Analysis of Creative Thinking Ability of Elementary School Students in Writing Explanatory Text Using CIRC Learning Model Assisted by Augmented Reality

Rifa Nurhanifa ✉[1], Dadang Sunendar[2], Sifa Rizkika Fauzi[3], Hafiziani Eka Putri[4]

[1,2,3,4] Universitas Pendidikan Indonesia, Bandung, Indonesia

✉ rifanrh14@upi.edu

Abstract.

In learning to write, explanatory texts become one of the crucial things students master. This study aims to analyze the ability to think creatively in learning to write explanatory texts for elementary school students using the CIRC learning model assisted by augmented reality. The design of this study is qualitative with descriptive analysis methods. The sample used in this study was 16 students in one of the private elementary schools in Buah Batu District, Bandung City. The data collection instruments used in this study were student activity observation sheets, teacher interview sheets, and documentation of learning outcomes. Based on the analysis, data was obtained that the CIRC learning model assisted by augmented reality can spur students to think creatively in learning with explanatory text writing material. These results are evidenced by student writing that is more varied and creative and faster assignment processing time than usual. Therefore, students' creative thinking skills in learning to write explanatory texts using the augmented reality-assisted CIRC learning model run well and meet the minimum learning assessment qualifications that have been determined.

Keywords: Creative thinking ability, CIRC, Writing Explanatory Text, Elementary School, Augmented Reality.

How to Cite: Nurhanifa, R., et al. (2024). Analysis of Creative Thinking Ability of Elementary School Students in Writing Explanatory Text Using CIRC Learning Model Assisted by Augmented Reality. *Proceeding The 6th International Conference Elementary Education, 6*(1), 447-456.

INTRODUCTION

The implementation of education in Indonesia currently refers to the objectives of national education. The purpose of Indonesian state education is stated in article 3 of the national education system law number 20 of 2003, which reads: "The development of students to become human beings who believe and are devoted to God Almighty, have a noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens. Ideally, formulating our national education goals already reflects three domains, namely covering affective, psychomotor, and cognitive domains" (Noor, 2018). These three components become a complete combination for education implementers to compile the best learning pattern according to the circumstances of students in Indonesia.

Quality human resources can be created through a sound educational process. Education is a continuous and never-ending process to produce sustainable quality, aimed at realizing the future human figure, and is rooted in the nation's cultural values and Pancasila (Sujana, 2019). In its implementation, education in Indonesia has designed many strategies to maintain and improve the quality of existing education, one of which is by changing the curriculum.

A combination that includes planning, content, and evaluation of teacher learning to students is contained in a curriculum. After many curriculum changes experienced, Indonesia is currently using an independent curriculum. According to the Ministry of Education and Culture, the advantage of the independent curriculum is that it focuses on essential material and the development of student competencies in its phases so that students can learn more deeply, meaningfully enjoyably, and not in a hurry (Rahmadayanti & Hartoyo, 2022). The pattern in the independent curriculum can spur students to explore what is in their minds so that, in the end, they are expected to create creative and innovative ideas.

Learning today is closely related to creativity. The meaning of the word creative is related to the problem of producing something innovative in the form of ideas or ideas obtained from the thinking process (Ambarjaya in Puspitasari, 2017). With creativity, it will trigger the emergence of various innovations that will be beneficial for the development of science. Thinking means managing different experiences and responses taken from everything experienced and stored in memory (Purwanto in Puspitasari, 2017). So, a review is operating and transforming information, experiences, and responses taken from everything experienced and stored in memory. Thus, creative thinking is managing and transforming data in memory to form an innovative concept, idea, or idea.

Creative thinking is crucial to training students, especially at the elementary school level. Age stages still in the developmental stage will be the basis of a good growth process to develop again in the next phase. The ability to think creatively can support students when solving daily life problems (Kartini, 2011; Supardi, 2013). The ability to think creatively is the main point of success in problem-solving because creativity can be a bridge between the stages of processing cognition and the realization stage so that individuals have satisfactory results (Sunito et al. in Rhosalia, 2016). According to Rhosalia (2016), the level of creative thinking ability of students is determined by 4 indicators: fluency, detail, flexibility, and originality.

