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EXPLORING CANVA-BASED ANIMATION MEDIA ON MATHEMATICAL SELF-EFFICACY AND CREATIVE THINKING SKILLS OF STUDENTS

MENGEKSPLORASI MEDIA ANIMASI BERBASIS CANVA TERHADAP SELF-EFFICACY MATEMATIS DAN KETERAMPILAN BERPIKIR KREATIF SISWA

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Abstract

The research aims to determine the increase in creative thinking skills and mathematical self-efficacy in mathematics learning through Canva animation media. A non-equivalent control group with a quasi-experimental design was employed in the study. Tests and attitude scales were used in data collection procedures. Utilizing both inferential and descriptive statistics for data analysis. The research result shows that the improvement of creative thinking skills of those who learn with animated media is significantly better than those who learn with conventional learning. However, there was no difference in the students' self-efficacy in the experimental class compared to the control class, and it even tended to decrease. The mathematical self-efficacy of students learning with Canva animated media decreased significantly more than that of students learning with conventional learning. Thus, Canva animation media can significantly improve students' creative thinking skills, but it cannot significantly improve their mathematical self-efficacy.

Keywords: *Animation Media, Creative Thinking Skills, Mathematical Self-efficacy, Elementary School*

Abstrak

Tujuan penelitian ini untuk memahami peningkatan kemampuan berpikir kreatif dan self-efficacy matematis pada mata pelajaran matematika melalui media animasi Canva. Penelitian ini menerapkan metode quasi eksperimen dengan non-equivalent control group design. Teknik pengumpulan data menggunakan tes, dan skala sikap. Analisis data melalui statistik deskriptif dan statistik inferensial. Hasil penelitian menunjukkan peningkatan keterampilan berpikir kreatif yang belajar dengan media animasi lebih baik secara signifikan dibanding yang belajar dengan pembelajaran konvensional. Namun, tidak terdapat perbedaan self-efficacy siswa pada kelas eksperimen dibandingkan dengan kelas kontrol, bahkan cenderung menurun. Self-efficacy matematis siswa yang belajar dengan media animasi Canva mengalami penurunan yang lebih signifikan dibandingkan dengan siswa yang belajar dengan pembelajaran konvensional. Dengan demikian, dapat disimpulkan bahwa media animasi Canva mampu meningkatkan kemampuan berpikir kreatif siswa secara signifikan, tapi tidak mampu meningkatkan self-efficacy matematis siswa secara signifikan.

Kata Kunci: *Media Animasi, Keterampilan Berpikir Kreatif, Self-Efficacy Matematis, Sekolah Dasar*

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1. Introduction

The purpose of teaching mathematics in schools is to help students comprehend mathematical ideas, solve problems, and develop a curiosity, focus, and enthusiasm for learning mathematics, as well as to give them the confidence to solve issues and to think creatively (Yuliyanto, Farikhin, Sofiasyari, & Rogibah, 2023). One of the qualities that students need to develop when learning mathematics is creative thinking to meet the problems of the twenty-first century (Amir, Yuliyanto, Rochim, Gunawan, & Ecih, 2024). Examining creative thinking as one of the objectives of studying mathematics in the 21st-century skills, the study notes that the value of creative thinking is that it enables one to view issues from multiple perspectives, generate more original solutions, take into account a variety of options and ideas, and ultimately identify a better and more efficient solution (Maftukhah, Nurhalim, & Isnarto, 2017). The ability to analyze something using information that is already available but also coming up with new, more ideal concepts and identifying potential solutions is known as creative thinking. A person engaged in creative thinking will go through stages of idea synthesis, conception of new, more ideal concepts, planning the application of ideas, and execution of these thoughts to create something fresh and more perfect (Siregar, Mujib, Siregar, & Karnasih, 2020).

Based on field observations, several previous studies indicate that the creative thinking abilities of elementary school students still need to be optimized. Students typically struggle to answer questions with sentences, solve HOTS-type problems, and provide detailed or accurate answers (Sartono & Irawati, 2019). The same problem was also found, namely regarding creative thinking in students. One of the problems found by previous researchers is that so far, in teaching problem-solving, they have not been specifically trained in understanding problem information. Teachers teach by giving examples of problems and solving them directly, and they do not allow students to show their ideas or representations (Sudiantini & Shinta, 2018). Then the following example of the problem is that based on the results of observations on students and interviews with the fourth-grade homeroom teacher, it is known that the mastery of fourth-grade mathematical knowledge competencies has still not reached the target of the minimum completion criteria. One of the reasons for the findings is that students' problem-solving skills are still lacking, they pay insufficient attention to the teacher, they are generally too lazy to ask questions, individuals engage in less active learning, and they typically lack the motivation to finish the homework given by the teachers. Indirectly, this learning pattern makes students' knowledge competence, especially related to mathematics learning, less than optimal (Manurung, Halim, & Rosyid, 2020).

Teachers are responsible for guiding and directing their children to engage in constructive activities at home, and teachers are responsible for learning high-quality learning activities at school to foster creative thinking in the next generation of learners (Sonjaya & Yuliyanto, 2022). By thinking creatively, people can create new, unexpected things like others (Jazuli, 2017). Meanwhile, learners with poor levels of creative thinking will struggle to sense and observe issues, form assumptions, evaluate and test ideas, and communicate findings (Yuliyanto, 2024).

Affective elements that support one of the goals of mathematics learning, such as mathematical self-efficacy or confidence in problem-solving, can also be used to solve mathematical problems in addition to creative thinking. The conviction that one can plan and execute the steps required to accomplish a desired outcome or objective is known as mathematical self-efficacy (Fitriani & Pujiastuti, 2021; Muthaharah, 2017).

Mathematical self-efficacy is very important in learning. Mathematical self-efficacy can encourage students to complete their assignments (Yuliyanto & Turmudi, 2020). Hence, with mathematical self-efficacy, students can more easily solve problems or assignments and improve learning achievement. This is supported by research that states that students' success in solving problems can be influenced by mathematical self-efficacy (Jatisunda, 2017). If students do not have good mathematical self-efficacy, they tend to become less confident, resulting in suboptimal learning outcomes (Cahyani & Winata, 2020). Everyone's ability to advance is greatly influenced by their mathematical self-efficacy, which is based on their views about what they can accomplish with their existing talents, even if they are not very many (Putra, Daharnis, & Syahniar, 2013). Using animation media is one way to address this issue. To provide engaging and enjoyable learning experiences, learning animation media are audio-visual materials consisting of moving pictures and sounds accompanied by educational content on an electronic screen (Hambali, Akib, & Azis, 2020).

