

Digital Teaching Materials for Explanatory Texts to Strengthen Critical Thinking for High School Students

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ABSTRACT

This research aims to develop digital teaching materials for explanatory texts to strengthen high school students' critical thinking. Formulation of the problem of this research (1) How do digital explanatory text teaching materials strengthen critical thinking? (2) What are the results of implementing digital explanatory text teaching materials to strengthen critical thinking? This research uses research and development methods *with the ADDIE (Analysis Design Development Implementation Evaluate) model*. The steps in this research consist of needs analysis, designing digital teaching materials, developing digital teaching materials, implementing digital teaching material products, and evaluating digital teaching material products. The method for collecting data in this research is by collecting data from the results of expert validation questionnaires and student assessment questionnaires. The data obtained was analyzed descriptively using a *Likert scale*. The results of the design of digital teaching materials for explanatory texts to strengthen high school students' critical thinking consist of *cover*, material, post-material, Canva video, and accompanied by musical instruments that can be accessed using a computer or *smartphone*. The results of product assessments by validity experts (materials, media and teachers) as well as the results of student questionnaires regarding digital teaching material products with explanatory texts are stated in the "feasible" category. Test results in the implementation of explanatory text digital teaching materials to strengthen students' critical thinking at MA Al-Zaytun and SMAN 1 Gantar, the average student score has increased compared to before implementing explanatory text digital teaching materials. The conclusion of this research is that the results of tests and questionnaires on digital teaching materials for explanatory texts to strengthen high school students' critical thinking are categorized as having improved. And according to the respondents' assessment, the digital teaching material product explanatory text for strengthening high school students' critical thinking meets the criteria of being "fit" to be used as teaching material by students or teachers.

Keywords: *Digital Teaching Materials, Explanatory Text, Critical Thinking*

I. INTRODUCTION

Teaching materials are one of the important components in learning apart from students, educators and teaching media. Teaching materials that have been designed before the learning process will provide maximum results compared to learning that is only based on student or teacher handbooks. Teaching materials are also related to learning achievement. So educators are required to be able to develop teaching materials by carrying out innovations (Rahman et al., 2020).

The application of teaching materials by utilizing appropriate teaching media can support the smooth learning process, especially in developing 4C abilities (*Critical Thinking, Communication, Collaboration and Creativity*), namely critical thinking in addition to communication, collaboration and creativity (Jannah: 2022). In the digital era, in delivering teaching materials, educators should be able to use digital-based teaching media, because according to research by the *We Are Social institution* that Indonesian people are internet users in very large numbers. The emergence of the Internet and social media sites has expanded digital-based information sources (Schneider, 2010). The use of digital technology is quite good, but it is still used only for entertainment purposes.

The Indonesian language subject in the 2013 curriculum is text-based learning, prioritizing student activity, mastery of knowledge and skills. Text-based learning means learning to read, where the text can come from print media which will be very helpful in influencing increased understanding

in reading, especially if students lack the vocabulary that will support reading comprehension (Wiradinata: 2017). It is important for explanatory text teaching materials in learning to be modified again with the aim of forming aspects of students' spiritual, social, moral attitudes and overall skills through the process of natural phenomena and social phenomena, both processes of natural phenomena closest to themselves and natural and social phenomena in the surrounding environment. The spiritual aspect will be seen in increasing appreciation of religion which is believed to be the truth, the social aspect will be manifested in students' behavior in relation to responding to natural and social events in their environment. Moral aspects can be realized in understanding the values contained in natural and social events. Meanwhile, the skill aspect can include the ability to be creative in writing using the correct rules and being able to convey it again in public. So if these aspects can be realized, the strengthening of critical thinking will grow.

Material It is hoped that teaching that has been packaged with digital teaching media can add broader insight, so that students' critical thinking becomes better. By strengthening students' critical thinking skills, then being able to make decisions based on their opinions, this will give rise to students' self-confidence, so that students can explain and even test or present their opinions. As is the opinion of Peter Shea (in Sumiati and Asra, 2016: 176), that students will be able to learn 90% of what they say and do. Therefore, as Rachman Saleh (2004:15) says, learning is always influenced by several components, one of which is teaching materials. So, so that learning can provide a better learning experience for students, a form of teaching material that is appropriate to current developments and can bring students to a more real experience is digital teaching materials. It can be in the form of a website, digital images and videos, digital audio or applications on social media such as teachers' rooms and so on. However, teaching materials using audio-visual media or video media are closer to more real experiences.

Therefore, researchers consider it necessary to conduct research and develop digital teaching materials for explanatory texts to strengthen high school students' critical thinking . Based on the background of the problem above, the following problem can be identified, namely that digital explanatory text teaching materials for strengthening critical thinking need to be implemented so that aspects of students' attitudes, knowledge and skills are universally achieved. Based on this background, the specific objectives of this research are as follows.