At this time, human ability in thinking is required to be more comprehensive because the times are developing rapidly so that we can get knowledge without being limited by space and time; it supports us to create the same mindset with each other. In its realization of student learning, this ability to think creatively is crucial to hone because it is sustainable with the objectives of the current educational curriculum, which applies independent knowledge. The existing teaching system requires students to be able to explore their way of thinking and perspective on what students are learning, which is closely related to the ability to think creatively. Based on this, creative thinking is crucial to solving problems and producing quality human resources.

Students in the learning process today are encouraged to have creative thinking skills to create new ideas and ideas. Learning that does not hone creative thinking skills will make students passive, only imitating what the teacher does without digesting its meaning (Faturohman & Afriansyah, 2020; Muroiroh, T, 2022). In the learning process, unfortunately, it is still found that the creative thinking ability of elementary school students still needs to improve. The creative thinking ability of students who are still low must be enhanced by learning more actively, creatively, effectively, and fun (Mursidik & Rudiyanto, 2015). When teachers provide learning, it is expected that there are values that will improve creative thinking skills and stimulate students to produce innovations and communicate scientifically (Beetlestone in Mulyadi & Wahyuni, 2016). Fun learning can be created by applying learning models and media that follow the stage of student development.

The educational process in Indonesia contains a variety of subjects. In elementary school learning, some of it is included in thematic scenarios, but one subject is Indonesian learning. The learning process in Indonesia demands optimization in the material aspect and using learning methods and techniques in the classroom (Ali, 2020). So, regular evaluation is needed to enable students to master Indonesian learning well and according to the specified learning outcomes.

Indonesian has 4 skills that students must master: listening, speaking, reading, and writing. Language skills can usually be obtained through a relationship with a chronological and hierarchical order, namely learning to listen, chat, and read and write (Astuti & Mustadi, 2014). These four skills are interrelated, so it is important for teachers to be able to train students to practice these four skills in a structured manner.

The subject of language learning in high-grade students, especially grade 5, has entered quite complex teaching. After going through a relatively long stage of language learning in previous classes, elementary school students have passed the stages of learning listening, speaking, and reading skills. Writing skills, as one aspect of language skills, are the final stages mastered by students because students can write well if a series of steps of language skills, namely listening, speaking, and reading, have been dominated (Zulela et al, 2017). Then, students need to master writing skills when entering higher classes.

In stimulating students to develop their thinking skills, including the ability to think creatively, they can be trained with various existing teaching materials, one of which is teaching materials to write explanatory texts. Writing is an essential activity because writers must be able to compile and group the writing content and realize it in various written languages (Sidabutar, 2021). Therefore, the teaching material for writing explanatory texts is considered in line with the objectives of this study.

In stimulating students to develop their thinking skills, including the ability to think creatively, they can be trained with various existing teaching materials, one of which is teaching materials to write explanatory texts. Writing is an essential activity because writers must be able to compile and group the writing content and realize it in various written languages (Sidabutar, 2021). To meet the needs of abilities in life, students must be able to write, ranging from names to other types of writing to communicate the ideas they have (Kirby et al., 2021). Not infrequently writing is rated as the last language skill in the order of urgency of language learning from reading, speaking, and listening (Yamaç, & Ulusoy, 2016). Therefore, the teaching material for writing explanatory texts is considered in line with the objectives of this study.

Learning media in augmented reality is made using the Assemblr edu application. The first stage is to make a rough concept of augmented reality that will be created and adjust it to the picture of the situation that will be raised. Next is to enter the assembly application and select the design area to estimate the placement of 3D images.

