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Improving Students' Critical Thinking Skills Using e-Booklet Learning Media on Environmental Pollution Material

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Abstract: This study aims to determine the effect of using e-booklet media on the critical thinking skills of class VII students of SMP N 1 Way Tenong on environmental pollution. This research is an experimental research using design through pretest posttest quasi nonequivalent control group design experiment. The type of data used is quantitative and qualitative. The population in this study were students of class VII SMP N 1 Way Tenong and 2 classes were taken randomly using a simple random sampling technique. VII D class as the experimental class and VII E class as the control class. Data was collected through test instruments and questionnaires. The test instrument consists of 20 multiple choice questions which are made using four aspects of critical thinking indicators, namely: giving simple explanations, making further explanations, setting strategies, techniques, and concluding. The questionnaire instrument contains questions related to student responses learn using e-booklets. During learning process was performed using an independent sample t-test statistical test. The results of data analysis showed a significance value of 0.000 < 0.05, and the experimental class obtained an average n-gain result of 0.4184 in the medium category, while the control class obtained an average n-gain score of 0.2789 in the low category. The percentage of student response questionnaires obtained an average percentage of 70% in the well received category. This can be said that there is a significant influence of the use of e-booklet media on student's critical thinking skills on environmental pollution material

Keywords*: *E-booklet media, critical thinking skills, pollution material environment

INTRODUCTION

Education is one of the foundations supporting the progress of a nation and state, the better the quality of education one has, the better the quality of a nation and state. Education can be used as a solution to assist in the progress of a country because education has a very important role in building a dignified country. Education is also one of the human needs to improve and explore the potential that exists in humans. Not only that, several aspects that can develop are cognitive aspects, psychomotor aspects, and affective aspects. Education is also a leading pioneer in the growth of the nation's human resources (Sutrisno, 2019:2). In forming these human resources, it is necessary to have an educational interaction, namely the process of teaching and learning activities between a student and a teacher.

The teaching technique carried out by the teacher determines the quality of education (Noor, 2019:1). One of the obligations of a teacher is to pay attention to the needs of each student in learning activities. There are several aspects that support quality education and can be adapted to student learning methods such as

learning content, learning experiences, and using dynamic learning methods so that each student's critical thinking skills can be developed. Critical thinking is an intellectual process by conceptualizing, applying, synthesizing, and/or evaluating information, which is obtained from observation, experience, reflection, thought, or communication as a basis for believing in and taking action (Lismaya, 2019: 8).

The 21st century provides total changes in both various fields, inseparable from the world of education. The world that is entering the era of globalization is experiencing a very rapid development of science and technology, as indicated by the use of computers and the internet in the learning process. This change needs to be anticipated by mastering the 4C skills, one of which is the ability to think critically (critical thinking) so that human resources must have high quality to keep up with the globalization era and must have the ability to think critically to solve a problem (Nuraeni, Feronika, and Yunita., 2019:51). Critical thinking is defined as the ability to think rationally and logically, the process of which involves analyzing, studying, and observing problems to draw final conclusions (Fahmi, et al., 2019:344). Currently, science is in the development of the 21st century which requires teachers to be able to motivate each student's thinking skills.

Critical thinking skills are very important to teach and include in the school curriculum (Basri, and As'ari., 2019:745). The quality of education in Indonesia is currently still low, while students' critical thinking skills are needed in science subjects. Learning activities related to students' critical thinking skills are currently very student-centered, but the teacher's role is also very important in learning activities (Fitri, 2021:1618). Several ways that teachers can do to improve the quality of learning include: applying a variety of learning media, learning models, learning resources, applying evaluation in learning, and so on (Azrai and Refirman, 2013:243).

Learning media is one of the tools used in the process of interaction between teachers and students, and student interaction with the environment, as well as a learning tool that can support the use of teaching methods used by teachers in the learning process (Rusman, 2017:67). Entering the era of globalization, experiencing the rapid development of science and technology, learning media in the form of digital media can be used to keep pace with the current progress of science and technology. Digital media is media that works with digital data or can produce a digital image that can be processed, accessed, and distributed using digital devices (Batubara, 2021:327). Digital technology-based learning is able to attract students' attention because digital products are supported by displaying images so that they can create interactive learning (Febrianti, 2021:104).

In the process of teaching and learning digital media is very helpful for teachers to distribute material so that it is more easily understood by students. Digital media or multimedia can add interest in learning certain materials. One example of digital media is e-booklets. E-booklets can be used as learning media in today's digital era. E-booklets are also one of the media that presents the material in summary form and has interesting pictures, so that it can be used as a learning resource so that students better understand learning material (Muhdar, Indria and Rusnianah., 2018:2).

In the learning process, there is a learning model that must be used so that teaching and learning activities run according to basic competencies. Students' low critical thinking skills are a problem that must be solved, using models is the preferred way to solve problems related to students' critical thinking skills (Saputri, Rinanto, Prasetyanti., 2019:329). To balance the current era of globalization students must have the ability to think critically to solve a problem, so a qualified learning strategy is needed such as the Problem Based Learning model. The problem-based learning model or often called PBL is a learning model that makes problems a real learning material (Pamungkas, 2020:10). PBL is a type of classroom management needed to support the constructivist approach in the learning process in the classroom (Agustina and Fitrihidajati, 2020:326).