Using animated media, particularly tools like Canva, has significantly enhanced students' motivation, participation, and understanding of complex subjects. Animated media has improved students' motivation to study genetic material and improve learning outcomes (Umar, Hanum, & Hutagalung, 2021). Animation media is particularly appealing to students for several reasons: (1) animation helps children comprehend English more quickly, making it an effective pedagogical tool; (2) animated media facilitates active two-way communication between students and teachers during the learning process, enhancing participation; (3) it allows for more thorough assimilation of information and can be accessed anytime and anywhere; and (4) material from animation media can transition from abstract to concrete (Puspita & Sesrita, 2022). Among various types of animation media, Canva animation stands out as a notable example. Canva is an online design tool that provides animation capabilities and offers various graphic designs for use in various media, such as Facebook covers, picture editing, invitation cards, posters, banners, and presentations (Tanjung & Faiza, 2019). Many designs and animations are also readily editable within Canva's tools, saving the trouble of creating them from scratch (Enramika, Mubarokah, & Hardiyanti, 2023).

Understanding of advice and counseling learning can be translated into advanced learning materials that are more succinct and simple for students to understand using the Canva implementation (Mulyati, Astuti, & Ernawaty, 2022). Canva may be included in efficiently learning media tactics to improve the educational experiences of young learners (Yuanta & Larasati, 2023). Canva can be used for several things, including lowering learning effort, encouraging students, making abstract concepts concrete, repeating information, and helping them remember prior knowledge (Smaldino, (Smaldino, Lowther, & Mims, 2019). Students' motivation, enthusiasm, and comprehension of the subject matter can all be raised by using digital resources like Canva (Bakara, Utari, & Verayanti, 2023; Rahmatullah, Inanna, & Ampa, 2020; Said, Susanto, & Utami, 2023). Canva can help teachers to create interesting, interactive, and effective learning media. Thus, primary school education is believed to function well and be enjoyable for children (Arwanda, Widianto, & Pradana, 2024). With Canva animation media, it is thus intended that students' mathematical self-efficacy and creative thinking abilities will both be enhanced. Thus, this research aims to ascertain how utilizing animation materials made with Canva might improve students' ability to think creatively and increase their confidence in their ability to solve mathematical problems.

2. Research Method

This investigation employed the quantitative technique. This research used a non-equivalent control group with a quasi-experimental design. The study aims to determine if Canva animation may improve students' ability to think creatively and confidence in their mathematical skills. A non-equivalent control group design chart is shown below:

Table 1. Non-Equivalent Control Group Design

Group	Pre-test	Treatment	Post-test
Experiment	O1	X	O2
Control	O3	-	O4

Information:
O1 : Pre-test of experimental class
O3 : Pre-test of control class
O2 : Post-test of experimental class
O4 : Post-test of control class
X : Treatment

This study used animation media as the independent variable, creative thinking ability as the first dependent variable, and mathematics self-efficacy as the second dependent variable. The research sample consisted of 100 fifth-grade elementary school students in West Java Province, selected using the purposive sampling method. Of the sample, 50 students came from a public elementary school in Banjaran Subdistrict, Bandung Regency, and the other 50 came from an integrated Islamic elementary school in Sliyeg Subdistrict, Indramayu Regency. Class VA was the experimental group, and Class VB was the control group. The two schools were selected as samples because they represent a diverse population in West Java, with two different types of schools. Still, they have similar criteria in terms of accreditation and curriculum used. The data used consisted of pre-test, post-test, and attitude scale results.

This research data collection method was through questionnaires and attitude measurements. The test consisted of descriptive questions with five items related to cubes and rectangular prisms based on the second-semester curriculum for fifth-grade elementary school and involved indicators of creative thinking capacity. Additionally, a mathematics self-efficacy survey was used, which included features and metrics related to success experiences, social experiences, verbal praise, and psychological conditions when facing mathematical problems. Each aspect has three indicators: confidence in solving complex, varied, and challenging tasks. In this study, the instrument for mathematical creative thinking ability was modified to ensure validity and reliability. The self-efficacy instrument was also modified from a previously developed instrument by Yuliyanto, Turmudi, Putri, Muqodas, & Rahayu (2021).

Descriptive and inferential statistics were used to analyze the research data. The results of the creative thinking skills test, which was administered to the experimental and control groups as a post-test, and the results of the mathematics self-efficacy attitude scale, which was administered to the experimental and control groups as a final scale, were analyzed using t-tests, which were processed using Microsoft Excel 2019 and SPSS version 25. The pre-test, post-test and ideal maximum scores for both classes were compared using N-gain to measure improvement, also known as the normalized

gain test. N-gain scores measure growth in mathematical self-efficacy and creative thinking skills. Below is the N-gain formula in question:

$$N - Gain \frac{Posttest - Pretest}{Ideal\ Maximum\ Score - Pretest}$$

Information:
N-gain : Normalized gain
Post-test : Score after treatment
Pre-test : Score before treatment
Ideal maximum score : Highest score of the entire group

The N-gain criteria consist of if the N-gain score is 0 ≤ 0.30, it is classified as low. If N-gain ≥ 0.30, it is classified as moderate. If N-gain ≥ 0.70, it is classified as high. Meanwhile, if N-gain < 0, then it is considered a decrease.