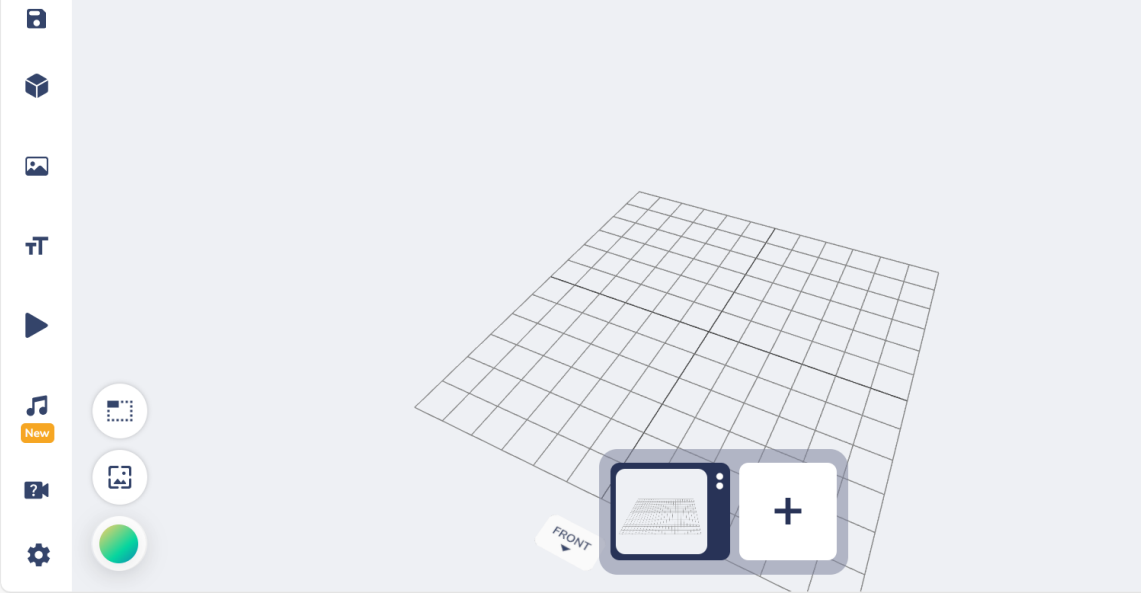

Figure 1. Initial design area

The assembly edu application provides a variety of 3D images that users can use as elements that can be combined to create a situation in the form of augmented reality. Here, the author adds an aspect of one of the buildings that will later become the main focus of the case that will be raised.

Figure 2. Adding 3D elements

Furthermore, the available 3D elements are arranged into a predetermined situation in the initial concept to form events, which is expected to help students write explanatory texts by better developing their creative thinking skills.

Figure 3. Results of arranging 3D elements into a situation that students can define.

Combining various 3D objects in the area in the assemblr.edu application produces an augmented reality that forms a situation that will later be used as a learning medium for students. The results of augmented reality can be accessed at the link: https://asblr.com/UYrgY. Later, students will write explanatory texts with various forms according to their creativity based on available augmented reality.

Based on observations made at one of the private elementary schools in Buah Batu District, Bandung City, it has been found that grade V students could be better when learning the Indonesian language, namely writing explanatory texts. The results of student writing often need to be more varied and original. In addition, students' creative thinking skills can only develop slowly because the learning model uses conventional by being given instructions following examples in the textbook alone without interactive learning media. Development of creative thinking abilities Mathematics will provide opportunities for the growth of students' potential as develop interests, hone talents and abilities, and give satisfaction to individuals towards the achievement of success (Arrum, 2021). In 21st-century education, students must have the ability to think creatively, so this underlies the importance of this ability being trained using one way, namely the CIRC learning model assisted by augmented reality in Indonesian language learning for the elementary school level.

METHOD

This research uses a qualitative design with a descriptive analysis method. According to Anggito & Setiawan, 2018, qualitative research is a collection of data to interpret phenomena. Qualitative research involves researchers understanding the context and setting of the studied natural wonders (Fadli, 2021). This research was conducted at one of the private elementary schools in Buah Batu District, Bandung City. The sample in this study was grade V (five) students totaling 16 people. This study used only 3 indicators of creative thinking ability: fluency, flexibility, and authenticity. The data collection instruments used in this study were student activity observation sheets, teacher interview sheets, and documentation of learning outcomes. The research process is carried out with the following steps: 1) develop concepts and plans in preparation for the application of learning to students; 2) develop instruments, namely observation guidelines and interview questions; 3) apply the teaching and learning process to students and retrieve data; 4) Data processing and research data analysis.

