84, with a percentage of 92.24%. These results place the media in the feasible category to use without requiring further revision. Thus, the development of this animated history video learning media has achieved the research objective, namely, media experts' validation of the final product. Some improvements have been made concerning the input provided by the expert team.

4. Implementation

The implementation stage is carried out by applying the products that have been developed to students. The learning media in animated videos on the history of the proclamation of Indonesian independence were validated by material and media experts and revised by researchers. This phase is the implementation step after the historical animation video on the material of the proclamation of Indonesian independence for class XI SMA Negeri 1 Bandar Perdagangan is declared feasible by the expert team. In this phase, the implementation of media trials is explained to students who become research subjects. The trial aims to evaluate the quality of the media used in the research and was conducted in two stages: a small group trial and a large group trial. Thus, the results of this trial are expected to provide feedback for further improvement and ensure that the learning media can be used optimally in the classroom.

1. Small group trial

In this stage, the questionnaire was distributed to 10 students not included in the subject class or research sample. This trial research includes students from classes XI IPS 2, XI IPS 3, XI IPS 4, and XI IPS

5, and XI IPS 6, where two people per student represent each in one class. In this stage, students are asked to assess or provide feedback on animated video learning media on the material of the proclamation of Indonesian independence, referring to the presentation of content/material, media aspects, language, and benefits.

Based on the data from the results of the small group trial that has been carried out, the conclusion is that the learning media in the form of historical animated video media on the material of the proclamation of Indonesian independence developed by researchers is considered reasonable by students. It can be seen from the total assessment score, which reached 3.46 of the maximum score of 4.00. From the table presented, it

can be seen that students' responses to the assessment aspects show positive results, namely in the presentation of content/material, resulting in 87% with the category "very feasible", and the media aspect reaches 87%. 91% with the category "very feasible", then in the linguistic assessment aspect, the result is 95% with the category "very feasible", and finally in the assessment of the benefits aspect, the result is 93% with the category "very feasible". By considering the percentage of each aspect of the assessment, the conclusion is that the historical animated video learning media on the proclamation of Indonesian independence material for class XI at SMA Negeri 1 Bandar Perdagangan gets an overall score of 91%, which is included in the "very feasible" category. So from the results of the assessment that has been obtained from the results of the trial to small groups, the conclusion is that the historical animated video learning media on the material of the proclamation of Indonesian independence is very feasible to use and implement in history learning, with an overall percentage of 91%, the learning media developed is no longer revised product.

2. Large group trial

This large group trial was conducted on all class XI IPS 1 SMA Negeri 1 Bandar Perdagangan, consisting of 33 students. The implementation of this large group trial includes various aspects of assessment, starting from the assessment of the presentation of content/material, assessment of media aspects, assessment of linguistic aspects, and assessment of benefits.

The research steps taken by researchers are as follows:

1. Introduce and socialize the history animation video on the proclamation material to teachers and students.
2. Communicate the research objectives of developing animated history videos to teachers and students.
3. Presenting historical animated video learning media on the proclamation of Indonesian independence
4. Provide opportunities for learners to learn independently by forming groups to discuss the proclamation of Indonesian independence through the animated video that has been shown.
5. Learners discuss and then discuss the results, and other groups listen and respond.
6. Summarize the material together.
7. After that, students fill in the assessment instrument in the form of a product trial questionnaire that has been provided.

Based on the table listed above, the results of the product trial assessment of students show that the data obtained from the questionnaire filled out by students reached a total assessment score of 3.82 from the maximum score of 4.00, with a percentage of 95%, which is categorized as a "very feasible" category. The assessment on each aspect shows the following results: the presentation aspect of the content/material obtained a percentage of 93% with the category "very feasible", the assessment of the media aspect obtained a percentage of 95% with the category "very feasible", the assessment of language obtained a percentage of 98% with the category "very feasible" and the assessment of the benefits obtained a percentage of 98% which is also categorized as "very feasible".

Thus, from the assessment results, the conclusion is that the historical animated video learning media on the material of the proclamation of Indonesian independence is very feasible to use in the history learning process. With an overall score percentage of 95%, this media does not require further improvement or revision.

5. Evaluation

The evaluation stage is the last step in the ADDIE model development design. The evaluation stage aims to assess the extent to which the animated video is effective. The history used can achieve the goals that have been set. From the assessment of the animated video learning media, referring to the responses and assessments of students, it can be seen that their reactions are very positive towards this learning, so the use of this media is classified as very good. Learners' interest in historical animated video learning media regarding the proclamation of Indonesian independence is also evident from the responses. This learning media is exciting and has the potential to help students understand historical material, especially about the proclamation of Indonesian independence. Through questionnaires distributed to students at SMA Negeri 1 Bandar Perdagangan, as well as validation from material and media experts, it is known that the historical

animated video media developed is very good and feasible to use as a learning tool for class XI students at SMA Negeri Bandar Perdagangan.

