

The Divergent Thinking Ability of Fifth-Grade Students in Elementary Schools

Muna Fauziah^{1*}, Sri Marmoah², Tri Murwaningsih³

¹ Department of Primary School Teacher Education, Universitas Sebelas Maret, Surakarta, Indonesia

² Department of Primary Teacher Education, Universitas Sebelas Maret, Surakarta, Indonesia

³ Department of Office Administration Education, Universitas Sebelas Maret, Surakarta, Indonesia

^{1*} munafauziah@student.uns.ac.id, ² marmuah@staff.uns.ac.id, ³ murwaningsih_tri@staff.uns.ac.id

Abstract: Divergent thinking ability plays an important role in the development of competencies in 21st century education. This study aims to analyze the divergent thinking ability of fifth-grade students in elementary school. This research approach was descriptive qualitative. The subjects of this study were the fifth-grade students State Elementary School of Mangkuyudan, Laweyan, Surakarta, Indonesia in the academic year 2019/2020. Sample selection used a purposive sampling method. The technique of collecting data used tests, interviews, and documentation. The data validity technique used triangulation techniques. Data analysis techniques used analysis of flow models through the stages of data reduction, data presentation, and conclusions. The results obtained were 1) the upper group students could write the developer sentence from each paragraph, mention three functions of animal motion organs, arrange a story (the use of punctuation, conjunctions, and exact capital letters), analyze attitudes that are not in accordance with Pancasila values accurately; 2) middle-class students could adequately describe the developer sentence from the story text, mention the proper functioning of the animal's motion organs, but couldn't analyze behavior that is incompatible with the principles of Pancasila; and 3) the lower group students couldn't explain the developer sentence from a story text and can't analyze behaviors that are in accordance with Pancasila values although the explanation isn't detailed, but enough could make a story even though the grammar used isn't in accordance with the rules of language. This study concludes that the fifth-grade students State Elementary School of Mangkuyudan have different divergent thinking ability.

Keywords: *divergent thinking ability, thematic learning, elementary school*

INTRODUCTION

The ability of divergent thinking is one of the basic abilities of the implementation of 21st century education (Gallavan & Kottler, 2012). Divergent thinking is an important integral part of innovating and developing creativity (Jones & Estes, 2015). The development of technology both in the field of industry and education opens a great opportunity for divergent thinking ability to be prioritized by the central government. According to Florida, divergent thinkers are needed to determine the success of work in modern society (Pasztor, Molnar, & Csapo, 2015). Divergent thinking is related to other 21st century abilities, namely in solving problems, supporting interaction or communication as social beings, and managing informatics and technology in their lives.

Divergent thinking should be integrated into classroom learning (Kadel, 2014). Following the minimum graduation standards contained in the Minister of Education and Culture Regulation No. 20 of 2016, students are expected to be able to compete with the global world and contribute to the development of national education. Students who have divergent thinking will be fluent in generating ideas, able to create new ideas and be able to explain concepts well. This ability involves the early learning process at an early age by learning a lot from the world around it (Guignard & Lubart, 2016). The teacher becomes a reinforcing milestone in the

development of students in school because he has more intensity of meetings and has a considerable influence on students (Gallavan & Kottler, 2012). If divergent and convergent thinking has a balanced weight, students will be easier to hone their potential in solving complex tasks well (Brophy, 2010).

However, the reality in the field seems to give something different from that expectation. The results of Trends in International Mathematics and Science Study (TIMSS) survey in 2015 revealed that Indonesian students' achievements in the mathematical field were ranked 45th out of 50 countries with a score of 397 (Mullis, Martin, Foy, & Hooper, 2015). In addition, the results of a 2015 survey by the Organization for Economic Cooperation and Development (OECD) through the Test for International Student Assessment (PISA) showed that the percentage of students with low achievement in three subjects (Science, Language, and Mathematics) was still in under level 2 with a total of 42.3%, while students who have good performance or at level 5 to 6 are only 0.8% (OECD, 2015). That is, the ability of students in the three subjects is still very low. Other problems arise from the high level of violence against students. From the survey data of the 2015 International Center for Research on Women (ICRW), it was found that as many as 84% of students in Indonesia experienced violence at school (Daniati, Subiyantoro, & Fadhilah, 2019). Students have difficulty interacting with their peers and have a bad relationship with their friends which influences the behavior of these students which results in the development of their thinking (Chang, 2015).

This problem becomes a big thing that must be addressed immediately. If this polemic is still left alone, then bad things for students cannot be avoided. Bad relations between friends can increase physical and psychological violence between students so students will find it difficult to adjust to their school (Valente & Berry, 2016). This discrimination can damage the performance of students in learning so they feel they have no self-esteem and even choose to drop out of school or those who are more serious choose to commit suicide (Marriel, Assis, Avanci, & Oliveira, 2006). Besides, students who feel they have no self-esteem will tend to have social problems and negative behaviors and even influence their academic performance (Prihadi & Chua, 2012). Good interactions between teachers and students are very important for students' social development and educational progress (Adalsteinsdottir, 2004).

Polemic can be overcome by understanding the importance of students' divergent thinking ability. The importance of divergent thinking ability and character education is facilitated by the curriculum, one of which is the 2013 curriculum with thematic learning (Pursitasari, Nuryanti, & Rede, 2015). The implementation of thematic learning in the 2013 curriculum is expected to produce creative, productive and innovative human resources through three main competencies (attitudes, knowledge, and ability) (Retnawati, 2016). The culture of divergent thinking is a way to train students to produce knowledge, look for ideas and solutions to a problem (Russ & Schafer, 2006). Thematic learning has the characteristic of being student-centered, emphasizing the formation of understanding and meaningfulness, learning through direct experience, paying more attention to processes rather than results, and providing contextual experiences with the environment around students (Narti, Setyosari, Degeng, & Dwiyoogo, 2016). Following government regulations that the implementation of the 2013 curriculum learning is required to use a scientific approach. This approach can be combined with innovative learning models so that learning accommodates students to experience a continuous process of divergent thinking (Said, Sutadji, & Sugandi, 2016).