RESULTS

The teaching and learning process in the 21st century prioritizes collaboration with technology. In addition, it is expected that the output of learning is in the form of skills that can produce quality resources in the future. One of the essential skills applied to students today is the ability to think creatively.

Creative thinking is essential in learning to write explanatory texts in Indonesian subjects, considering that writing is a means of communication widely used daily and can be found anywhere. But in fact, it was found that in school, students are given little stimulus to develop their creative thinking skills, including in the material of writing explanatory texts. This is certainly different from the initial plan of Indonesian education in the 21st century to achieve the desired educational goals.

Researchers conducted interviews with grade 5 teachers and found that in daily learning, especially the subject of writing, students' report does not vary and tends not to have a good flow. Even though the teacher has tried to explain to students that putting something in writing is just like chatting with friends, student writing results tend to form a sentence other than following applicable rules. When students learn using the CIRC augmented reality-assisted learning model, it produces diverse reports. Their causes, processes, and conclusions can form an explanatory text. Here are some of the students' work with writing explanatory texts.

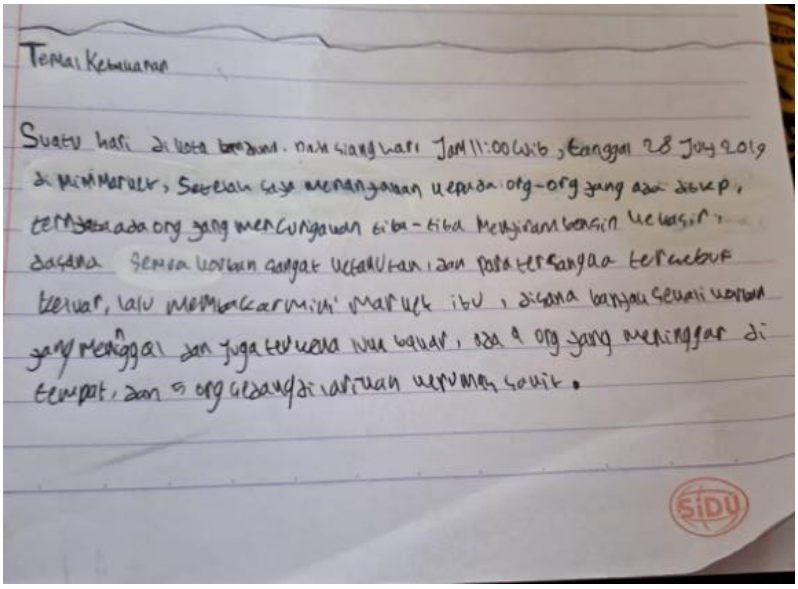

Figure 4. Student learning outcomes

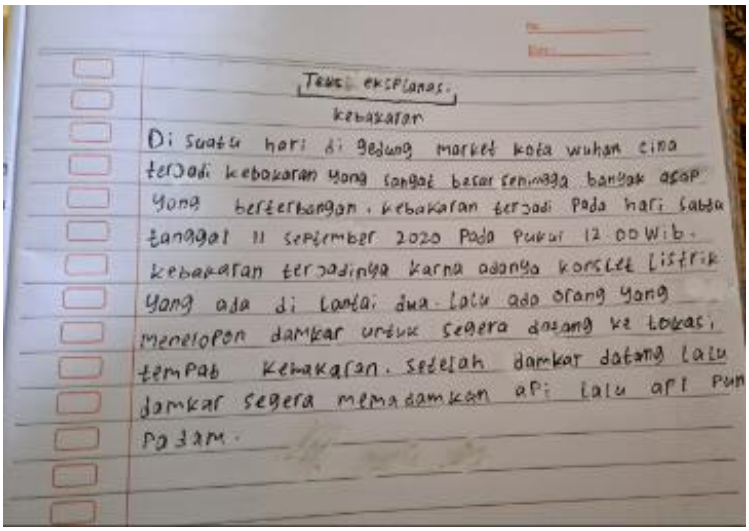

Figure 5. Student learning outcomes

Figures 4 and 5 show student writing results on explanatory text writing material using the CIRC augmented reality-assisted learning model. Within 60 minutes (including AR image observation), students can produce a sequence of events with various settings and make multiple conclusions in their writing. An example of student creativity that appears in the report is in picture 4, where the student explains that the cause of the fire is someone who splashes gasoline around the supermarket. In contrast, in picture 5, student B explains that the cause of the fire is an electrical short circuit.

