



## Critical Thinking Elementary Students Related Digestive System Material in Humans through Learning Problem Posing

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**Abstract.** This research is conducted on the basis of low critical thinking ability of elementary school students, especially in SCIENCE learning. The purpose of this research is to see the influence of Problem Posing model on critical thinking ability. Learning Problem Posing is a lesson-based learning question, that is, students ask questions based on the situation given by the teacher. This method of research is a quasi experimental design of one group Pretests posttest design, with the research samples of 24 grade V students from SDN Corenda of Cisitu subdistrict. Consisting of 10 female students and 14 male students. The instruments used are tests. Tests conducted in two stages, namely pretests and posttest with the number of 15 questions shaped essay. Data processing techniques using SPSS program version 23. The results showed that the average posttest scores critical of students using problems posing higher than pretest. So it can be concluded that learning SCIENCE with problems.

**Keywords:** *Critical thinking, problem posing, and SCIENCE learning.*

**INTRODUCTION** ~ IPA is a study in which to study about the environment and natural objects also include reviewing the concepts that exist. The IPA aims are:

1. Develop knowledge and understanding of SCIENCE concepts that are beneficial and can be applied in daily life.
2. Develop an Amnnotch process to investigate the environment around, solve problems and make decisions.
3. Raise awareness to participate in maintaining, maintaining, and preserving the natural environment.
4. Obtaining knowledge, concepts and skills of SCIENCE as a basis to continue education to a higher level. (Sutejo dan Lukitasari, 2014: 1).

SCIENCE studies do have many benefits, besides those described above with SCIENCE study we can understand and know everything related to the universe and its contents.

During the learning process often find the difficulties faced by the students, so that mengakibatkan many students found

that the value of SCIENCE learning is not maximum that is still under the average value of the KKM.

The learning process should be made to maximize the potential of the educators as well as the power of learning devices. By honing the various skills that must be applied to the child. In line with the demands in the 2013 curriculum mentioning that one of the most important skills a student must have is a critical thinking skill. In addition, the opinion that suggests that critical thinking skills is a skill that must be developed to deal with the 21st century. (Bahtiar, dkk. 2018). For that reason I chose a variable critical thinking skill in this research plan, since the critical thinking skills are very interesting and worthy to be researched.

“Critical thinking is an individual who thinks, acts, normative and ready to reason about the quality of what they see, hear or they think”(Maulana, 2017:6).



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Another opinion says that critical thinking is the ability to think at a complex level and use the process of analysis and evaluation (Neonaka, 2019:75). Critical thinking can also be said as a thinking skill consisting of mental processes of discernment, analysis and evaluation. Critical thinking consists of processes such as displaying intelligence about a problem, deciding and assessing accurately (Reza, dkk. 2018). Critical thinking is a good way of thinking and a wider range of critical thinking is to think deeply to investigate systematically and examine whether the process is absurd.

Many benefit from critical thinking to students, an opinion that mentions that critical thinking can create students as critical thinkers, where they can ask important questions about some phenomena, formulate ideas with Clear, collect and decide on relevant information, accommodating abstract ideas, open-minded and communicate effectively with the surrounding. (Gayatri, dkk. 2018).

To make critical thinking, it is necessary to take innovative learning from the usual in order to increase the ability of students in critical thinking. One of the approaches that will be applied is learning Problem Posing.

Some previous studies have proved that Problem Posing effectively increases students' critical thinking as well as improving learning outcomes against critical thinking skills including:

The influence of learning problem posing can increase the ability of critical thinking and mathematical communication of class V ELEMENTARY students research results that there is an influence between the learning problem posing and direct instruction on the ability Critical thinking and mathematical communication skills, from its presentation explained that learning problem posing better than direct instruction both for high ability and for low ability to critical thinking ability and Mathematical communication of learners ( Juano Dan Pardjono, 2016). Another study also mentioned that the problem posing can improve the child's critical thinking on the material of life organization through the SCHOOL of Pawyatan Daha 1 class VII A (Indahsar, 2017). Furthermore, another study mentioned that problem posing can improve the ability of critical thinking because learning with this posing sharpen the curiosity of students (Permanawati, dkk. 2018).

“Problem Posing is a study in which students are required to apply for problems based on specific situations. Asking questions or problems by students themselves is more likely to be better at understanding learning materials than when students are asked by teachers.Wulandari”, 2017 (Permanawati, 2018).

Problem Posing is in principle an innovative learning model that makes students to be able to reformulate problems that have been given in order to improve understanding and facilitate students in solving problems. (Mahendra, dkk.2017)



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Problem posing is also defined as a task designed by teachers who require students to create one or more questions (Amalina, dkk. 2018).

It can be concluded that Problem posing is the activity of formulating questions relating to the conditions of the problem that have been solved. Although the learning problem posing model is widely applied to the lesson of mathematics but the problem posing it is suitable if applied in various learning in addition to mathematics.

Step in learning Problem posing through two perspective cognitive activities, namely accepting (received) and challenging (challenging). Accepting occurs when students read the situation or information the teacher has presented, while challenging occurs when the student attempts to submit a question from the situation or information presented. Brown and Walter (Isrok'atun dkk. 2019, hlm. 50) In this stage students are trained to have skills in thinking. So Problem Posing where activities of the problem Posing students

are required and directed to make questions or questions related to the material that will be learned is SCIENCE learning about the digestive system in humans. Also the creation of the question should be a question that refers to the indicator of critical thinking. Then in the process so that students are facilitated to make Problem Posing researchers will help and guide students in ways to make questions. Making problems posing done independently, after each student made three questions he created himself, then all problems posing gathered by researchers to shuffle randomly to then be redistributed Each student to work on.