The importance of divergent thinking ability in supporting the development of elementary school students must be realized immediately from elementary school age. This is because

divergent thinking is the main competency students must have (An, Song, & Carr, 2016). Research on divergent thinking has been carried out quite a lot by several researchers. Some researchers discuss divergent thinking articles that are integrated with creative thinking (Cheung, Lau, Lubart, Chu, & Storme, 2016; Runco & Acar, 2012) or look for the influence of divergent thinking (Forthmann, Gerwig, Holling, Storme, & Lubart, 2016; Simon & Bock, 2016). However, this article thoroughly discusses the development of divergent thinking without a combination of creative thinking. Many studies reveal their thinking experience at the secondary school level (Antink-Meyer & Lederman, 2015) to college (Antink-Meyer & Lederman, 2015; Jones & Estes, 2015; Palmiero et al., 2014; Wenzel & Gerrig, 2015). It will be even more interesting if the subject or target took is children who have special criteria, such as elementary school students. Primary school students are school levels that need special attention to the thinking process. They still think concretely and have high curiosity so they need regular guidance from the teacher (Rachmajanti, 2008). Thus, students will understand correctly step by step that he must take to increase his potential and fulfill his satisfaction in exploring. With a different subject, the discussion of this research will show different things. The research objectivity that is often carried out usually only contains specific fields, such as science (Antink-Meyer & Lederman, 2015), social (Kagan, 2016), architecture (Hassan, 2018) or mathematics. Previous researchers often choose one of these fields. This research is very interesting and new because learning is done in an integrated manner. That is, the subject matter contains all fields that are interconnected so that the results do not show any discrepancies between subjects (John, 2015). Therefore, this study aims to describe the divergent thinking ability of fifth-grade elementary school students in detail.

METHOD

This study adopted a descriptive qualitative approach. Qualitative descriptive is done by describing and interpreting the situation or phenomenon that exists, the opinion of an expert, or the result of a phenomenon that is ongoing or that has occurred. The sample of this study was the fifth-grade students State Elementary School of Mangkuyudan, Laweyan District, Surakarta City Academic Year 2019/2020. The sample selection used a purposive sampling method. According to John Cresswell (Ortiz, 2009), this method is done based on the consideration of researchers. Location selection is because the elementary school has quite good achievements and has interesting school programs, such as fun cooking, watching together, writing scientific papers for teachers, and having a well-managed official school website.

Data collection techniques were carried out by giving the written tests, analyzing test results, grouping students (upper, middle and lower groups), collecting test results documentation, and selecting three students to be interviewed related to the results of divergent thinking ability test results. The form of a written test is an open description test. The theme is the first theme with "healthy is important" material. The theme consists of several subjects, such as Natural Sciences, Citizenship Education, Indonesian Language, and Cultural Arts and Crafts. Indicators used in determining divergent thinking ability include: 1) students have the ability to think fluently if students can provide more than one idea that is relevant to the correct and clear completion (fluency), 2) students have the ability to think flexibly if students can give ideas in more than one way completely and precisely, 3) students have the ability to think original if students can provide ideas in their way (originality), and 4) students have the ability to think in

detail if students can provide precise and detailed ideas. The researcher encoded the interview transcript to make it easier for researchers to analyze the research data.

The data validity technique used triangulation techniques. Triangulation is an analytical technique that combines various existing data collection techniques. This study used triangulation techniques by comparing the results of divergent thinking ability test data with the results of interviews. Data analysis techniques used analysis of flow models with three components, namely data reduction, data presentation, and data verification.

RESULTS AND DISCUSSION

The results of tests of divergent thinking abilities are grouped into three categories, namely the upper, middle and lower groups. The grouping results can be seen in table 1.

Table 1. The Results of Grouping about Divergent Thinking Ability Tests

Group	Number of Students	Highest Value	Lowest Value
Upper	8	100	82
Middle	15	73	64
Lower	5	59	47

Based on Table 1, it appears that a total of eight students (28.57%) belonged to the upper group category, a total of 15 students (53.57%) belonged to the middle group category, and a total of five students (17.86%) belonged to the category lower group. These results indicate that the initial ability of students is quite good because most of them are included in the middle class. Obtaining the value of the results of divergent thinking ability tests is different due to several things, such as different basic abilities of students, the ability of teachers in teaching, and the difficulty level of test items. Fatmawati (Fatmawati, 2016) argues that the basic abilities of student and teacher creativity are important factors that influence the learning process and learning outcomes. Degeng (Narti et al., 2016) added that teachers must be able to create fun learning so that student learning outcomes increase. Teachers also need good learning strategies, such as using innovative approaches, models, and media. Thematic learning guides teachers to produce learning that is more meaningful and influences students' cognitive abilities. Then, the results of the test results of divergent thinking ability are combined with the results of interviews of the subjects represented in each group. Therefore, the results are as follows:

Subject 1 (Upper Group)

In question number one related to fluency, students can provide more than one idea that is relevant to the correct solution. Students have been able to show the developer sentence in the reading text of each paragraph smoothly and precisely. Students can provide diverse answers because they read a lot of books. Literacy activities developed by schools can empower students to achieve maximum learning outcomes and develop student's fluency in answering each question (Wu, 2018).