Student learning outcomes show that there is student creativity generated when writing explanatory texts. Various words and sentences can appear in the imagination of students when learning with the CIRC model and looking at the available learning media. That means students' ability to write explanatory texts can be maximized by continuing to develop learning models and learning media, one of which uses the CIRC learning model assisted by augmented reality.

DISCUSSION

Today's learning emphasizes higher-order thinking skills. High-level education is needed to adjust to the times to produce sustainable human resources. One of the high-level abilities now widely used is thinking creatively. Munandar (in Moma, 2016) suggests that the characteristics of the ability to think creatively related to cognition can be seen in fluent thinking skills, flexible thinking skills, and original thinking skills. The explanation of the characteristics related to these skills is described as follows.

1. Characteristics of fluency skills:
   1) Spark many ideas in problem solving
   2) Provide many answers in answering a question
   3) Provide many ways or suggestions to do things.
   4) Work faster and do more than other kids.
2. Characteristics of flexible (flexible) thinking skills:
   1) Generate variations of problem solving ideas or answers a question.
   2) Can see a problem from different points of view.
   3) Presenting a concept in different ways.

3. Characteristics of original skill (authenticity):

   1) Provide relatively new ideas in solving problems or answers that are different from the usual ones in answering a question.
   2) Make unusual combinations of parts or elements.

Assessment of students' creative thinking abilities in writing explanatory texts refers to three indicators: fluency, flexibility, and originality. The following is a rubric and descriptor for assessing students' creative thinking abilities in writing explanatory texts, which are used as assessment guidelines.

Table 1. Descriptors for assessing students' creative thinking abilities in writing explanatory texts.

Rated aspect	Score	Desciption	Quality
Fluence	5	In 60 minutes the number of words used is more than 200 words	Very fluent
	4	In 60 minutes the number of words used is between 150-199 words	Fluent
	3	In 60 minutes the number of words used is between 100-149 words	Fairly fluent
	2	In 60 minutes the number of words used is between 50-99 words	Not fluent
	1	In 60 minutes the number of words used is less than 50 words	Very not fluent
Fleksibility	5	The results of students writing explanatory texts show flexibility if there is diversity in sentence structure, namely it can be a combination of sentences: 1) why the incident occurred; 2) how the incident occurred; 3) event process 4) sentence length (short sentences less than five words, long sentences more than ten words).	Very flexible
	4	Hasil menulis teks eksplanasi siswa menunjukkan keluwesan jika memenuhi 4 kriteria.	Fexible

Rated aspect	Score	Desciption	Quality
	3	The results of students' explanatory text writing show flexibility if they meet 4 criteria.	Quite flexible
	2	The results of students writing explanatory texts show flexibility if they meet 2 criteria.	Less flexible
	1	The results of students writing explanatory texts do not show flexibility, if only 1 or not 1 meets the criteria.	Not flexible
Originality	5	The results of students' writing of explanatory texts show authenticity including: 1) general statements; 2) cause and effect or explanation; 3) conclusion; (4) writing style.	Very original
	4	The results of students' writing of explanatory texts show authenticity if they meet 4 criteria.	Original
	3	The results of students' explanatory text writing show authenticity if they meet 3 criteria.	Quite original
	2	The results of students' explanatory text writing show authenticity if they meet 2 criteria.	Less oroginal
	1	The results of students writing explanatory texts do not show authenticity if only 1 or not 1 meets the criteria.	Not genuine

(Adapted from Munandar in Rhosalia et al., 2016)

Referring to the descriptor for assessing creative thinking abilities in writing explanatory text, each indicator consists of five components. Thus, 15 items are considered. Each item that meets the requirements is given a score of 1, so the highest score students can get on each indicator is 5. So, the highest score that students can get is 15. The minimum score that students must get on each indicator is 3 with "adequate" quality. Thus, students can be declared to meet the indicators of creative thinking ability if each hand scores≥ 3. After being assessed, the results of the students' explanatory texts are compared with each other. Specifically for the authenticity indicator, if the five components are met but precisely the same as another student's essay, the score obtained is reduced by 1. The more similarities found, the lower the authenticity score.