3. Results and Discussion

3.1 Results

3.1.1 N-gain Results of Creative Thinking Skills

3.1.1.1 Descriptive Statistics of N-gain Creative Thinking Skills

Descriptive statistics describe the N-gain data obtained based on pre-test, post-test, and N-gain data. The overall outcomes of the N-gain recapitulation are displayed as follows:

Table 2. N-gain of Creative Thinking Skills in Experimental Class and Control Class

Group/Learning	Pre-test	Post-test	Gain	N-gain	Criteria
Experiment-Animation Media	53	75.83	22.83	0.64	Moderate
Control-Conventional	41.33	51.17	9.83	0.29	Low

Table 2 shows that students who learn with animation media have higher increases in creative thinking skills than students who learn with conventional learning. For learning with animation media, the criteria for increasing creative thinking skills are classified as medium, and for conventional learning, the criteria are low. The average score for developing creative thinking abilities is shown in Figure 1:

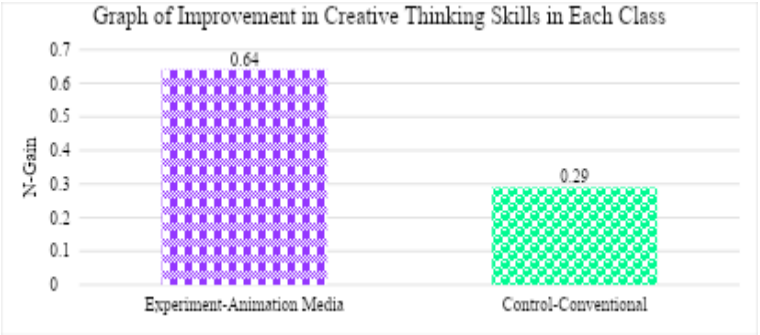


Figure 1. Average N-gain Capabilities for Creative Thinking Skills

3.1.1.2 N-gain Inferential Statistics Results of Creative Thinking Skills

Through hypothesis testing, creative thinking was used to determine that the data results in the N-gain data were significant. A hypothesis test was conducted to determine whether the data results in developing creative thinking abilities significantly. A normalcy test, a homogeneity test, and a hypothesis test are necessary as preconditions for performing a hypothesis test. This normality test determines if the samples under inquiry are normally distributed. Using SPSS version 25 and the Kolmogorov-Smirnov test, the researcher processed the data from the normalcy test. For the data to pass the normalcy test, they must fulfil the following requirements: The data is regularly distributed if the significance value is more than 0.05; if it is less than 0.05, the data is not. The normalcy test for improving the experimental and control classes' capacity for creative thinking skills is summarised in the following table.

Table 3. A Reproduction of the Normalcy Test to Enhance Creative Thinking in Experimental and Control Groups

		Normality Exp	**Normality Control**
N		50	50
Normal Parameters [a,b]	Mean	0.0000000	0.0000000
	Std. Deviation	6.74725998	4.26540084
Most Extreme Differences	Absolute	0.114	0.126
	Positive	0.075	0.126
	Negative	-0.114	-0.080
Test Statistic		0.114	0.126
Asymp. Sig. (2-tailed)		0.200[c,d]	0.200[c,d]

Table 3 shows that the higher creative thinking skills ability of the students in the experimental class has a significance of 0.200; a value of 0.200 > 0.05 suggests that the data from this increase in creative thinking skills capacity are normally distributed. Raising students' ability to think creatively in the control class has a significance value of 0.200; a value of 0.200 > 0.05 suggests that the data that results from this increase in ability to think creatively is regularly distributed. Since the data is normally distributed, a homogeneity test is performed next.

The one-way ANOVA test examines the difference in variance inhomogeneity testing. For the data to pass the normalcy test, they must fulfil the following requirements: The data is regularly distributed if the significance value is more than 0.05; if it is less than 0.05, the data is not. This is an overview of the normality test used to increase the creative thinking abilities of the experimental and control groups. This can be seen in Table 4.

Table 4. Recapitulation of the Homogeneity Test to Foster Creative Thinking Skills

		Levene Statistic	**df1**	**df2**	**Sig.**
Results of Improving Creative Thinking Skills	Based on Mean	0.543	3	116	0.654
	Based on Median	0.317	3	116	0.813
	Based on the Median and with adjusted df	0.317	3	87.485	0.813
	Based on trimmed mean	0.329	3	116	0.805

The students' higher creative thinking skills of the experimental class is significant (0.654), as seen in Table 4; a value of 0.654 > 0.05 denotes homogeneity between the data from the experimental and control classes. The t-test or hypothesis test is used next since the data is homogeneous.

It was determined that the two classes had a normal and homogeneous distribution after performing preparatory data analysis procedures, such as homogeneity and normality tests. A t-test must be performed to test the hypothesis and determine the degree to which students' average N-gain of creative thinking skills in the two groups differs for the data to move on to the next level of data analysis. The calculation results are in Table 5, and the attached t-test analysis recapitulation findings are also included.

Table 5. Findings from the N-gain Creative Thinking Skills Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Results of the N-gain	Equal variances assumed	1.208	0.276	8.642	58	0.000	24.667	2.854	18.953	30.380
	Equal variances not assumed			8.642	54.188	0.000	24.667	2.854	18.944	30.389

The result indicates that H_0 is accepted since sig (2-tailed) 0.000 < 0.05. Table 5 shows that the N-gain results in the experimental and control classes differ. Therefore, it can be said that students who study using animation media have substantially more creative thinking abilities than students who study with conventional learning.

3.1.2 Mathematical N-gain Mathematical Self-Efficacy Results

3.1.2.1 Descriptive Statistics of N-gain Mathematical Self-Efficacy

Descriptive statistics describe the N-gain data obtained based on initial scale data, final scale data, and N-gain data. The overall N-gain recapitulation results are as follows:

Table 6. N-gain Mathematical Self-Efficacy Data Results

Group/Learning	Initial Scale	Final Scale	Gain	N-gain	Criteria
Experiment-Animation Media	15.6	13.86	-1.73	-0.48	Decrease
Control-Conventional Media	15.9	14.83	-1.06	-0.30	Decrease

Table 6 shows a moderate drop in the N-gain mathematical self-efficacy while learning using animation media instead of conventional learning methods. To clarify, the decrease in students' self-efficacy is presented in Figure 2.