Next, question number two deals with flexibility. Students have begun to be able to provide answers in more than one diverse way correctly. Question number two contains the mention of human and animal motion organs. Students are asked to mention at least three according to the question. On the answer sheet, the subject one (RH) answers the functions of human motion organs, there are three, namely walking, climbing, and holding.

Question number three deals with originality. Students begin to answer in their way and are different from other friends. In question number three, students are asked to make a sentence based on the image and to arrange the sentence into paragraphs or a story. Students have been able to make sentences according to the subject-predicate-object - description (SPOK) rules. Students can also use capital letters and conjunctions in sentences. Students can make compound sentences well so that the stories written are coherent and there is renewal. The student's answer (RH) already meets the expected criteria or gets a perfect score.

The last question number four deals with elaboration. Question number four is a picture of the Pancasila precepts. Students are asked to identify the image by the principles of Pancasila and analyze attitudes that are not by Pancasila values. Students begin to be able to provide detailed and complete explanations of things. Subject one correctly identifies each image and gives an example of behavior that does not match the image. The answers are written are clear and following the problems that exist. The ability of student's makes work depends on the involvement of students during learning. In his research, Seechaliao argued that discussion, independent learning, and learning media activities could involve students in learning activities and create learning innovations (Seechaliao, 2017).

The description of the results of the divergent thinking ability tests of the upper group students as shown in Figure 1.

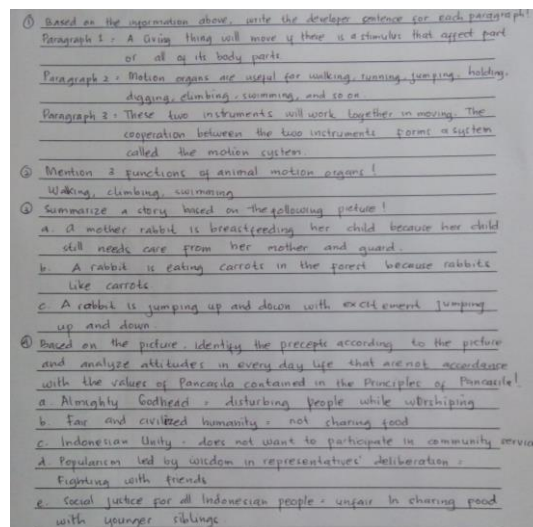


Figure 1. The Result of Divergent Thinking Ability Test (Subject 1)

From the results of the test analysis above, it can be seen that one subject has good divergent thinking ability. However, the evidence of the analysis was corrected again with the results of interviews with the subject one. This interview aims to explore students' thinking processes in understanding problems, whether students can or cannot identify things that are known and things that are asked of problems. The following is a sample transcript of the interview with subject one (RH) in understanding the question:

- P : In your opinion, does the question have a high, medium, difficulty level or low?
 Sort the questions from the hardest to the easiest!
- RH : The problem is easy. The hardest question number 4. If sorted, the hardest question is from number 4,3,1,2.
- P : Have you ever studied this material?
- RH : I've been in class 4.

- P : Explain again the understanding of the main ideas and ideas of the developer!
- RH : The main idea is the main sentence. The idea of a developer is a sentence that is explain the main sentence to be a good paragraph.
- P : Yes, your answer is correct and correct. Try question number three now.
Retell the image verbally!
- RH : (Students tell stories verbally).
- P : OK, it's correct. For question number four, try to state the behavior not in accordance with the values of Pancasila!
- RH : Interfere with worshipers (sila to one), do not want to share food (please go to two), fighting (third precepts), not participating in deliberation (fourth precept), and not fair in sharing food (fifth precept).
- P : Yes, your answer is correct.

The interview results above show that the first subject (RH) has extensive knowledge and can answer all questions well. Students (RH) also show high self-confidence. He admitted that he got first place in his class. His statement gives the sense that he has a good academic history. The results of the interview were corrected again by matching the results of the tests he had been working on. The first subject gives the test results of perfectly divergent thinking skills. Students say that the type of question given is quite easy for him. When conducting tests in class, students (RH) show a good attitude and are quite interesting. He wrote with his left hand. He wrote with his left hand. He said if he was used to writing with his left hand. Even though he writes with his left hand, he can write neatly. Different habits do not affect learning achievement. After the test results and interview data are obtained, the results that have been obtained are checked again by asking for agreement students (member check) to get conclusions. Therefore, subject to one can be said to have good divergent thinking ability. This student has a good academic history. He exercises academic control regularly to achieve good quality learning. Prihadi states that in addition to good academic history, students' abilities are also influenced by psychological well-being and self-esteem (Prihadi & Chua, 2012). Self-esteem is the main factor in the development of students' psychology that must be considered by the teacher (Ferkany, 2008).

Subject 2 (Intermediate Group)

Students are quite capable of giving more than one relevant idea to question number one. Students are quite capable of giving and mentioning the developmental sentence of a story/reading well. However, he did not provide a complete explanation. Therefore, he gets an imperfect value in question number one. In the results of interviews with subject two, students claimed that they did not understand the material of the main ideas and the sentence of the developer well. Then, question number two matches the flexibility indicator. Students have been able to mention three functions of human and animal motion organs. Students answer three functions (walking, running, and swimming).

Next, number three about originality. Students can answer questions in their way and according to the specified criteria. Students are quite able to make a story according to the picture specified in the question. Students have answered well according to the question command. The sentence made is by S-P-O-K (Subject–Predicate–Object–Description). He is also quite capable of making compound sentences well.