Based on the data that has been obtained from 16 students, it was found that 1 student got a score of 15 (perfect), 1 student got a score of 13, 3 students earned a score of 12, 10 students got a score of 11 and 1 student earned a score of 9. Based on the scores obtained for each indicator, the level of student's creative thinking ability in writing explanatory texts can be determined. The criteria for grading students' levels of creative thinking in writing explanatory texts are shown in the following table.

Table 2. Level of Students' Creative Thinking Ability in Writing Explanatory Text

Level	Characteristics
Level 5 (Very Creative)	If students are able to demonstrate fluency, flexibility and originality, or originality and flexibility in writing explanatory text.
Level 4 (Creative)	If students are able to demonstrate fluency, flexibility, or fluency and originality in writing explanatory text.
Level 3 (Moderately Creative)	If students are able to show flexibility or originality in writing explanatory text.
Level 2 (Less Creative)	If students are able to demonstrate fluency in writing explanatory text.
Level 1 (Uncreative)	If students are unable to demonstrate the three aspects of creative thinking indicators, write explanatory text.

(Adapted from Siswono in Rhosalia et al., 2016)

Based on indicators of creative thinking, Siswono (in Rajagukguk, 2020) categorizes creative thinking abilities into 5 levels of creative thinking, namely level 5 (very creative), level 4 (innovative), level 3 (quite imaginative), level 2 (less creative), and level 1 (not clever). The data processing results showed that 88% of students were at the creative level, and the rest were in the innovative and creative classes. Based on these results, the creative thinking abilities of students who learn using the CIRC learning model assisted by augmented reality are in the creative category.

CONCLUSION

As a form of communication, good writing skills should be possessed by every student. It is hoped that this can be an essential part of keeping pace with developments over time so that, in the future, existing human resources will play a role in the nation's progress. One of the essential writing skills to develop is the ability to write explanatory text.

The 21st-century learning currently being intensively promoted is 4c, namely various soft skills that humans should face in the era of the Industrial Revolution. These 4c skills include communication, collaboration, creativity, and critical thinking. In this research, the author analyzes using the CIRC learning model assisted by augmented reality to see the creative thinking abilities that emerge in students during learning.

After carrying out the learning process, the results were obtained that after students learned to use the CIRC model assisted by augmented reality, as many as 88% of students were at the creative level, and the rest were at the very innovative and moderately creative levels. After analysis, almost all of the scripts they wrote met the originality indicators with clever language and storylines based on developments chosen by each student. Learning to write explanatory texts using the CIRC learning model assisted by augmented reality can be one solution for teachers to use when teaching in class.

REFERENCES

Ali, M. (2020). Pembelajaran Bahasa Indonesia Dan Sastra (Basastra) Di Sekolah Dasar. *PERNIK: Jurnal Pendidikan Anak Usia Dini*, *3(1)*, 35–44.

Anggito, A., & Setiawan, J. (2018). *Metodologi penelitian kualitatif.* CV Jejak (Jejak Publisher).

Arrum, A. H. (2021). *Pengaruh Pendekatan Concrete Pictorial Abstract (CPA) Berbantuan Multimedia Interaktif Dalam Pembelajaran Daring Terhadap Peningkatan Kemampuan Berpikir Kreatif Matematis Siswa Sekolah Dasar* [Doctoral dissertation].

Astuti Y.W., & Mustadi, A. (2014). Pengaruh Penggunaan Media Film Animasi Terhadap Keterampilan Menulis Karangan Narasi Siswa Kelas. *Jurnal Prima Edukasia*, *2(2)*, 250-262.