IV. CONCLUSION

This research aims to develop historical animated video learning media on the material of the proclamation of Indonesian independence in class XI SMA. Referring to the results of research and discussion of historical animated videos on the material of the proclamation of Indonesian independence, the following conclusions can be drawn:

1. This development research produces a product or media in the form of historical animated video learning media on the Proclamation of Indonesian Independence material for class XI SMA Negeri 1 Bandar Perdagangan, which is designed using the Canva application. The process of developing this learning media applies the ADDIE development model, which consists of 5 stages: The Analysis stage, Design stage, Development stage, Implementation stage, and Evaluation stage. This animated video learning media contains material on the Proclamation of Indonesian Independence. The material in this product, the developed media, has first been adjusted to the basic competencies and subject matter of the Indonesian History teaching module class XI Semester 2 used by the teacher. Furthermore, the developed media contains images, audio, and video

2. material.

3. The results show that the simulated video learning media on the Proclamation of Indonesian Independence material for class XI SMA Negeri 1 Bandar Trade can be used in the history learning process. Material validation in the first stage obtained a percentage of 85.71% with a very feasible category and product revision, and the second stage obtained a percentage of 92.86% with a very feasible category. Then, for media validation at the first stage, it obtained a presentation of 77.38% with a decent category, where it had to make improvements or product revisions. After that, media expert validation at the second stage obtained a percentage of 92.24%, which is a very feasible category. Product trials to small groups obtained a percentage of 91% with a very feasible category, while large group trials obtained a 95% with a very feasible category. They can be used as a history learning medium.

REFERENCES

- [1] D. Hidayat, S. Tanjung, and A. Sutopo, "The Effect of Cooperative Learning Model and Creativity on Social Studies Learning Outcomes in Elementary School". *Basicedu Journal*, vol. 6, no. 5, pp. 7735–7742, Jun. 2022, doi: 10.31004/basicedu.v6i5.3587.
- [2] Najuah, R. Sidiq, and P. Hastuti, "Buddayah: Journal of Anthropology Education Analysis of E-Learning-Based History Learning in North Sumatra during the Covid-19 Pandemic". *Journal Anthropology Education*, vol. 3, no. 1, pp. 12–23, Jun. 2021.
- [3] P. W. Wijayanto, HM. Thamrin, A. Haetami, S. Mustoip, and U. Y. Oktiawati, "The Potential of Metaverse Technology in Education as a Transformation of Learning Media in Indonesia," *Journal of Education: Journal of Research Results and Literature Review in the Field of Education, Teaching and Learning*, vol. 9, no. 2, pp. 396–407, Jun. 2023, doi: 10.33394/jk.v9i2.7395.
- [4] Najuah, R. Sidiq, and R. S. Simamora, "Educational Games: Learning Strategies and Evaluations According to the 21st Century." Our Writing Foundation, 2022.
- [5] H. H. Batubara, "Effective Learning Media." Semarang: Fatawa Publishing, 2020. [Online]. Available: <https://www.researchgate.net/publication/345942990>
- [6] M. S. Saleh, Syahrudin, Muh. S. Saleh, I. Azis, and Sahabuddin, "Learning Media." Jawa Tengah: CV. Eureka Media Aksara, 2023.
- [7] U. B. Harsiwi and L. D. D. Arini, "The Effect of Learning Using Interactive Learning Media on Student Learning Outcomes in Elementary School." *Basicedu Journal*, vol. 4, no. 4, pp. 1104–1113, 2020, doi: 10.31004/basicedu.v4i4.505.
- [8] D. K. Mashuri, "Development of Animated Video Learning Media on Volume of Spaces for Elementary School Grade V," Surabaya, 2020.
- [9] H. Pagarra, A. Syawaluddin, W. Krismanto, and Sayidiman, "Learning Media," 1st ed. UNM Publishing Agency. 2022.

- [10] A. Suryadi, "*Learning Technology and Media Volume 1*," 1st ed. Sukabumi: CV Jejak, member IKAPI, 2020.
- [11] A. Trisiana, "*Strengthening Civic Education Learning Through Digitalization of Learning Media*," Nov. 2020.
- [12] R. Sidiq, N. Najuah, and P. Suhendro, "*Development Of Interactive E-Modules Based On Video Tutorial Practices Learning Models in Historical Learning Strategies As A Source Of Innovative Learning*," ***International Journal of Educational Research & Social Sciences***, vol. 4, pp. 119–125, 2023, [Online]. Available: <https://ijersc.org/>
- [13] Okpatrioka, "*Innovative Research and Development (R&D) in Education*." ***Dharma Acariya Nusantara : Journal Education, Language and Culture***, vol. 1, no. 1, pp. 86–100, Mar. 2023.
- [14] M. Fahrurrozi and H. Mohzana, "*Development of Learning Tools Theoretical Review and Practice*." Lombok: Universitas Hamzanwadi Press., 2020.
- [15] A. Rustamana, K. H. Sahl, D. Ardianti, A. H. Syauqi, and Solihin, "*Research and Development in Education*." ***Bima Journal: Publication Center for Language and Literature Education***, vol. 2, no. 3, pp. 60–69, Nov. 2024, doi: 10.61132/bima.v2i3.1014.
- [16] O. Hendratama, A. Musadad, and L. A. S, "*Archive-Based Learning Model to Improve the Historical Explanation Ability of Students of SMAN 1 Bangunrejo Central Lampung*." ***Historics***, Vol 22, no. 1, Jan. 2019.