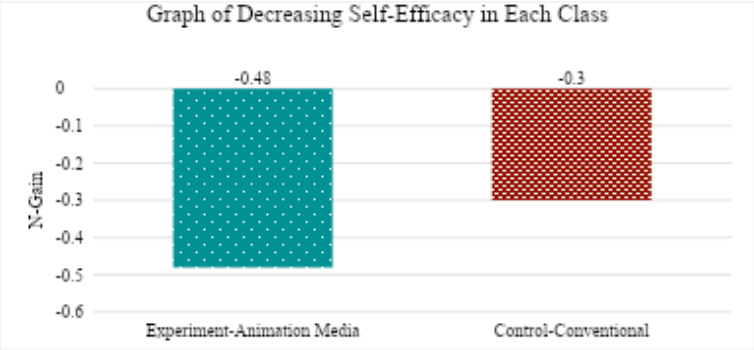


Figure 2. Average Decrease in Self-Efficacy

3.1.2.2 Inferential Statistics N-gain Mathematical Self-Efficacy

A hypothesis test was conducted to determine the significance of the N-gain self-efficacy data results. Before conducting the hypothesis test, a normality test, homogeneity test, and hypothesis test are necessary prerequisites. The normality test aims to ascertain whether the samples under investigation are normally distributed. The researcher processed the normality test data using SPSS version 25 and the Kolmogorov-Smirnov test. For the data to pass the normality test, they must meet the following criteria: if the significance value is greater than 0.05, the data is normally distributed; if it is less than 0.05, the data is not. The normality test results for the experimental and control groups' self-efficacy are presented in Table 7.

Table 7. Recapitulation of Normality Test for N-gain Mathematical Self-Efficacy in Experimental and Control Classes

		Normality Exp	**Normality Control**
N		50	50
Normal Parameters[a,b]	Mean	0.0000000	0.0000000
	Std. Deviation	3.23840751	3.94637229
Most Extreme Differences	Absolute	0.152	0.101
	Positive	0.096	0.063
	Negative	-0.152	-0.101
Test Statistic		0.152	0.101
Asymp. Sig. (2-tailed)		0.073[c]	0.200[c,d]

Table 7 shows the students' increased capacity in the experimental class for creative thinking skills. It has a significance of 0.073; a value of 0.073 > 0.05 indicates that the students' increased self-efficacy data is normally distributed. The data from the increase in students' self-efficacy in the control class is normally distributed, as indicated by the significance of the students' creative thinking abilities increase of 0.200 (where 0.200 > 0.05). A homogeneity test is the next step since the data are consistently distributed.

The homogeneity test aims to determine if the data from each class maintains the characteristics of homogeneously dispersed data. The one-way ANOVA test is employed to investigate the variance difference in homogeneity testing. If the significance value is more than 0.05, which indicates that the data is normally distributed, the data satisfies the normality test criteria; if the value is less than 0.05, the data is not. The normalcy test for improving the experimental classes and control class's capacity for creative thinking skills is summarised in the following table:

Table 8. Recapitulation of N-gain Mathematical Self-Efficacy Homogeneity Test

		Levene Statistic	df1	df2	Sig.
N-gain Mathematical Self-Efficacy Results	Based on Mean	0.695	3	116	0.557
	Based on Median	0.806	3	116	0.493
	Based on the Median and with adjusted df	0.806	3	114.341	0.493
	Based on trimmed mean	0.666	3	116	0.574

It was determined that the two classes had a normal and homogeneous distribution after putting the requirements for data analysis to the test using homogeneity and normality tests. The data can then be moved on to the subsequent data analysis, the t-test, to determine the extent of the variation in students' mathematical self-efficacy. The computation results are displayed in Table 9, and the findings of the t-test analysis recapitulation are attached.

Table 9. Mathematical Self-Efficacy N-gain Test Result

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
MSE N-gain	Equal variances assumed	1.597	0.211	1.837	58	0.071	1.733	0.944	-0.156	3.622
	Equal variances not assumed			1.837	55.504	0.072	1.733	0.944	-0.157	3.624

Table 9 can be utilized to determine that there is no significant average difference between the reduction results (N-gain) in the experimental and control classes, meaning that the sig (2-tailed) is $0.07 > 0.05$, and H_0 is acceptable. Therefore, it can be said that, in terms of their mathematical self-efficacy, there is no discernible difference between students studying in control classes using traditional teaching methods and students studying using animated media based on Canva.

3.2 Discussion

3.2.1 N-gain of Creative Thinking Skills

The descriptive and inferential statistical data analysis results indicate that the experimental control group is involved in developing creative thinking. Based on the inferential statistics, the average growth of creative thinking skills in students who learn with animation media differs significantly from students who learn through traditional methods. Therefore, it can be said that using animation as a medium helps students

develop their creative thinking skills more effectively than if they were taught using traditional classroom methods. All of this suggests that media that emphasizes animation can more successfully enhance students' understanding and oral writing abilities, providing them with more time to explore their writing skills through engaging and interactive materials. Studies indicate that the utilization of animation media can aid students in comprehending concepts and bolster their creative thinking abilities. Additionally, it can elicit positive responses from students (Smaldino, Lowther, & Mims, 2019). Incorporating animation media in the learning process can facilitate the explanation of intricate concepts and enhance students' motivation to engage with the subject matter.

Furthermore, animation media can improve students' learning outcomes, foster their creative thinking abilities, and create a more contemporary learning experience (Patresya & Manurung, 2016; Syauqi, 2012). Using animation media allows students to engage in data collection and evaluation, problem-solving, critical thinking, expressing ideas, and cultivating curiosity about various approaches to classroom challenges (Sanchez & Weber, 2019). Creative thinking can manifest in students' ability to generate multiple responses and methodologies, demonstrating originality and depth in their ideas. Additionally, research has shown that animation media significantly influences the ability to produce new concepts in science learning (Muttaqiin, 2012). Therefore, animation media enhances students' learning outcomes and fosters creative thinking and problem-solving skills, creating a more dynamic and engaging educational experience.

Developing students' critical thinking, creativity, problem-solving, technology, cooperation, and communication skills may be the main goal of animation learning. Animation students are encouraged to create stories, characters, and ideas they want to convey through animation by applying their critical and creative thinking abilities. Students also learn to master the technological skills needed to create animation, such as using animation software and video editing. It is believed that by enhancing students' reasoning through animated learning, they can comprehend concepts more deeply and acquire cooperation, technology, thinking, creativity, and problem-solving abilities that help them in their academic endeavors (Nadia, Wardiah, & Kuswidyanarko, 2021). The usage of additional media is crucial for enhancing mathematical proficiency after learning, according to other research findings that demonstrate how using visual and animated media can significantly improve mathematical problem-solving skills (Wathon, 2019). Students with strong creative thinking abilities can easily comprehend daily difficulties and develop novel solutions (Luzón & Letón, 2015). Research can help scholars on e-learning become more knowledgeable, particularly about the usage and acceptance of e-learning. From the viewpoint of both students and lecturers, alternative assessment can help facilitate learning and teaching. It can be implemented anywhere and anytime if the venue has a networked environment. This is when programs like Canva are useful (Salleh, Din, & Romli, 2022).