Question number four is elaboration in the form of identifying and analyzing images of the precepts of the Pancasila. However, student answers are incomplete and detailed. Students have been able to identify images of the precepts of Pancasila, but the analysis of behavior that is not following the values of Pancasila is not by the answer key. Some answers do not fit the question, especially examples of precepts one, two, three, and five. The right answer is only in the fourth precept. For example, he answers behavior that is not under the values of Pancasila (second principle), which is hostile to friends. The answer is inappropriate, hostile to friends is more appropriate as a third precept. The answer that is expected to be the second principle (just and civilized humanity) is to let people have trouble, not help others, and so on.

The description of the results of the diverging thinking ability tests of middle group students as shown in Figure 2.

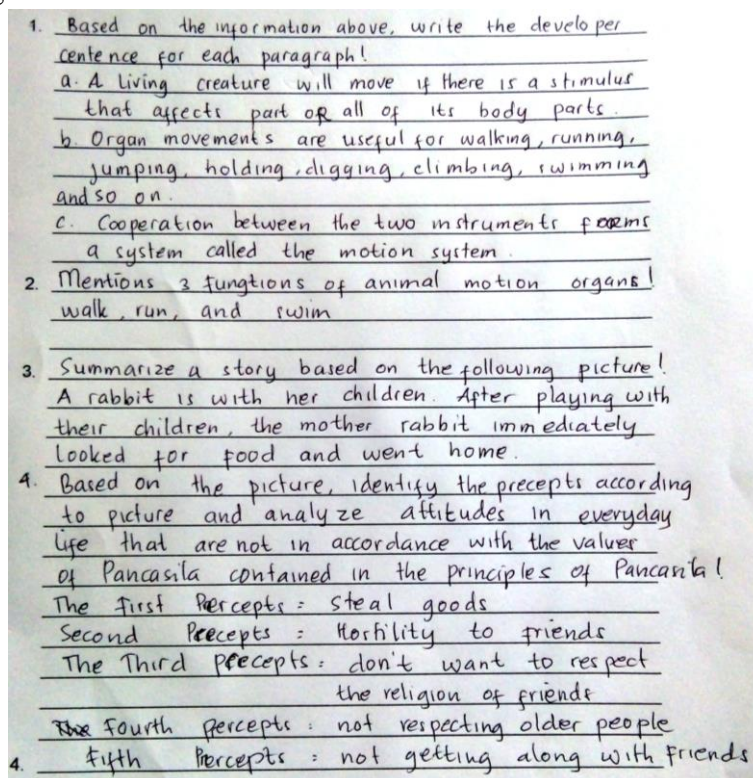


Figure 2. The Result of Divergent Thinking Ability Test (Subject 2)

Based on the results of the test analysis above, it can be seen that subject two has a fairly good divergent thinking ability. Transcript of the results of interviews with subject 2 (AR) in understanding the questions is as follows.

- P : Please, read question number one!
 AR : (Student reads a question)
 P : Have you finished reading it?
 AR : (Student nodding head)
 P : From the first question, what information did you get?
 AR : There is a reading text and asked to look for developer sentences from the story.
 P : Do you know the difference between the main idea and the developer's sentence?
 AR : Yes, I know. The main idea is the main sentence. I do not know the meaning of the developer's sentence.
 P : The developer sentence is a sentence that supports the main sentence. Try to show

- where the main sentence and the sentence of the developer!
- AR : *(Student designates the results)*
- P : Well, the main sentence is correct but you don't mention one sentence of the developer. (Researchers designate one of the developers' sentences)
- AR : Oh yes sis, I forgot.
- P : For the second question, what do you know from that question?
- AR : Function of animal motion organs.
- P : Please mention 3 functions again!
- AR : To walk, run and swim.
- P : Your answer is right. We proceed to the third question. What information did you get?
- AR : The question is to make the story according to the picture. This is a rabbit with her children. After playing with their cubs, the rabbit mother searches for food immediately and returns home.
- P : This should mention two sentences for each picture. Why do you only mention one sentence?
- AR : I think that's enough sis. So, I just write one sentence. *(Student laughing)*
- P : The last question.
- AR : An example of the first precept is stealing. The second precept is hostility to friends. The third precept is not respecting the religion of friends. The fourth precept is not respecting older people. The fifth precept is not getting along with friends.
- P : Pretty good. Good, you can answer all questions even though there are some incorrect answers. Thank you for giving me time.

Based on the interview data above, it can be seen that the second subject (AR) can already identify what is known and what is asked in each question. The interview results show that he has the quite good divergent thinking ability. Some things are lacking in the results of the interview. He said that he did not master the developer sentence material. Test results also provide the appropriate results. He wrote the developer sentence incomplete. He didn't mention one more sentence. The material he lacks in mastery is the values of Pancasila. In the written test results, he mentioned the value of Pancasila which was incompatible with the precepts of the Pancasila incorrectly. However, he had argued that the teacher gave a little time. If measured from the level of difficulty of the test item, he stated that the question was quite difficult for him. Time limitations and poor time management hurt student academic performance (Nasrullah & Khan, 2015). Students need enough time to answer each question so that student learning outcomes are in line with expectations. Before the two results are concluded, the results are asked back to students as a final check so that the results obtained are in accordance with the reality. Thus, the conclusion of the second subject is sufficient to have good divergent thinking ability.

Subject 3 (Lower Group)

Question number one deals with the fluency indicator. Students have not been able to explain the developer's sentence from a reading. Student answers do not match the answer key. Students mention the main idea or main sentence of a paragraph. From the results of the interview, he admitted that he did not understand the meaning of the main ideas and the sentence of the developer. Next, students do not answer question number two. He missed question number two.

He said that question number two was difficult and the time given by the teacher was lacking. The problem is very difficult and the time is lacking”.

