The Impact of Canva-Assisted Animated Videos on Critical Thinking Skills In Elementary School Students' Mathematics Learning

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Abstract. One of the high-level thinking skills in mathematics is quite challenging for students. Critical thinking skills are one of the higher-order thinking skills that must be developed. Teachers must be able to help students learn mathematics by improving their critical thinking skills, one of which is through animated videos. This literature review, using an integrative review model, aims to examine the influence of animated videos with the help of Canva on critical thinking skills in fourth-grade elementary school students' learning of shapes material. Animated videos are innovative learning media because they systematically contain images or elements and material designed to attract the audience's attention. Animated videos can enhance and encourage students' abilities to think critically by prompting them to explain their thoughts, develop important skills, draw conclusions, give additional reasons, and come up with plans and methods. Thus, animated videos can be one of the references for improving students' thinking skills in mathematics in elementary schools.

Keywords: Critical Thinking, Animated Video, Mathematics Learning, Canva, Shapes.

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INTRODUCTION

Education is something that humans really need to support life in the 21st era so that other humans do not leave them behind. In Kamus Besar Bahasa Indonesia (KBBI), education is the way to shape how people think and act, aiming to develop individuals through various teaching techniques, strategies, and activities designed to impart knowledge. As for according to National Education System Law (Sisdiknas) Number 20 of 2003, education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious, spiritual strength, self-control, personality, intelligence, noble morals, and the skills needed by themselves, society, nation and state. Apart from that, according to Alzahrani and Mohamad Nor (2021), Teachers play a crucial part in learning and must be well-prepared and continually improve since information keeps changing and advancing. Teachers act as facilitators, regulators, evaluators, and learning resources in the learning process.

Education is closely linked to learning, which involves teachers and students exchanging knowledge. According to National Education System Law (Sisdiknas) Number 20 of 2003 Article 4, education is organized as a system that is contained in the learning process. The process of learning goes hand in hand with learning tools. Learning tools are important resources that help make it easier to share information during the learning experience. The choice of learning media must be adjusted to the learning objectives so that the learning media is effective and efficient when used. In the 21st era, the use of media has become mandatory

in the learning process because of easy access to learning media. In the 21st era, technological developments are so rapid that they also have an impact on education, especially media and media use. With the development of technology applied to education, especially in learning media, learning media has become more diverse. One of them is media that is integrated with two or more other media, which is called multimedia. Edgar Dale in Andriani & Kasriyati (2020) states that the use of media is essential in education to achieve optimal results in accordance with the stated objectives.

Even in the 21st era, students are required to have high-level-thinking skills. In learning mathematics, high-level thinking skills are essential to solve mathematical problems. One of the higher-order thinking skills is critical thinking skills, which can help students solve mathematical problems and problems in everyday life. In this way, students' critical thinking skills must be improved. The way students learn can enhance their ability to think critically.

According to research conducted by Dwiqi et al. (2020), there are still learning processes that use conventional media in the form of printed teaching materials such as books. In traditional teaching methods, the teacher serves as a source of information, sharing knowledge straight to the students, while the students remain passive and do not actively participate in their own learning process. When students are not very active in their learning, using traditional teaching tools does not significantly help to enhance their critical thinking abilities. To enhance the critical thinking abilities of students during their learning, it is important to incorporate different learning tools.

Therefore, in the process of learning, using educational tools is very important, particularly for enhancing students' ability to think critically. One type of teaching resource that can help in learning mathematics is animated videos. When animated videos are used in education, they can influence how well students do in their studies (Puspaningtyas & Marchamah Ulfa, 2020). In animated videos, they display objects and learning materials that are packaged attractively, and the teacher's role when using animated video media is to be a regulator (manage) and facilitator (facilitate) rather than being the primary learning source that directly provides knowledge or material to students.

Reviewed and studied from previous research, The creation and usage of media can enhance the ability of students to think critically, but this media is applied in class VII during lessons about how plants are built and how they work by Topano et al. (2023). The use of education tools in mathematics learning is whiteboard animation by Ramdani et al. (2024) to enhance imaginative thinking abilities in sixth-grade primary school learners. With this, the author will look for a new analysis of the influence of the use of learning media in the form of animated videos on the critical thinking skills of elementary school students in learning mathematics.