Students expressed that animation media assignments significantly enhance 21st-century learning by aligning with technological advancements and educational reforms. These assignments promote teamwork, creativity, critical thinking, interaction, and exploring new ideas. Additionally, they help raise students' cognitive levels and are tailored to the context of their current circumstances. They contribute to a technology-driven, student-focused, and all-encompassing learning environment (Ramdani, Yuliyanto, Muzfirah, Rochim, & Ripai, 2024). Other cutting-edge media, such as whiteboard learning, also display similar outcomes. Animation media is a teaching

method that can encourage students' innovative thinking (Darmi, Saad, & Zainuddin, 2021). Students' capacity for creative thinking skills can be significantly enhanced by using Wordwall as a teaching tool. By focusing on signs of creative thinking capacity, educators can create learning material as creatively as possible using Wordwall's numerous features and templates. Wordwall offers creative learning material creators flexibility. The capacity of teachers to craft original and creative questions that encourage students to think creatively can increase indicators of creative thinking abilities such as authenticity (original) and flexibility (Ramdani, Yuliyanto, Muzfirah, Rochim, & Ripai, 2024).

Additional study findings align with the work of Aliyah, Yuliyanto, Farikhin, Amanaturrakhmah, & Yasin (2024). The study, which specifically utilizes the Powtoon platform as a technological media tool, reveals significant differences in student performance. The experimental class had an average pre-test score of 47.50, while the control class scored 47.50. However, the experimental class's average post-test score rose to 82.50, compared to the control class's 73.06. The post-test results show a notable difference between the experimental and control groups. A sample t-test produced a Sig-value of 0.000, less than 0.05, confirming a statistically significant difference. These findings suggest that the use of Powtoon media has a substantial impact on enhancing students' creative thinking abilities.

Furthermore, Rochmania & Restian (2022) Rochmania and Restian (2022) demonstrate that animated videos can effectively stimulate students' creativity, providing a practical and engaging teaching method. Their study highlights the success of using animated videos to present information about Indonesia's diverse traditional homes. If $x_{test} < x_{table}$, then the data is normally distributed. The normality test for the pre-test and post-test data showed values of $7.7500 < 11.0704$ and $10.8333 < 11.0704$, respectively, indicating that the data is normally distributed. In hypothesis testing, the condition $t_{test} < t_{table}$ was met, with a value of $-4.8340 > 2.0859$. This result confirms the significant effect of animated videos on enhancing creative thinking skills in fifth-grade elementary school students. Therefore, using animated videos in elementary school is effective and beneficial in developing students' creative thinking abilities.

Apart from that, other media, such as interactive multimedia, are considered to have a positive impact on learning in elementary school in the form of increasing learning activities, learning motivation, creative thinking, understanding concepts, critical thinking, scientific literacy, learning outcome, and student learning achievement with the characteristics of being able to provide learning experiences. It is engaging and productive by allowing students to actively participate in comprehending ideas in a way that is suitable for their rate of learning, accessible, useful, and adaptable (Rochmania & Restian, 2022). Interactive multimedia will develop and enhance students' ability to think creatively. According to the research mentioned earlier, using digital media such as animations created with Canva instead of conventional learning materials significantly improves students' capacity for creative thinking skills. With proper use, Canva can help teachers to create interesting, interactive, and effective learning media. Therefore, it is hoped that learning in elementary schools can run optimally and be fun for students (Arwanda, Widianto, & Pradana, 2024). Students' ideas, creativity, and imagination can all be fostered with Canva.

Additionally, learning media offers a space where students are encouraged to experiment with ideas, create original works, and explore new concepts. Students must use the Canva software in the classroom to develop their creativity, and the tool allows

teachers to explain their lessons (Arwanda, Widianto, & Pradana, 2024). Conversely, employing the poem-writing technique with Canva might enhance students' capacity for original thought when learning Arabic (Alfan, Khasairi, Ridwan, Ma'sum, Saifullah, & Muthmainnah, 2023).

3.2.2 N-gain of Mathematical Self-Efficacy

The study suggests that using animated media based on Canva does not significantly impact students' self-efficacy compared to traditional learning methods. According to Hamdani, Prima, Agustin, Feranie, and Sugiana (2022), students who use e-learning media have neither higher nor lower self-efficacy than traditional learning techniques. These results remain consistent across subjects, even when similar media types are used. The control group's value of 0.07 > 0.05, shown in Table 9, indicates no significant change in self-efficacy between the pre-and post-test results. This is consistent with research findings that no audio-visual media intervention for health education was offered (Purwasih, Sariningsih, & Sari, 2020).

The tendency for students' mathematical self-efficacy to decrease can be attributed to their lack of familiarity with learning through technological devices, such as animation media, which creates discomfort during the learning process. Students' concerns about using new applications, which they perceive as risky, are valid, as research indicates that emotional language and negative messages often heighten these risk perceptions, leading to a decline in self-efficacy (Rasman, Setioputro, & Yunanto, 2022). Negative emotional reactions can potentially lower self-efficacy (Klemm, Hartmann, & Das, 2019). Research has even demonstrated the impact of emotional states on self-efficacy, demonstrating that self-efficacy beliefs are enhanced by good emotional states and diminished by negative emotional states (Indrayana, Arisudhana, & Putra, 2023).

This quasi-experimental research was very limited, especially in terms of time, which was only two months. This is one of the reasons why students' mathematical self-efficacy decreases when studying with animation media due to limited time allocation. Mathematical self-efficacy is one aspect of students' attitudes. Developing aspects of attitude, such as mathematical self-efficacy, requires a long time and a process of consistent repetition (Amelia & Taufik, 2020).