Question number three about originality that contains questions to make a story based on an image. Students have been able to make sentences according to the rules of proper grammar. However, he had difficulty making sentences that fit the picture. He claimed to be confused by analyzing the image on the question. Students seemed to have not mastered the use of capital letters, conjunctions, and punctuation.

Question number four is elaboration. Students do not understand the fourth question. He should mention the behavior that is not following the precepts of the Pancasila, but he instead mentions the appropriate attitude. The description of the results of the diverging thinking ability tests from the lower group student is as shown in Figure 3.

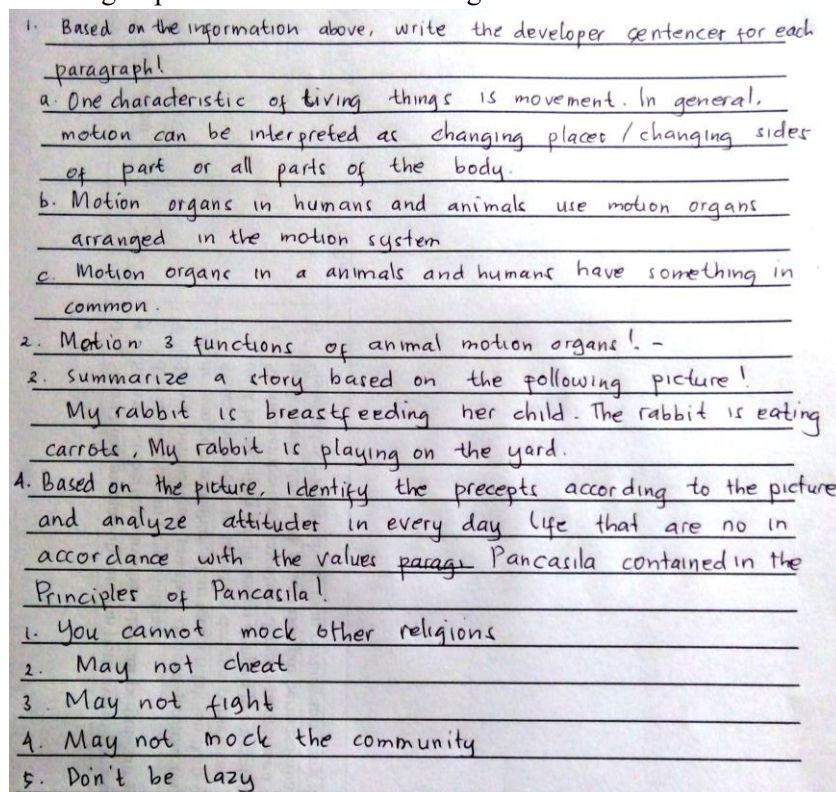


Figure 3. The Results of Divergent Thinking Ability Test (Subject 3)

Based on the results of the test analysis above, it can be seen that subject 3 has not good enough divergent thinking ability. Transcript of the results of interviews with subject 3 (KV) in understanding the questions are as follows.

- P : Now, read question number one.
- KV : (Student read questions)
- P : From question one, what information did you get?
- KV : I don't know sis.
- P : Are you not reminding developers' sentences properly?
- KV : Yes sis.
- P : What about the main sentence?
- KV : I don't know either sis.
- P : Pay attention. The main sentence is the sentence that is the basis of a paragraph. The

main sentence is usually located at the beginning of the sentence or the end of the sentence. Meanwhile, the developer sentence is a sentence that supports and as the main sentence developer. If you have found the main sentence in a paragraph, then the other sentence in the paragraph is the developer sentence.

KV : *(Student nod)*

P : Please, show the main sentence!

KV : Here sis.

P : Yes, right. Which sentence is the developer?

KV : This is it sis. *(Student shows developer sentences in a paragraph)*

P : You didn't answer the second question on your answer sheet yesterday. Why?

KV : That is a difficult question sis. I forgot the material.

P : For the third question it's good enough, but you only mention one sentence every the picture even though the number requested is two sentences.

KV : Yes sis.

P : What do you know from the fourth question?

KV : There are pictures of the Pancasila principles. The question is identification and analysis of behavior that is not in accordance with the values of Pancasila.

P : What is your answer?

KV : The first is not allowed to ridicule other religions. Second, you can't steal. Third, you can't fight. The fourth is that you cannot mock the community. The fifth is that you can't be lazy.

P : Does your answer match the question?

KV : *(Students are confused)*

P : The question asked is an attitude that is not following the principles of the Pancasila. However, you answer the appropriate attitude. Please study the material again.

KV : Yes sis.

Based on the interview results above, it can be seen that subject 3 (KV) has not been able to identify what is known and what is asked in each question. Students still find difficulty in answering questions. This is evident in the results of the interview that he did not master the material well. The materials he lacked include developer sentences, attitudes that are not in accordance with the precepts of the Pancasila, and the function of animal organs. The results of the interview are following with the results of the test analysis. Student (KV) answers the first question incorrectly. After being corrected and asked again, he also agreed to the results obtained.

Subject 3 has not been able to answer all the questions well for several reasons. At the time of re-checking the data, he said that he needed more time. He is also confused about having to give another answer. Students admitted that he did not read much and sat in the back row. In addition, the closeness of student and teacher seating also affects students' concentration in learning. Students who sit behind can not catch the material delivered by the teacher. This will be worse if the teacher does not communicate well with students who sit behind. Chuanthong argues that communication and collaboration between teachers and students become an important component in the management of the learning system (Seechaliao, 2017).

From the results of the three subjects above, a description of the divergent thinking abilities of the three groups of students can be seen in table 2.