1. How do digital explanatory text teaching materials strengthen critical thinking?
2. What are the results of implementing digital explanatory text teaching materials to strengthen critical thinking?

II. LITERATURE REVIEW

1. Teaching materials

Teaching materials are all learning materials in the form of a collection of materials that are arranged systematically to help students and educators in carrying out learning activities and enable students to learn Kurniasih (2014: 56) . Meanwhile, other opinions say that teaching materials are not just a collection of learning materials (Pujiatna, et al., 2020) .

Teaching materials in essence are all materials that are created systematically, manifested in all competencies will be used until students master the learning process (Mulyaningsih & Itaristanti, 2018). Teaching material development refers to all processes of processing and using learning materials, including evaluation, adaptation, design, results, use, and research (Tomlinson, 2012).

Hamdani (2011 : 122) states that there are several objectives in developing teaching materials, namely: (1) helping each student learn something, (2) providing various types of teaching material choices, (3) making it easier for teachers to carry out the learning process, and (4)) to make the learning process more interesting.

According to Daryanto (2014), teaching materials are divided into four types, namely, viewing or visual teaching materials, hearing or audio teaching materials, audio-visual teaching materials, multimedia teaching materials. The printed, digital or visual teaching materials used by

educators in learning are none other than to encourage students to enjoy learning so that changes in behavior occur as a result of learning (Jaja et al., 2021).

Teaching materials sourced from technology or digital teaching materials, according to Mascita (2021), the preparation of digital teaching materials in terms of content is no different from printed ones. Digital teaching materials only require the help of computer-based applications. There are many applications offered, both paid and free, that can be used to prepare teaching materials. Examples of digital teaching materials can be sourced from *YouTube*, social media, *slides*, films, television broadcasts, multimedia and interactive videos.

This teaching material is expected to have a positive influence on the development of students, both in the realm of knowledge, skills and attitudes (Pujiatna, et al., 2020). Peter Shea's research states that students can absorb 50% of learning from what they see and hear. After that, 70% of the learning can be absorbed by students by presenting the lessons they have produced.

2. Explanation text

Explanation comes from the word *explain* which means explaining how and why something in the world happens, this is more about the stages of events than about objects. An explanatory text is a text created to provide an explanation of how and why something happened. Explanatory texts place more emphasis on the processes experienced or occurring in a phenomenon (Djarmika, 2018:4).

An explanatory text is a text that contains explanations about processes related to natural, social, scientific, cultural and other phenomena (Priyatni 2014:82). An explanatory text is a text that explains an event, be it a natural event, a social and cultural event, or a personal event. Natural events, for example solar eclipses and volcanoes. Social events such as the Covid-19 pandemic process, traditional ceremony processes and others. As for personal events, for example, in the form of activities carried out/experienced by one person (Kosasih and Endang Kurniawan, 2018: 114). Explanatory text has a structure in the form of a title, general statement, series of explanations, and interpretation (Priyatni, 2014: 83). It can be concluded that explanatory text is text that explains the process of something happening. This process begins with 'why' and 'how' the phenomenon can occur. Every phenomenon, whether natural, social, cultural or other, has its own process.

3. Critical thinking

Thinking is the process of producing new mental representations through changing information that involves complex connectivity including reasoning, imagination and problem solving activities. Critical thinking activities have existed since prophetic times. How the Prophet Abraham, who was appointed a prophet, had to go through stages of critical thinking before finding Allah as his God. There are various definitions of critical thinking according to experts. Critical thinking is a mental activity that has a goal and is achieved by proving, interpreting and solving problems (Facione, 2015). Critical thinking is thinking about something rationally, then gathering as much information as possible regarding the reasoning methods used to make accurate decisions (Sulistiani, 2015).

Bloom's Taxonomy has formulated stages in critical thinking that are used in student learning orientation. Kuswana (2012: 2) says taxonomy means grouping. The taxonomy put forward by expert Benjamin Bloom after undergoing several developments, is divided into six categories, namely a) knowledge b) understanding c) application d) analysis e) synthesis and f) evaluation. Analysis is interpreted as an activity that breaks down terms or statements into their parts in order to grasp the meaning that covers them or understand the main parts first and then explain them. Meanwhile, synthesis is defined as an arrangement or combination of parts or components that form one whole. This understanding is in line with the opinion of Kattsoff (1986) who states that the purpose of synthesis is to collect all the knowledge that can be obtained to compile a complex picture. In another perspective, "synthesis" is a person's ability to link and express various components and elements of existing knowledge so that a new, more comprehensive pattern is formed. Critical thinking is a self-effort used to assess the truth of a

statement. In the end, the assessment is usually determined by making a decision by analyzing whether to accept or deny the truth of the statement made (Purwati, et al., 2022)

III. RESEARCH METHOD

This research uses research and development methods *with* the ADDIE (*Analysis Design Development Implementation Evaluate*) model. The steps in this research consist of needs analysis, designing digital teaching materials, developing digital teaching materials, implementing digital teaching material products, and evaluating digital teaching material products.