Therefore, this research aims to find out and understand how animated videos improve elementary school students' critical thinking skills in learning mathematics.

METHODOLOGY

This study employs a literature review research method with a descriptive qualitative approach. The literature review was chosen to analyze various previous research findings relevant to the use of Canva-assisted animated videos in mathematics learning to enhance critical thinking skills of elementary school students.

RESULT OF LITERATURE REVIEW

Elementary Mathematics Learning

Mathematics is a science that is widely used in everyday life, such as in buying and selling transactions and other activities (Fahma & Purwaningrum, 2021). According to Alhaddad (in Fahma & Purwaningrum, 2021), Mathematics is a science that studies logical thinking and systematic reasoning. Mathematics learning is the study of calculations, analysis using logic, and the ability to think logically (Anggrain, 2021). From this statement, it can be concluded that mathematics learning is a science that studies calculations and analysis using logic and reasoning as well as knowledge that can be used in everyday life.

Students often dislike learning mathematics. Some students think that mathematics is only material that must be memorized, like formulas (Fahma & Purwaningrum, 2021). Learning math includes different parts working together to help students improve their skills in solving problems (Gusteti & Neviyarni, 2022). In this way, it can be concluded that many students consider mathematics difficult and uninteresting because they rely too much on memorization, especially formulas. Learning math is very important because it engages different parts of learning that can enhance how students think and solve problems.

The goal of studying math is to enhance your ability to think critically, analyze information, reason logically, communicate effectively, and solve problems (Gusteti & Neviyarni, 2022). Class IV elementary school mathematics learning in the independent curriculum has six chapters to be studied. As outlined in the separate curriculum guide, the subjects include (1) entire numbers up to 10,000, (2) fractions, (3) visual sequences and numerical sequences, (4) measurements of area and volume, (5) two-dimensional shapes, and (6) visual representations like pictograms and bar graphs. In flat shapes, there are various shapes, namely square, rectangle, circle, triangle, parallelogram, rhombus, kite, trapezoid, pentagon or hexagon.

Canva App

The Canva application is a free platform that provides graphic design (Jannah et al., 2023). Canva is a web-based tool for making graphic designs that assists people in producing different types of creative content (Sari et al., 2021). Canva lets you make things like online books or e-modules, slideshows, video slideshows, posters, and more. We can use this app on laptops through a web browser and on smartphones that run IOS and Android (Sari et al., 2021). Based on the information, it can be said that the Canva app is a tool that offers graphic design services. This service can help users create electronic modules, presentations, animated videos, posters, and more. It is accessible from laptops, desktops, and mobile phones, whether they are Android or iOS devices.

Canva is a helpful tool for education, and it is strongly suggested for use in learning because the independent curriculum includes a part about digital technology. This encourages both teachers and students to think outside the box and be more innovative with the many online tools they can use (Winarni, 2022). From the statement above, it can be concluded that the Canva application or platform can be used in the learning process.

Animated videos

The animated video consists of two words, namely video and animation. According to Kamus Besar Bahasa Indonesia (KBBI), video is defined as a recording of live images or television programs to be broadcast via television. At the same time, animation refers to a TV show made up of a sequence of drawings or pictures that are shifted through machines and electronics to make them look like they are moving on the screen. Based on the definition above, an animated video is a recording of a series of moving images to be shown on a television set. There is also a definition that animated video is a moving visual representation created by moving images or objects sequentially and accompanied by sound to create the impression of changing movement (Tullah et al., 2022). Based on the definition above, an animated video is a visual recording consisting of a series of images or objects that are moved sequentially and usually accompanied by sound, thus creating the impression of changing movement. Animated videos combine elements of moving images and sound to be displayed on a screen, such as television, so that they can provide a dynamic visual experience for viewers.