Fadli, M. R. (2021). Memahami desain metode penelitian kualitatif. *Humanika, Kajian Ilmiah Mata Kuliah Umum*, *21(1),* 33–54.

Faturohman, I., & Afriansyah, E. A. (2020). Peningkatan Kemampuan Berpikir Kreatif Matematis Siswa melalui Creative Problem Solving. *Mosharafa: Jurnal Pendidikan Matematika*, *9(1)*.

Kartini. (2011). *Peningkatan Kemampuan Berpikir Kreatif Matematis Siswa SMA Melalui Pembelajaran Inkuiri Model Alberta*. *1*, 145–152.

Kirby, M. S., Spencer, T. D., & Chen, Y. J. I. (2021). Oral narrative instruction improves kindergarten writing. *Reading & Writing Quarterly*, *37(6)*, 574–591.

Moma, L. (2016). Pengembangan Instrumen Kemampuan Berpikir Kreatif Matematis Untuk Siswa SMP. *Delta-Pi: Jurnal Matematika dan Pendidikan Matematika*, *4(1)*, Article 1.

Mulyadi, D. U., & Wahyuni, S. (2016). Pengembangan media flash flipbook untuk meningkatkan keterampilan berfikir kreatif siswa dalam pembelajaran IPA di SMP. *Jurnal pembelajaran fisika*, *4*(4).

Muroiroh, T. (2022). *Efektivitas Model Pembelajaran Project Based Learning Terhadap Kemampuan Berfikir Kreatif Dan Sikap Kerjasama Siswa Di SDN Sumbermulyo 02* [Universitas Islam Sultan Agung]. Tesis.

Mursidik, E. M., Samsiyah, N., & Rudiyanto, H. E. (2015). Kemampuan Berpikir Kreatif dalam Memecahkan Masalah Matematika Open-ended Ditinjau dari Tingkat Kemampuan Matematika pada Siswa Sekolah Dasar. Journal Pedagogia. *Journal Pedagogia*, *4(1)*, 23–33.

Noor, T. (2018). Rumusan Tujuan Pendidikan Nasional pasal 3 Undang-Undang Sistem Pendidikan Nasional No 20 Tahun 2003. *Wahana Karya Ilmiah Pendidikan*, *2(1)*.

Puspitasari, A. C. D. D. (2017). Hubungan kemampuan berpikir kreatif dengan kemampuan menulis cerpen (studi korelasional pada siswa SMA Negeri 39 Jakarta). *SAP (Susunan Artikel Pendidikan)*, *1(3)*.

Rahmadayanti, D., & Hartoyo, A. (2022). Potret kurikulum merdeka, wujud merdeka belajar di sekolah dasar. *Jurnal Basicedu*, *6(4)*, 7174–7187.

Rhosalia, L. A. (2016). Kemampuan Berpikir Kreatif Dalam Menulis Naratif Siswa Kelas V Sekolah Dasar Negeri Di Kecamatan Gayungan Surabaya. *Jurnal Review Pendidikan Dasar: Jurnal Kajian Pendidikan Dan Hasil Penelitian*, *2(2)*, 166–174.

Sujana, I. W. C. (2019). Fungsi dan tujuan pendidikan Indonesia. *Adi Widya: Jurnal Pendidikan Dasa*, *4(1)*, 29–39.

Supardi. (2013). Hasil Belajar Matematika Siswa Ditinjau dari Interaksi Tes Formatif Uraian dan Kecerdasan Emosional. *Jurnal Formatif*, *2(3)*, 78–96.

Yamaç, A., & Ulusoy, M. (2016). Theeffect of digital storytelling in improving the third graders' writing skills. *International Electronic Journal of Elementary Education*, *9(1)*, 59-86.

Zulela, M. S., Siregar, Y. E. Y., Rachmadtullah, R., & Warhdani, P. A. (2017). Keterampilan menulis narasi melalui pendekatan konstruktivisme di sekolah dasar. *Jurnal Pendidikan Dasar*, *8*(2), 112–123.