The analysis stage is the process of identifying the problems students face when carrying out the learning process. This analysis stage is carried out by making direct observations. The analysis of explanatory text material aims to identify, detail and systematically organize relevant concepts which will be used as digital teaching material for explanatory texts to strengthen critical thinking. There were 15 explanatory texts analyzed. A total of 15 were then selected to include 3 (three) which were included in the digital teaching materials of explanatory texts to strengthen high school students' critical thinking. Analysis of explanatory text material to strengthen critical thinking which is used as digital teaching material for explanatory text to strengthen critical thinking of high school students, namely the process of creation in the womb, the challenges of digital democracy ahead of the 2024 general election, and the Al Quran tells a story about oxygen.

collection in this research and development is by collecting data from the results of validation questionnaires from experts, practitioners, and student assessment questionnaires. The data obtained was analyzed descriptively using a *Likert* scale. Material validation is carried out by a material expert doctor. Aspects of assessment by material experts include aspects of appropriateness of content, appropriateness of presentation, and language assessment. Media validation is carried out by an expert doctor. Aspects of assessment by media experts include the size of digital teaching materials, the cover design of digital teaching materials (*cover*), and the content design of digital teaching materials. The practitioner assessment was carried out by three Indonesian language teachers. The assessment aspect by Indonesian language teachers consists of two aspects, namely the material aspect and the language appropriateness aspect.

After the digital teaching materials are validated by material experts and media experts and declared suitable for use as learning materials, then the digital teaching materials are tested on students to get responses as users. The trial assessment aspects of digital teaching materials consist of appearance, presentation of material and benefits.

IV. RESULTS AND DISCUSSION

1. Explanatory Text Digital Teaching Material Design

This research produces a product in the form of digital teaching materials with explanatory texts to strengthen high school students' critical thinking using research and development methods (*Research and Development*) with the ADDIE (*Analysis Design Development Implementation Evaluate*) model to produce quality products that are suitable to be used as digital text teaching materials explanation to strengthen high school students' critical thinking. The following is an explanation of the stages of developing explanatory text digital teaching materials to strengthen critical thinking using the ADDIE model from the analysis to evaluation stages.

a. *Analysis*

The first stage of the ADDIE development model is *Analysis*. Analysis was carried out to identify and analyze student and teacher needs as well as analysis of explanatory text. The results of the analysis of student and teacher needs were obtained and then the problems were identified. As a result of identifying the problem, the researcher determined the need for developing teaching materials. The teaching materials chosen by researchers are digital explanatory text teaching materials to strengthen high school students' critical thinking. Digital teaching materials were developed using the Canva application.

b. *Design*

The second stage of the ADDIE development model is *Design*. At this stage several steps are carried out, starting from preparing basic competencies and indicators, formulating material, selecting the format of digital teaching materials, and writing digital teaching material manuscripts. Preparation of basic competencies and indicators as a first step in determining the material used as teaching material. The next step in formulating the material is to determine the details of the material that are appropriate to the theme that will be used as digital teaching material. The steps for selecting the format and components of digital teaching materials are adapted to theoretical studies regarding the development of digital teaching materials. The results of the draft digital teaching materials that have been prepared are then validated by expert doctors to obtain corrections and suggestions for the improvement stage.

c. *Development*

The third stage of the ADDIE development model is *Development*. At this stage, the aim is to obtain ready-to-use products in the form of digital teaching materials that have been validated by material experts and media experts. The validation stage was carried out by material experts and media experts to find out deficiencies in the creation of the digital teaching materials being developed. Digital teaching materials that are validated and given feedback and suggestions by expert validators and media experts are the next stage of improvement. Improvements are made to improve product results so they are ready for use in the field. After the revision stage is complete, the digital teaching materials are tested on students. Trials must be carried out to find out students' responses to digital teaching material products that have been developed by researchers.

d. *Implementation*

The fourth stage of the ADDIE development model is *Implementation*. After the digital teaching materials are validated by material experts and media experts and declared suitable for use as learning materials, then the digital teaching materials are tested on students to get responses as users. The questionnaire provided for data collection consists of 21 assessment items with an item score range of 1-4. The test assessment aspects of digital teaching materials consist of appearance, presentation of material and benefits.

e. *Evaluate*

The fifth stage of the ADDIE development model is *Evaluate*. After the *implementation stage* is carried out, the next stage is assessing digital teaching materials with explanatory texts to strengthen high school students' critical thinking. At this stage, the assessment of digital teaching materials that is seen is the suitability of explanatory text digital teaching materials for strengthening critical thinking. This assessment was carried out by material experts, media experts, practitioners (Indonesian language teachers), and students as final product users of explanatory text digital teaching materials to strengthen critical thinking.