Animation videos are a type of media that can be helpful for learning (Romadhon & Harimurti, 2020). Animated videos can be created through design applications and platforms, one of which is Canva. The use of animated videos in learning media can help students understand the material better (Cholik & Umaroh, 2023). From the information taken, we can say that animated videos are useful for learning and can assist students in grasping the content more effectively. The benefit of using animated videos is that they are more eye-catching due to the moving cartoon graphics, which help students recall the lessons better and keep them

engaged for longer (Suwarsono et al., 2023). While according to Hamzah (in Rochimah, 2019) states that the advantages of animated videos in the learning process are that they provide realistic experiences, clarify abstract things, speed up messages or material by students, develop imagination, and can be repeated if necessary. The advantages of animated videos are that they can attract students' attention, convey objects in detail, and help the approach between educators and students. (Ridha & Darmawan, 2022). It can be said that animated videos offer many benefits for education. One of them is its ability to attract students' attention through attractive visuals and moving cartoon images. This helps students remember the material more efficiently and reduces boredom. In addition, animated videos can provide a realistic learning experience and make it easier to understand abstract concepts. With its flexible characteristics, animated videos also allow students to repeat material as needed, speed up understanding, develop imagination, and strengthen relationships between teachers and students more efficiently.

Apart from advantages, animated videos also have weaknesses or disadvantages, as stated by Hamzah (in Rochimah, 2019): Production costs money, relies on technology as a tool to support video displays, and not all schools have tools to support video displays. There are some downsides to using videos for learning. First, creating videos can be very time-consuming. Also, making them needs a lot of creativity. In addition, you must be skilled at using certain software, and having a laptop is necessary. It's important to break down the information in a way that's simple to grasp, and you'll need a projector to show videos to the class (Sari et al., 2024). Overall, from the statements above, there are several disadvantages to using animated videos for learning, such as high production costs and dependence on technology that may not be available in all schools. Not only that, making animations takes quite a long time and requires a high level of creativity, as well as expertise in using animation applications. In order for videos to be displayed in class, devices such as laptops and projectors are needed. Additionally, materials must be adapted to be easily understood by students, which may be an additional challenge for educators.

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Critical Thinking Skills

In the 21st century, advanced thinking abilities are very important, and a key ability is critical thinking. Since critical thinking is an idea that can mean different things and be used in various ways (Shaw, 2014). Critical thinking is an essential thinking skill and an indicator of the quality

of student learning (Alsaleh, 2020). According to Halpren and Alsaleh (2020), States that thinking involves using reasoning skills or mental processes that help achieve better outcomes. It is about writing down thoughts that are backed by reasons and objectives, which guide us toward our targets.

As for according to Paul in Alsaleh (2020), states that critical thinking is "an intellectual discipline process that actively and skillfully conceptualizes, applies, analyzes, synthesizes, and evaluates information gathered from, or generated by observation, experience, reflection, reasoning, or communication as a rubric for belief and action." Facione in Polat & Aydın (2020) indicates that important thinking abilities include six basic parts: understanding, examining, assessing, deducing, clarifying, sharing ideas, and managing one's own thinking.

Students' ability to think critically can be seen through critical thinking indicators. There are indicators of critical thinking, namely (1) concluding and assessing deductions, (2) analyzing arguments, (3) focusing on a question, (4) asking and answering questions, (5) defining terms and assessing definitions, (6) induction, (7) making and assessing value judgments, (8) assessing the credibility of sources, (9) deciding on a course of action and (10) relating unstated assumptions in a study conducted by Dwijananti et al. (2021). There are also indicators of critical thinking, namely the skill of formulating and analyzing problems, providing reasonable arguments based on scientific evidence and developing concise explanations, carrying out evaluations accompanied by existing facts, principles, or guidelines, and drawing conclusions (Linina & Vevere, 2021). Additionally, in research, Nikmah et al. (2021) state that there are three indicators of critical thinking, namely problem analysis, evaluation, and conclusion. However, the critical thinking indicators in this research use the indicators proposed by Yuliyanto (2024), namely (1) focus, (2) reason, (3) inference, and (4) overview.

DISCUSSION

In the 21st Century, students need to develop critical thinking abilities (Aini et al., 2022). Since critical thinking is an idea that can be understood in various ways and applied in different situations (Shaw, 2014). Critical thinking skills can help students solve problems in their daily lives (Santika et al., 2018). Critical thinking is an essential thinking skill and an indicator of the quality of student learning (Alsaleh, 2020). Based on the statement above, it can be concluded that students in this era really need critical thinking skills. This is because it has many meanings and valuable benefits. This ability helps students in solving daily problems and is an essential indicator in evaluating the quality of their learning.