The study explains that strengthening self-efficacy requires strengthening actions. This effort can strengthen students' responses to learning, especially when implemented using innovative media, namely animated video media (Putri & Muqodas, 2019). Thus, it is envisaged that by utilizing cutting-edge media, students will succeed in their learning. An individual's self-efficacy and interest in the work will rise due to their successful experience. On the other hand, a task that fails will make you feel less competent and less interested in it (Desmawati, 2015; Suantini, Suarni, & Margunayasa, 2024). Apart from that, when students study using technology with their friends in class, feelings of envy or self-doubt arise because their devices are different. Studies show that other people's experiences strongly influence showing a decrease in self-efficacy (Desmawati, 2015). The influence of other people also has an impact on reducing mathematical self-efficacy when fellow students also find it difficult to use animation media in class. This is also consistent with research showing that people's self-efficacy can rise when they witness the success of others and fall when they witness people with similar talents failing (Sopiyah, Nurikhsan, & Hafina, 2020).

4. Conclusion

The research findings indicate that Canva-based animation media significantly enhances creative thinking skills in elementary school students. However, no changes were observed in self-efficacy levels in mathematics, and there was even a decrease in the experimental group using Canva animation media. This suggests that using this media may lead to a reduction in students' self-efficacy in mathematics. The study also recommends designing animation media with educational objectives. Further research is needed to evaluate the long-term impact of using animation media, considering other factors such as infrastructure, teachers, and time. Canva animation media is expected to enhance students' self-efficacy and creative thinking abilities across various educational levels.

References

Alfan, M., Khasairi, M., Ridwan, N. A., Ma'sum, A., Saifullah, M., & Muthmainnah, F. (2023). Learning Maf'ul Muthlaq with Arabic Poetry Writing Strategies to Improve Students' Creative Thinking Skills. *Ijaz Arabi Journal of Arabic Learning*, *6*(3), 836–848. https://doi.org/10.18860/ijazarabi.v6i3.20982

Aliyah, T., Yuliyanto, A., Farikhin, I., Amanaturrakhmah, I., & Yasin, M. (2024). Application of Wordwall Learning Media to Improve the Creative Thinking Ability of Third Grade Primary School Students in Learning Science. *Proceeding The 6th International Conference Elementary Education*, 521–530. http://proceedings.upi.edu/index.php/icee/article/view/3647/3267

Amelia, S. H., & Taufik, T. (2020). Relationship of Self-Efficacy with Self-Regulated Learning Students of SMAN 1 Lubuk Basung. *Jurnal Neo Konseling*, *3*(1), 134–140. https://doi.org/10.24036/00368kons2021

Amir, K., Yuliyanto, A., Rochim, A. A., Gunawan, & Ecih. (2024). Improving Students' Creative Thinking Skills through the Wallas Method in Learning Mathematics in Elementary School. *Proceeding the 6th International Conference Elementary Education*, 262–269. http://proceedings.upi.edu/index.php/icee/article/view/3707 /3288

Arwanda, Z., Widianto, D. N., & Pradana, D. D. (2024). Effectiveness of Using Digital Media Based on Canva Application in Primary School Learning: A Systematic Literature Review Universitas Muhammadiyah Kotabumi. *JUPERIM: Jurmal Perkembangan Ilmiah Multidisiplin*, *1*(1), 12–22. https://ojs.ruangpublikasi.com/index.php/juperim/article/view/96/20

Bakara, L., Utari, R. S., & Verayanti, V. (2023). Pengembangan Video Pembelajaran Menggunakan Canva untuk Mendukung Kemampuan Pemahaman Konsep Siswa SMP. *JPMI: Jurnal Pembelajaran Matematika Inovatif*, *6*(3), 901–912. https://doi.org/10.22460/jpmi.v6i3.17314

Cahyani, N., & Winata, H. (2020). Peran Efikasi dan Disiplin Diri dalam Peningkatan Hasil Belajar Siswa. *Jurnal Pendidikan Manajemen Perkantoran*, *5*(2), 234–249. https://doi.org/10.17509/jpm.v5i2.28841

Darmi, R., Saad, N. S. M., & Zainuddin, N. (2021). AniMe-Cs: An Animated Media Task for 21st Century Learning. *Proceedings of the International University Carnival on E-Learning (IUCEL) 2021*, 382–385. https://www.researchgate.net/profile/ Mohamad-Firdaus-Che-Abdul-Rani/publication/357256107_PROCEED

ING_IU CEL_2021/links/61c3bf38abcb1b520ada3b67/PROCEEDING-IUCEL-2021.pdf #page=400

Desmawati. (2015). *Self-Efficacy Siswa Sekolah Dasar yang Mengikuti Metode Matematika Otak Kanan* [Universitas Medan Area]. https://repositori.uma.ac.id /jspui/handle/123456789/13961

Enramika, T., Mubarokah, Z. A., & Hardiyanti, P. (2023). Development of Canva Application-Based Arabic Learning Media to Improve the Skills of 21st Century Educators. *Nusantara Education*, *2*(1), 34–39. https://juna.nusantarajournal.com /index.php/nula/article/view/58

Fitriani, R. N., & Pujiastuti, H. (2021). Pengaruh Self-Efficacy terhadap Hasil Belajar Matematika. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, *5*(3), 2793–2801. https://doi.org/10.31004/cendekia.v5i3.803

Hambali, S., Akib, E., & Azis, S. A. (2020). Pengaruh Media Animasi terhadap Keterampilan Menulis Cerita Murid Kelas V SD Se-Kota Makassar. *Syntax Literate: Jurnal Ilmiah Indonesia*, *5*(6), 182–191. https://pdfs.semanticsch olar.org /996f/699a9bf53f544104e9b801779f13fffc0f52.pdf

Hamdani, S. A., Prima, E. C., Agustin, R. R., Feranie, S., & Sugiana, A. (2022). Development of Android-Based Interactive Multimedia to Enhance Critical Thinking Skills in Learning Matters. *Journal of Science Learning*, *5*(1), 103–114. https://doi.org/10.17509/jsl.v5i1.33998

Indrayana, I. K. S., Arisudhana, G. A. B., & Putra, P. W. K. (2023). Hubungan Tingkat Spiritualitas dengan Self-Efficacy pada Pasien HIV/AIDS di Puskesmas Kuta II. *Journal Nursing Research Publication Media (NURSEPEDIA)*, *2*(2), 63–79. https://doi.org/10.55887/nrpm.v2i2.38