Table 2. The Divergent Thinking Ability in Thematic Learning

No	Indicator	Research subject		
		Subject 1	Subject 2	Subject 3
1	Fluency	Students can give five ideas to answer the problem	Students are quite able to give two ideas in answering problem	Students have not been able to give three ideas to answer the problem
2	Flexibility	Students can provide three different ways with complete and appropriate explanations	Students can provide three different ways with complete and appropriate explanations	Students have not explained different ways
3	Originality	Students can give new answers in their way with the use of punctuation, conjunctions, and proper capital letters	Students can simply give new answers in their way by using the right conjunctions	Students can simply give new answers in their way
4	Elaboration	Students can answer questions carefully and correctly	Students can adequately answer questions in detail and correctly	Students can not answer questions in detail and correctly

Table 2 implies information that fifth-grade students at Mangkuyudan Public Elementary School have different divergent thinking abilities. Subject 1 indicates that he has fulfilled the indicator of divergent thinking ability perfectly. Subject 2 shows that he has fulfilled the flexibility indicators but it is not enough to fulfill three indicators of perfect divergent thinking (fluency, flexibility, and elaboration). Subject 3 looks only able to meet the originality well. The disadvantage of the subject 1 is that the indicators of fluency, flexibility, and elaboration have not been fulfilled. This is in line with the results of Zubaidah's research which concluded that every student who has different abilities will have different divergent abilities as well (Zubaidah, Fuad, Mahanal, & Suarsini, 2017). Therefore, teachers can make improvements through appropriate teaching styles, approaches, models, or media and function to make creative students (Suherman, Subroto, & Sugrata, 2017). The choice of the model should also be combined with technology-based media so that students can improve their appreciation and learning motivation (Chiang, Yang, & Hwang, 2014). The technology-based learning model can create a different learning atmosphere (Hsu & Wenting, 2018). Media technology is also following the demands of the 2013 curriculum because three competencies must be improved (knowledge, attitudes, and ability) (John, 2015). However, the selection of learning models and media must be tailored to the learning objectives, participants, model efficiency, and availability of models or media, characteristics of elementary school students, breadth of subject matter, and time allocation (Ibrahim, 2016).

Divergent thinking ability is important students have in thematic learning. Thematic is not focused on one subject/material but masters all subjects. Everything is integrated as a whole. Some expert accounts, thematic learning is very fun. This facilitates children to think broadly and not be limited to the classroom walls. The material is following current needs. Students get the opportunity to be independent, explore their environment, and experience it for themselves to provide a meaningful experience (Min, 2012). Altinyelken examines the thematic curriculum in his country, Uganda. He stated that the curriculum was the same as the previous curriculum, but the knowledge and skills in accordance with the theme (Altinyelken, 2010). This learning

tries to prioritize students' interests, needs, and experiences. Thematic learning will help students think divergent, creative, and critical. Thematic learning is also built with an effective scientific approach to learning. This approach includes physical dimensions that are integrated and need to be developed in elementary schools (Mudiono, Gipayana, & Madyono, 2016).

CONCLUSION

The conclusion in this study was the fifth-grade student's state elementary school of the Mangkuyudan has different divergent thinking abilities. This is indicated by 1) students who have high initial abilities or upper categories can provide more than one idea relevant to problem-solving, the explanation is different and according to questions (writing the developer sentence from each paragraph), can mention three functions of the motion organs animals, can provide original ideas in their own way (assembling a story based on images with the use of punctuation, conjunctions, and capital letters correctly), and being able to explain in detail (identifying Pancasila precepts according to the image and analyzing attitudes in daily life that is not in accordance with the values of Pancasila contained in the Pancasila precepts accurately and in detail); 2) students who have a moderate initial ability or intermediate category are able to describe the developer sentence from the story text of each paragraph, can mention the animal's organ function correctly, retell an image verbally with the use of grammar and appropriate conjunctions, but have not been able to analyze behavior that is incompatible with the principles of Pancasila because there are still many answers that are interchanged; and 3) students who have the initial lower ability have not been able to explain and mention the developer sentence from a story text, enough can make a story according to the picture even though the grammar used is not in accordance with language rules, and can adequately identify images of the Pancasila precepts but can not analyze behavior that is in accordance with Pancasila values (based on images) even though the explanation is not detailed.

ACKNOWLEDGMENTS

The researcher thanks to Dr. Tri Murwaningsih, M.Sc and Dr. Sri Marmoah, M.Pd as a supervisor who has provided advice and input to researcher. In addition, the researcher also thanked the Principal of the Mangkuyudan State Elementary School for giving permission to conduct research and fifth-grade students who had helped researcher obtain research data.

REFERENCES

- Adalsteinsdottir, K. (2004). Teachers' Behaviour and Practices in the Classroom. *Scandinavian Journal of Educational Research*, 48(1), 95–113. <https://doi.org/10.1080/0031383032000149869>.
- Altinyelken, H. K. (2010). International Journal of Educational Development Curriculum Change in Uganda: Teacher Perspectives on The New Thematic Curriculum. *International Journal of Educational Development*, 30(2), 151–161. <https://doi.org/10.1016/j.ijedudev.2009.03.004>.
- An, D., Song, Y., & Carr, M. (2016). A Comparison of Two Models of Creativity : Divergent Thinking and Creative Expert Performance. *Personallity and Individual Differences*, 90, 78–84. <https://doi.org/10.1016/j.paid.2015.10.040>.
- Antink-Meyer, A., & Lederman, N. G. (2015). Creative Cognition in Secondary Science: An Exploration of Divergent Thinking in Science Among Adolescents. *International*