There are four critical thinking indicators, namely focus, reason, inference, and overview. Focus is a way to determine what to focus on or what problem points to address in order to make work more effective. Reason is giving reasons for the answer or conclusion put forward.

Inference is estimating the conclusion that will be obtained. An overview is checking the correctness of the answer (Yulianto, 2024). According to Van der Wal (in Wardani et al., 2019), Skills in critical thinking can be assessed with cognitive tests that use typical scores as a standard for success, since critical thinking is often linked to accomplishment.

Using media like animated Power-Point videos is a method to enhance critical thinking abilities (Khusna et al., 2022). According to a study carried out by (Mulyana et al., 2023), it is stated that animated videos are effective in enhance students' critical thinking skills. Based on this, animated videos can be a strategy for learning to improve students' critical thinking skills. The learning process carried out using animated video media must be supported by technology and teacher skills in mastering the material. Apart from that, teachers indirectly need to have an understanding of technology to ensure learning runs smoothly (Adiba et al., 2021).

The learning stage that uses animated video media is the opening activity, which contains the delivery of objectives and the preparation of students. The core activity is the appearance of an animated video as a presentation of the material, and the closing activity is the conclusion of the learning that has been carried out. Showing animated videos on the teacher's learning, namely introduction, material delivery, and evaluation. The introduction to the animated video is the initial stage before entering the material, namely conveying the learning objectives and triggering questions to prepare students and attract students' attention. Delivery of material is a critical stage. Namely, it contains the material presented and includes that question trigger students' critical thinking. Evaluation is the final stage, which contains that question trigger students' critical thinking regarding all the material that has been presented and students' feedback regarding the learning that has been carried out.

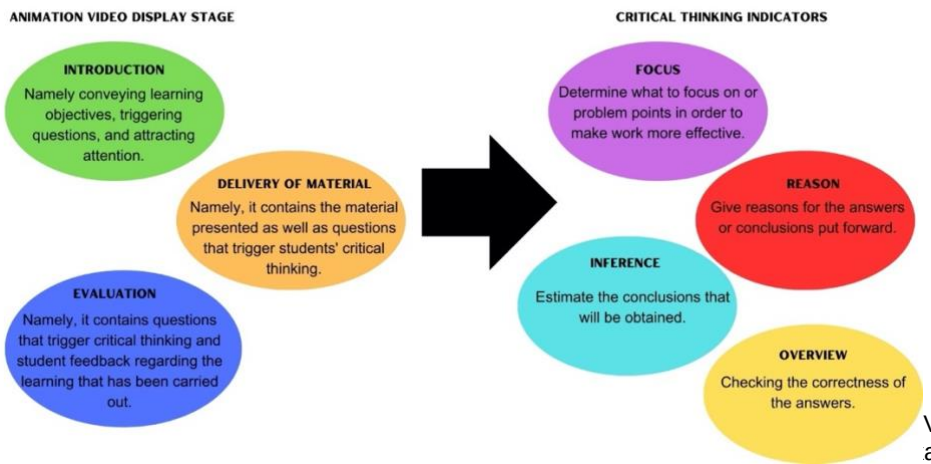

Figure 2. Chart of The Influence of Animated Videos on Critical Thinking Skills

CONCLUSION

The takeaway from this review of literature is that the ability to think critically is a vital skill that young students in elementary school need to develop. The use of innovative learning media is essential to improve students' critical thinking skills. Mathematics education must be given to all students from elementary school. The goal is to help students develop the ability to think clearly, analyze situations, approach issues step by step, evaluate information, and come up with new ideas, so they can tackle challenges they face in daily life. Animated videos are a clever way to help boost students' ability to think critically. The introductory stage in the video, when explaining what material will be studied and what the learning objectives are, can improve critical thinking skills in the focus indicator. The presentation stage of the material in the video can improve critical thinking skills on all indicators, namely focus, reason, inference, and overview. The final stage, or evaluation stage in the video, contains questions that must be answered, and feedback can improve critical thinking skills on all indicators.

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