2. Results of implementation of Digital Teaching and Explanation Materials

The results of the implementation of explanatory text digital teaching materials to strengthen critical thinking are overall suitable for use as teaching materials. This feasibility is proven from the results of evaluations by material experts, media experts, practitioners, small group trials and field trials. Based on analysis of research data, assessment results were obtained which can be explained in the following discussion.

a. Materials Expert

The suitability of explanatory text digital teaching materials for strengthening critical thinking consists of three assessment aspects, namely content suitability, presentation suitability, and language assessment. Based on the results of the material expert's assessment, the suitability of explanatory text digital teaching materials for strengthening critical thinking reached an average total score of 3.26 from the highest score of 4. This can be interpreted as that the material experts stated that explanatory text digital teaching materials for strengthening thinking critical issues in the "Very Appropriate" category are used as teaching materials.

b. Media Expert

digital teaching material media for explanatory text to strengthen critical thinking includes three aspects of graphic feasibility, namely the size of digital teaching materials, the cover design of digital teaching materials and the content design of digital teaching materials. Based on the results of the media expert's assessment, the suitability of explanatory text digital teaching materials for strengthening critical thinking obtained an average total score of 2.96 from a maximum score of 4. This can be interpreted as media experts stating that explanatory text digital teaching materials are for strengthening thinking critical issues in the "Appropriate" category are used as teaching materials.

c. Practitioner

The assessment aspect by Indonesian language teachers consists of two aspects, namely the material aspect and the language appropriateness aspect. The practitioner assessment was carried out by three Indonesian language teachers. The assessment scores that have been obtained through the questionnaire are then averaged into an assessment score with a range of 1-4. Based on the results of the assessment by the two practitioners, the overall average score was 3.38 with the highest score being 4. It can be said that the three practitioners generally stated that digital teaching materials for explanatory texts for strengthening critical thinking in the "Very Appropriate" category were used. as teaching material.

d. Development Trial

The assessment instrument for students as users of digital teaching materials consists of three aspects, namely aspects of appearance, presentation of material, and benefits. Based on the results of the implementation carried out by students in the first, second trials and field trials, an average total score of 3.3 was obtained from a maximum score of 4. This can be interpreted as digital teaching materials for explanatory texts to strengthen critical thinking. in the "Very Appropriate" category for use by students as Indonesian language teaching materials for explanatory text materials, because the implementation of digital explanatory text teaching materials for MA Al Zaytun and SMAN 1 Gantar students has increased compared to before implementing the teaching materials.

V. CONCLUSION

The research and discussions that have been carried out by researchers, end with conclusions. Research on digital teaching materials is very necessary because in this technological era, educators, most of whom were not familiar with digital technology at school, must be faced with the rapid development of technology. So like it or not, we have to learn to understand for the benefit of students. The digital explanatory text teaching materials that the author created can be used by students independently both in class and outside of class.

Based on the description of the research results and development of digital teaching materials for explanatory texts to strengthen high school students' critical thinking, the author can conclude as follows:

1. digital explanatory text teaching material was created using the *CANVA application*. The language used in teaching materials uses standard communicative language. The writing uses 3 *fonts* provided by the CANVA application to make it more attractive. This teaching material is also accompanied by the sound of musical instruments which can help relax the mind and increase focus. Then this teaching material is made into an Mp4 video and *uploaded to You Tube* so that it is easy to access either using a link or typed title using a laptop or *smartphone* connected to the *You Tube internet* .
2. The results of the implementation of explanatory text digital teaching materials for critical thinking can be seen from the average response in the first trial, second trial and field trial. The results of the first trial of the three aspects of the assessment as a whole got a total mean score

of 3.4 from the highest score of 4. The second trial stage of the three aspects of the overall assessment got an average total score of 3.6 from the highest score of 4 . Meanwhile, the field trial stage of the three aspects of the overall assessment received an average total score of 2.9 from the highest score of 4. The overall implementation results, both the first trial, second trial and field trial, received an average total score of 3.3. Test results in the implementation of explanatory text digital teaching materials to strengthen students' critical thinking at MA Al-Zaytun and SMAN 1 Gantar, the average student score has increased compared to before implementing explanatory text digital teaching materials. The conclusion of this research is that the results of tests and questionnaires on digital teaching materials for explanatory texts to strengthen high school students' critical thinking are categorized as having improved. And according to the respondents' assessment, the digital teaching material product explanatory text for strengthening high school students' critical thinking meets the criteria of being "fit" to be used as teaching material by students or teachers.

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