Jatisunda, M. G. (2017). Hubungan Self-Efficacy Siswa SMP dengan Kemampuan Pemecahan Masalah Matematis. *Jurnal THEOREMS (The Original Research of Mathematics)*, *1*(2), 24–30. https://jurnal.unma.ac.id/index.php/th/article/view/ 375

Jazuli, K. (2017). *Pengaruh Medıa Pembelajaran Kepo (Kertas Potong) terhadap Kemampuan Berpıkır Kreatıf Sıswa Kelas X MA At–Thohırıyah Ngantru Tahun Ajaran 2015/2016* [IAIN Tulungagung]. http://repo.iain-tulungagung.ac.id/4580/

Klemm, C., Hartmann, T., & Das, E. (2019). Fear-Mongering or Fact-Driven? Illuminating the Interplay of Objective Risk and Emotion-Evoking Form in the Response to Epidemic News. *Health Communication*, *34*(1), 74–83. https://doi.org/ 10.1080/10410236.2017.1384429

Luzón, J. M., & León, E. (2015). Use of Animated Text to Improve the Learning of Basic Mathematics. Computers and Education. *Computers & Education*, *88*, 119–128. https://doi.org/10.1016/j.compedu.2015.04.016

Maftukhah, N. A., Nurhalim, K., & Isnarto. (2017). Kemampuan Berpikir Kreatif dalam Pembelajaran Model Connecting Organizing Reflecting Extending Ditinjau dari Kecerdasan Emosional. *Journal of Primary Education*, *6*(3), 267–276. https://journal.unnes.ac.id/sju/index.php/jpe/article/view/21141/10038

Manurung, A. S., Halim, A., & Rosyid, A. (2020). Pengaruh Kemampuan Berpikir Kreatif untuk Meningkatkan Hasil Belajar Matematika di Sekolah Dasar. *Jurnal Basicedu*, *4*(4), 1274–1290. https://doi.org/10.31004/basicedu.v4i4.544

Mulyati, I., Astuti, I., & Ernawaty, E. (2022). Development of Canva Application Assisted Learning Media in Class XII Advanced Study Materials with 4-D

Models. *JTP (Jurnal Teknologi Pendidikan)*, *24*(3), 322–329. https://doi.org/10.21009/jtp.v24i3.30483

Muthaharah, Y. A. (2017). *Analisis Kemampuan Berpikir Kreatif Matematis Siswa SMP dalam Menyelesaikan Soal Bangun Ruang Sisi Datar* [Universitas Kristen Satya Wacana]. https://repository.uksw.edu/handle/123456789/16536

Muttaqiin, A. (2012). *Pengaruh Penggunaan Media Animasi terhadap Hasil Belajar dan Peningkatan Berpikir Kreatif Siswa SMA pada Konsep Sistem Pernafasan Manusia* [Universitas Pendidikan Indonesia]. https://repository.upi.edu/111179/

Nadia, N., Wardiah, D., & Kuswidyanarko, A. (2021). Pengaruh Penggunaan Media Audio Visual Animasi terhadap Kemampuan Berpikir Kreatif Siswa Materi IPA. *Innovative: Journal of Social Science Research*, *2*(1), 133–139. https://doi.org/10.3 1004/innovative.v2i1.2872

Patresya, H., & Manurung, S. R. (2016). Efek Model Pembelajaran Inkuiri Menggunakan Media Animasi untuk Meningkatkan Hasil Belajar Siswa di SMA Negeri 1 Namorambe. *INPAFI (Inovasi Pembelajaran Fisika)*, *4*(2), 1–5. https://doi.org /10.24114/inpafi.v4i2.5505

Purwasih, R., Sariningsih, R., & Sari, I. P. (2020). Self Efficacy terhadap Kemampuan High Order Thinking Mathematics Siswa melalui Pembelajaran Berbantuan Softwere Geogebra. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *9*(1), 166–173. https://doi.org/10.24127/ajpm.v9i1.2663

Puspita, T., & Sesrita, A. (2022). The Influence of Using Animated Learning Media on Students Activities in Natural Science Course. *Islamic Journal of Integrated Science Education (IJISE)*, *1*(2), 103–114. https://doi.org/10.30762/ijise.v1i2.278

Putra, S. A., Daharnis, D., & Syahniar, S. (2013). Efektivitas Layanan Bimbingan Kelompok dalam Meningkatkan Self-Efficacy Siswa. *Konselor*, *2*(2), 1–6. https://doi.org/10.24036/02013221399-0-00

Putri, H. E., & Muqodas, I. (2019). *Pendekatan Concrete-Pictorial Abstract (CPA), Kecemasan Matematis, Self-Efficacy Matematis, Instrumen dan Rancangan Pembelajarannya* (M. A. Wahyudy & A. Yuliyanto, Eds.). UPI Sumedang Press.

Rahmatullah, R., Inanna, I., & Ampa, A. T. (2020). Media Pembelajaran Audio Visual Berbasis Aplikasi Canva. *Jurnal Pendidikan Ekonomi Undiksha*, *12*(2), 317–327. https://ejournal.undiksha.ac.id/index.php/JJPE/article/view/30179

Ramdani, R., Yuliyanto, A., Muzfirah, S., Rochim, A. A., & Ripai, A. (2024). The Influence of Whiteboard Animation Media on the Creative Thinking Abilities of Sixth-Grade Mathematics Learning. *Proceeding the 6th International Conference Elementary Education*, *6*(1), 457–464. http://proceedings2.upi.edu/index.php/icee/ article/view/3701/3281

Rasman, R., Setioputro, B., & Yunanto, R. A. (2022). Pengaruh Pendidikan Kesehatan Pertolongan Pertama Tersedak pada Balita dengan Media Audio Visual terhadap Self Efficacy Ibu Balita. *Jurnal Ners*, *6*(37), 31–39. https://journal.universitas pahlawan.ac.id/index.php/ners/article/view/3794

Rochmania, D. D., & Restian, A. (2022). Pengaruh Penggunaan Media Belajar Video Animasi terhadap Proses Berfikir Kreatif Siswa Sekolah Dasar. *Jurnal Basicedu*, *6*(3), 3435–3444. https://doi.org/10.31004/basicedu.v6i3.2578