- Journal of Science Education*, 37(10), 1547–1563. <https://doi.org/10.1080/09500693.2015.1043599>.
- Brophy, D. R. (2010). Comparing the Attributes, Activities, and Performance of Divergent, Convergent, and Combination Thinkers Comparing the Attributes, Activities, and Performance of Divergent, Convergent, and Combination Thinkers. *Creativity Research Journal*, 13(3–4), 439–455. <https://doi.org/10.1207/S15326934CRJ1334>.
- Chang, C. (2015). The Effects of Friendship and Antipathy Networks on Adolescent Attitude Similarity. *International Journal of Adolescence and Youth*, 20(4), 407–428. <https://doi.org/10.1080/02673843.2015.1015038>.
- Cheung, P. C., Lau, S., Lubart, T., Chu, D. H. W., & Storme, M. (2016). Creative potential of Chinese children in Hong Kong and French children in Paris: A Cross-Cultural Comparison of Divergent and Convergent-Integrative Thinking. *Thinking Skills and Creativity*, 22, 201–211. <https://doi.org/10.1016/j.tsc.2016.09.005>.
- Chiang, T. H. C., Yang, S. J. H., & Hwang, G. (2014). An Augmented Reality-based Mobile Learning System to Improve Students' Learning Achievements and Motivations in Natural Science Inquiry Activities. *Educational Technology & Society*, 17(4), 352–365. Retrieved from <https://www.jstor.org/stable/jeductechsoci.17.4.352>.
- Daniati, S. P., Subiyantoro, S., & Fadhilah, S. S. (2019). Natural School Culture as a Free And Fun Alternative Education in Building the Students' Character. *Elementary Education Online*, 18(1), 331–342. <https://doi.org/10.17051/ilkonline.2019.527617>.
- Fatmawati, B. (2016). The Analysis of Students' Creative Thinking Ability Using Mind Map in Biotechnology Course. *Jurnal Pendidikan IPA Indonesia*, 5(2), 216–221. <https://doi.org/10.15294/jpii.v5i2.5825>.
- Ferkany, M. (2008). The Educational Importance of Self-Esteem. *Journal of Philosophy of Education*, 42(1), 119–132. <https://doi.org/http://doi.org/10.1111/j.1467-9752.2008.00610.x>.
- Forthmann, B., Gerwig, A., Holling, H., Storme, M., & Lubart, T. (2016). Intelligence The be-Creative Effect in Divergent Thinking: The Interplay of Instruction and Object Frequency. *Intelligence*, 57, 25–32. <https://doi.org/10.1016/j.intell.2016.03.005>.
- Gallavan, N. P., & Kottler, E. (2012). Advancing Social Studies Learning for the 21 Century with Divergent Thinking Advancing Social Studies Learning for the 21 st Century with Divergent Thinking. *The Social Studies*, 103(4), 165–170. <https://doi.org/10.1080/00377996.2011.605641>.
- Guignard, J., & Lubart, T. I. (2016). A Comparative Study of Convergent and Divergent Thinking in Intellectually Gifted Children A Comparative Study of Convergent and Divergent Thinking in Intellectually Gifted Children. *Gifted and Talented International*, 22(1), 9–15. <https://doi.org/10.1080/15332276.2007.11673481>.
- Hassan, D. K. (2018). Divergent Thinking Techniques Discrepancy and Functional Creativity: Comparative Study of Structural and Procedural Techniques in Architectural Design. *Ain Shams Engineering Journal*, 9(4), 1465–1479. <https://doi.org/10.1016/j.asej.2016.10.002>.
- Hsu, H., & Wenting, Z. (2018). Developing Elementary Students' Digital Literacy Through Augmented Reality Creation: Insights From a Longitudinal Analysis of Questionnaires , Interviews , and Projects. *Journal of Educational Computing Research* 0(0), 0(0), 1–36. <https://doi.org/10.1177/0735633118794515>.
- Ibrahim, N. (2016). The Influence of Social Media in Teaching and Learning Activities. *The*

2nd International Multidisciplinary Conference, 496–502.