**METHOD**

This research is a quasi-experimental research. In this study, free variables are learning models consisting of the Problem Posing learning model. The design on this research is one group pretests Post test design. The dependent variable in this study is the student's critical thinking ability on the digestive system material in humans.

Table 1

One group Pretest-posttest Design

Pretest	Treatment	Post test
O <sub>1</sub>	X	O <sub>2</sub>

Note:

*X is the application of learning using Problem Posing*

The population of this research is all students of the V-grade SDN in Corenda subdistrict, Sumedang, Indonesia academic year 2018/2019. Samples were taken with a stratified technique of

random sampling clusters and consisted of 24 students from SDN Corenda. Consisting of 10 female students and 14 male students. This research took place from April 2019 to June 2019 which is divided



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into 2 phases. The first phase was the preparation of research which took place from April 2019 to May 2019. The second phase is the implementation of research that took place in May 2019 to June. The third stage is data analysis and reporting that took place in June 2019.

The instrument for collecting data in this study is a conceptual understanding test. The implementation of the test is done twice as pretests and Posttest. With the number of 15 questions that refer to indicators of critical thinking ability. Pretest is done to gain conceptual understanding of student data before application of learning problem posing. And posttest is used to test the extent of the improvement. The score category can be seen in table 2.

of the treatment already applied. The Data is then used as the basis for testing normality and N gain.

Data collection used are tests, documentation, while data processing techniques using SPSS program version 23, to analyze data using normality test (to know the data obtained by normal distribution or not), T test, gain test (to look for how much increase from data pre test and post test result), and test effectiveness (to know the level of effectiveness of treatment). The normalization Gain is used in this study to determine the enhancement of students' critical thinking skills. Gain formula:

$$\text{Gain} = \frac{\text{Posttest} - \text{pretest}}{\text{Maximum Score} - \text{pretest}}$$

**Tabel 2.** N-Gain score categorisation.

Skor	Category
$(g) \geq 0,7$	High
$0,7 > (g) \geq 0,3$	Are
$(g) < 0,30$	Low

**RESULTS AND DISCUSSION**

Prior to the hypothesis testing, researchers conducted the first normality test on collected data. Based on the test of normality of data pre-test variables critical thinking was obtained the value of Kolmogorov-Smirnov 0, 151 with

significance  $p = 0.169$  ( $P > 0.05$ ). While the test result normality to the post-test data variables think the critical value of Kolmogorov-Smirnov is 0, 153 with the significance of  $P = 0.155$  ( $P > 0.05$ ). These results indicate that the data spread of empathy is normal.

**Table 3** Data Normality Test analysis

Tests of Normality			
Test	Kolmogorov-Smirnov		
	Statistics	Df	Sig.



Pretest	0,151	24	0,169
Posttest	0,153	24	0,155

Posttest value after given treatment using learning Problem Posing is higher than pretest value. Learning to use posing problems during the learning process makes students more interested and easy to understand the material especially on SCIENCE learning.

Increased learning outcomes by using learning problem posing occur because

students gain new experience in receiving the material. The average increase of the pre test and post test results showed that learners of research samples experienced an increase with an average pre test of 40.50 to 69.00 on the average post test. Whereas based on the gain test the table is as follows:

**Table 4** Average value Data, Min and Max N-Gain

Class	Average n Gain	Min	Max
One group	40,7698	-17,65	92,86

Based on t gain value above shows that the average research is 40.7698, it is included in high. This category of high criteria is because students feel enthusiastic when the learning process takes place. So the difference in value that can be when pretests and posttest is increased.

Based on exposure to the results of the research data that has been conducted, shows that learning Problem posing can improve the skills of critical thinking in the V class of SDN Corenda district of Cilaku District Sumedang. It can be seen from the average posttest value after given better treatment than the average pretests value before given treatment. It is said to increase significantly.

The success of this research is not separated from the process through

learning problem posing. With the problem posing students are more accountable and more earnest in learning, than that many benefits from this posing problem.

Using the problem posing, students are faced with a complex situation that makes them feel accountable. I K Amalina dkk(2018:1) Problem posing also gives the breadth of students or learners to learn independently by formulating the problem (more specifically) yourself and resolving the problems it provides. (Isrok'atun dkk. 2018, hlm. 25). From some of the opinions that have been exposed about the excess problem posing can be concluded that the problem posing a lot of advantages and goodness of its application is the creation of problems in the problem posing make the child a lot of ideas, Increasing the ability to ask and answer



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questions, making students hone high-level thinking skills. Courage in asking questions and more.

## CONCLUSION

Based on the results and research discussion, it can be concluded that learning with problem posing can improve the critical thinking ability of grade V students at SDN Corenda District of Cisu District Sumedang. It is based on the results of the study showing that the average posttest thinks critical to students using a problem posing higher than pretest. So learning SCIENCE with posing problem can improve students' critical thinking skills.

## SUGGESTION

Based on the above conclusion, researchers recommend that learning problem posing can be considered by teachers as alternative learning models in primary schools.

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