Said, F. F., Susanto, A., & Utami, N. P. (2023). Pengembangan Lembar Kerja Peserta Didik (LKPD) Berbantuan Canva yang Efektif. *Jurnal Ilmiah Soulmath: Jurnal*

Edukasi Pendidikan Matematika, *11*(1), 85–98. https://doi.org/10.25139/smj.v11i1.6020

Salleh, N., Din, W. A., & Romli, R. (2022). Students' Acceptance Level of Digital Newspaper Publication Performance Assessment Innovation. *International Journal of Social Science and Human Research*, *5*(8), 3500–3508. https://doi.org/10.47191/ijsshr/v5-i8-21

Sanchez, C. A., & Weber, K. (2019). Using Relevant Animations to Counter Stereotype Threat when Learning Science. *Journal of Applied Research in Memory and Cognition*, *8*(4), 463–470. https://doi.org/10.1016/j.jarmac.2019.08.003

Sartono, E. K. E., & Irawati, E. (2019). The Effect of Child-Friendly Lift-the-Flap Story Books on the Creative Thinking Ability. *International Journal of Educational Research Review*, *4*, 734–741. https://doi.org/10.24331/ijere.628722

Siregar, R. N., Mujib, A., Siregar, H., & Karnasih, I. (2020). Peningkatan Kemampuan Berpikir Kreatif Siswa melalui Pendekatan Matematika Realistik. *Edumaspul: Jurnal Pendidikan*, *4*(1), 56–62. https://doi.org/10.33487/edumaspul.v4i1.338

Smaldino, S. E., Lowther, D. L., & Mims, C. (2019). *Instructional Technology and Media for Learning 12th Edition*. https://www.pearsonhighered.com/assets/preface/0 /1/3/4/0134287517.pdf.

Sonjaya, D. N., & Yuliyanto, A. (2022). Open-Ended Approach to Improving Mathematics Creative Thinking Skills of Elementary School Students. *MathNesia: Journal of Math Education*, *1*(1), 24–32. https://www.researchgate.net/publication/360016546_Open-Ended_Approach_To_Improving_Mathematics_Creative_Thinking_Skills_of_Elementary_School_Students

Sopiyah, Nurikhsan, J., & Hafina, A. (2020). Efektivitas Teknik Konseling Cognitive Behavioral untuk Meningkatkan Self-Efficacy Siswa pada Pelajaran Matematika. *Jurnal Ilmu Pendidikan (JIP) STKIP Kusuma Negara*, *11*(2), 102–124. https://doi. org/10.37640/jip.v11i2.128

Suantini, N. N., Suarni, N. K., & Margunayasa, I. G. (2024). Implementasi Teori Kognitif Sosial Bandura melalui Media Video Animasi Cerita Rakyat Bali untuk Meningkatkan Pendidikan Moral Siswa Kelas V Sekolah Dasar. *Jurnal Ilmiah Profesi Pendidikan*, *9*(1), 716–727. https://jipp.unram.ac.id/index.php/jipp/article/view/1950

Sudiantini, D., & Shinta, N. D. (2018). Pengaruh Media Pembelajaran terhadap Kemampuan Berpikir Kreatif dan Penalaran Matematis Siswa. *Jurnal Penelitian dan Pembelajaran Matematika*, *11*(1), 177–186. https://doi.org/10.30870/jppm.v11i1.2996

Syauqi, L. S. F. G. (2012). *Upaya Meningkatkan Penguasaan Konsep dan Berpikir Kreatif Siswa melalui Media Animasi pada Konsep Sistem Eksresi Manusia: Penelitian Tindakan Kelas* [Universitas Pendidikan Indonesia]. https://repository. upi.edu/87015/

Tanjung, R. E., & Faiza, D. (2019). Canva sebagai Media Pembelajaran pada Mata Pelajaran Dasar Listrik dan Elektronika. *Voteteknika (Vocational Teknik Elektronika dan Informatika)*, *7*(2), 79–85. https://doi.org/10.24036/voteteknika.v7i2.104261

Umar, A., Hanum, I., & Hutagalung, T. (2021). Utilization Learning Media Based Animation in the Teaching of Children's Literature Subject. *Proceedings of the Tenth International Conference on Languages and Arts (ICLA 2021)*. https://doi.org/10.2991/assehr.k.211129.027

Wathon, A. (2019). Meningkatkan Nalar Siswa dengan Pembelajaran Animasi. *Sistim Informasi Manajemen*, *1*(1), 1–17. https://oj.lapamu.com/index.php/sim/article/view/16

Wulandari, Y., Rustan, S., & Ilham, D. (2024). Unleashing Student Creativity: A Dynamic Look at Merdeka Belajar Curriculum's Impact. *International Journal of Asian Education*, *5*(1), 21–33. https://doi.org/10.46966/ijae.v5i1.371

Yuanta, F., & Larasati, D. A. (2023). Developing Canva-Based Learning Media on Maps and Class Layout for Third Graders of Elementary School. *Education and Human Development Journal*, *8*(2), 66–75. https://doi.org/10.33086/ehdj.v8i2.5220

Yuliyanto, A. (2024). *Sikap dan Potensi Peserta Didik serta Indikator Pengukurannya*. Eureka Media Aksara.

Yuliyanto, A., Farikhin, I., Sofiasyari, I., & Rogibah, R. (2023). *Model-Model Pembelajaran untuk Sekolah Dasar* (A. A. Rochim, Ed.). CV. Eureka Media Aksara.

Yuliyanto, A., & Turmudi, T. (2020). Study Based on the Early Mathematical Ability of Elementary Student Self-efficacy through the Concrete-Pictorial-Abstract Approach. *Universal Journal of Educational Research*, *8*(11B), 5901–5912. https://doi.org/10.13189/ujer.2020.082224

Yuliyanto, A., Turmudi, T., Putri, H. E., Muqodas, I., & Rahayu, P. (2021). The Mathematical Self-Efficacy Instruments for Elementary School Students. *Journal of Physics: Conference Series*, *1987*(1), 1–9. https://doi.org/10.1088/17426596/1987/1/012023