- John, Y. J. (2015). A “ New ” Thematic, Integrated Curriculum for Primary Schools of Trinidad and Tobago: A Paradigm Shift. *International Journal of Higher Education*, 4(3), 172–187. <https://doi.org/10.5430/ijhe.v4n3p172>.
- Jones, L. L., & Estes, Z. (2015). Convergent and Divergent Thinking in Verbal Analogy. *Thinking & Reasoning*, 21(4), 473–500. <https://doi.org/10.1080/13546783.2015.1036120>.
- Kadel, P. B. (2014). Role of Thinking in Learning. *Journal of NELTA Surkhet*, 4, 57–63. <https://doi.org/http://doi.org/10.3126/jns.v4i0.12861>.
- Kagan, D. M. (2016). Divergent Thinking and Social Cognition Among Fifth and Sixth Graders. *Early Child Development and Care*, 37(1), 133–146. <https://doi.org/10.1080/0300443880370110>.
- Marriel, L. C., Assis, S. G., Avanci, J. Q., & Oliveira, R. V. C. (2006). Violencia Escolar E Auto-Estima de Adolescentes. *Cadernos de Pesquisa*, 36(127), 35–50. <https://doi.org/http://dx.doi.org/10.1590/S0100-15742006000100003>.
- Min, K. C. (2012). Teachers’ Understanding and Practice towards Thematic Approach in Teaching Integrated Living Skills (ILS) in Malaysia. *International Journal of Humanities and Social Science*, 2(23), 273–281. <https://doi.org/10.30845/ijhss>.
- Mudiono, A., Gipayana, M., & Madyono, S. (2016). Developing of Integrated Thematic Learning Model through Scientific Approaching with Discovery Learning Technique in Elementary School. *International Academic Journal of Social Sciences*, 3(10), 19–27. Retrieved from [http://iaiest.com/dl/journals/3-IAJ of Social Sciences/v3-i10-oct2016/paper3.pdf](http://iaiest.com/dl/journals/3-IAJ%20of%20Social%20Sciences/v3-i10-oct2016/paper3.pdf).
- Mullis, I. V. S., Martin, M. O., Foy, P., & Hooper, M. (2015). *TIMSS 2015 International Results in Mathematics*. Retrieved from timss2015.org/download-center%0AInternational.
- Narti, Y., Setyosari, P., Degeng, I. N. S., & Dwiyoogo, W. D. (2016). Thematic Learning Implementation in Elementary School (Phenomenology Studies in Pamotan SDN 01 and 01 Majangtengah Dampit Malang). *International Journal of Science and Research (IJSR) ISSN*, 5(11), 1849–1855. <https://doi.org/10.21275/ART20163223>.
- Nasrullah, S., & Khan, M. S. (2015). The Impact of Time Management on the Students’ Academic Achievements. *Journal of Literature, Languages and Linguistics*, 11, 66–72. <https://doi.org/https://doi.org/10.7176/JLLL>.
- OECD. (2015). *Pisa Results in Focus 2015*.
- Ortiz, D. (2009). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. In *Qualitative Research Journal* (3rd ed., Vol. 6). <https://doi.org/10.3316/qrj0602205>.
- Palmiero, M., Giacomo, D. Di, Passafiume, D., Palmiero, M., Giacomo, D. Di, Passafiume, D., ... Passafiume, D. (2014). Divergent Thinking and Age-Related Changes Divergent Thinking and Age-Related Changes. *Creativity Research Journal*, 26(4), 456–460. <https://doi.org/https://doi.org/10.1080/10400419.2014.961786>.
- Pasztor, A., Molnar, G., & Csapo, B. (2015). Context : The Case of Divergent Thinking and Its Relation to Mathematical Achievement. *Thinking Skills and Creativity*, 18, 32–42. <https://doi.org/10.1016/j.tsc.2015.05.004>.
- Prihadi, K., & Chua, M. (2012). Students’ Self-Esteem at School: The Risk, The Challenge, and The Cure. *Journal of Education and Learning*, 6(1), 1–14. <https://doi.org/10.11591/edulearn.v6i1.185>.

- Pursitasari, I. D., Nuryanti, S., & Rede, A. (2015). Promoting of Thematic-based Integrated Science Learning on the Junior High School. *Journal of Education and Practice*, 6(20), 97–102. <https://doi.org/https://doi.org/10.7176/JEP>.
- Rachmajanti, S. (2008). Impact of English Instruction at The Elementary Schools on The Students' Achievement of English at The Lower Secondary School. *TEFLIN Journal*, 19(2), 160–185.
- Retnawati, H. (2016). Vocational High School Teachers' Difficulties in Implementing the Assessment in Curriculum 2013 in Yogyakarta Province of Indonesia. *International Journal of Instruction*, 9(1), 33–48. <https://doi.org/http://doi.org/10.12973/iji.2016.914a>.
- Runco, M. A., & Acar, S. (2012). Divergent Thinking as an Indicator of Creative Potential. *Creativity Research Journal*, 24(1), 66–75. <https://doi.org/10.1080/10400419.2012.652929>.
- Russ, S. W., & Schafer, E. D. (2006). Affect in Fantasy Play, Emotion in Memories, and Divergent Thinking. *Creativity Research Journal*, 18(3), 347–354. <https://doi.org/10.1207/s15326934crj1803>.
- Said, I. M., Sutadji, E., & Sugandi, M. (2016). The Scientific Approach-Based Cooperative Learning Tool for Vocational Students Vocation Program of Autotronic (Automotive Electronic) Engineering. *IOSR Journal of Research & Method in Education*, 6(3), 67–73. <https://doi.org/10.9790/7388-0603046773>.
- Seechaliao, T. (2017). Instructional Strategies to Support Creativity and Innovation in Education. *Journal of Education and Learning*, 6(4), 201–208. <https://doi.org/10.5539/jel.v6n4p201>.
- Simon, A., & Bock, O. (2016). Influence of Divergent and Convergent Thinking on Visuomotor Adaptation in Young and Older Adults. *Human Movement Science*, 46, 23–29. <https://doi.org/10.1016/j.humov.2015.11.020>.
- Suherman, S., Subroto, T., & Sugrata, A. (2017). The Implementation of Divergent Teaching Style in 2013 Curriculum Context (An Action Research in Sport Education Class in Cimahi High School 4). *1st Annual Applied Science and Engineering Conference*, 1–7. <https://doi.org/10.1088/1742-6596/755/1/011001>.
- Valente, R. R., & Berry, B. J. L. (2016). Effects of Perceived Discrimination on The School Satisfaction of Brazilian High School Graduates. *Journal for Brazilian Studies*, 5(1), 405–440. <https://doi.org/https://doi.org/10.25160/v5.i1/ga.3>.
- Wenzel, W. G., & Gerrig, R. J. (2015). Convergent and Divergent Thinking in the Context of Narrative Mysteries Convergent and Divergent Thinking in the Context of Narrative Mysteries. *Discourse Processes*, 52(5–6), 489–516. <https://doi.org/10.1080/0163853X.2015.1023966>.
- Wu, M. (2018). Information Literacy, Creativity and Work Performance. *Information Development*, 35(5), 1–12. <https://doi.org/10.1177/0266666918781436>.
- Zubaidah, S., Fuad, N. M., Mahanal, S., & Suarsini, E. (2017). Improving Creative Thinking Skills of Students through Differentiated Science Inquiry Integrated with Mind Map. *Journal of Turkish Science Education*, 14(4), 77–91. <https://doi.org/10.12973/tused.10214a>.