Based on the results of interviews conducted at SMP N 1 Way Tenong, West Lampung, with science teachers for class VII, it was found that the critical thinking skills of class VII students at SMP N 1 Way Tenong were still relatively low and it was very important to improve. The ability to think critically is low because the teacher has not used indicators of critical thinking when giving questions to students. Students' critical thinking skills are very important and need to be improved because students must think critically in conditions of the rapid development of science and technology and the pressures of globalization that will be faced. Currently, education must be properly directed and must be occupied by every student with full responsibility and faced with enthusiasm. Currently education in Indonesia is directed at increasing competitiveness which aims to improve students' critical thinking skills. Critical thinking skills are very important for students because they play a role in the development of students' thinking (Mahanal, Zubaidah, and Sumiati., 2019:420).

The importance of students' critical thinking skills can encourage student curiosity, increase creativity, problem solving abilities and encourage student development. Enthusiasm for class VII students of SMP N 1 Way Tenong is still not good. Teachers have used digital media science and technology in learning. Digital media that is often used is the Google Classroom application, but the teacher's efforts do not show good enthusiasm and enthusiasm for student learning. Students seem less enthusiastic about learning when the learning process relates to the surrounding environment and when given interesting problems such as the PBL model and solved together through groups. So it needs to be combined with the right media. One of the media that is thought to be able to attract students' enthusiasm for learning is e-booklets. So that through the e-booklet media, it is hoped that students' critical thinking skills will increase.

Media that is often used by teachers is also more often printed media such as books and have not found the right media to make students enthusiastic about participating in the learning process, because of these things the good learning process of critical thinking is not achieved. Problem-based learning is associated with the surrounding environment. Researchers feel that environmental pollution material is the right material to use. The teacher's opinion regarding this matter also received a good response. The goal to be achieved by researchers is to determine the effect of e-booklet media on the critical thinking skills of class VII students of SMP N 1 Way Tenong on environmental pollution material

METHOD

This research was conducted in the even semester of 2021/2022 at SMP N 1 Way Tenong, West Lampung Regency. The population in this study were students of class VII, while the sample for this study was 2 classes taken from 8 classes, namely class VII D and VII E students of SMP N 1 Way Tenong. The number of students in class VII D was 30 students as the experimental class and in class VII E as many as 32 students in the control class.

The research design used in this study was a quasi-experimental nonequivalent control group design. Beginning with giving a pretest to find out the initial conditions of the two groups. The class used as the experimental class will be given the e-booklet method, while the control class will not be given the same treatment. After the experimental group was given treatment, both groups were given a posttest using a test similar to the pretest. This is done to find out whether the use of e-booklet media given to the experimental class has a significant effect on improving the critical thinking skills of SMP N 1 Way Tenong students. The research procedure consists of 3 stages, as shown in figure 1:

Figure 1. Research Procedure

1. Preparatory stage, researchers prepare observation permits, make observations and determine research samples and compile lesson plans for lesson plans, worksheets, learning media and others.
2. The implementation stage, in the control class the learning process takes place without e-booklet learning media, starting with a pretest after which the learning process uses the PBL learning model as well and is given a problem related to the material as in the e-booklet. Then the discussion and at the end of the lesson the researcher gave a posttest to students to find out students' critical thinking skills, and in the experimental class also did a pretest first. Furthermore, the researcher used e-booklet media, with the same learning model, namely PBL and at the end of the lesson the researcher also gave a posttest to students.
3. The final stage, the researcher analyzed the research data and make the conclusion.

Data collection techniques in this study used tests and questionnaires. The test used is a multiple choice test with 20 questions pretest and 20 questions posttest. Whereas in the questionnaire the number of questions in the questionnaire given by class VII students was 15 questions. The scoring scale and percentage categories for the questionnaire used are as follows: SS (Strongly Agree) with a score of 4, ST (Agree) with a score of 3, RG (Doubtful) with a score of 3 and TS (Disagree) with a score of 1.

The types of data in this study are quantitative and qualitative. Quantitative data in this study were the results of students' answers through pretest and posttest tests carried out before and after learning ended, both in the control class and the experimental class. Qualitative data in this research were conducted using a questionnaire given to students in class VII D and VII E. This questionnaire was in the form of a checklist containing student responses to e-booklet media after carrying out the learning process on the subject matter of environmental pollution.

RESULT AND DISCUSSION

Data on students' critical thinking skills were collected through test instruments in the form of pretest and posttest results given to each class, namely control and experiment. Quantitative data obtained from calculating the results of the pretest and posttest scores before the n-Gain test was carried out, the normality test, homogeneity test, and hypothesis testing using SPSS 25 were first carried out in the table 1:

Table 1. Normality, Homogeneity and Hypothesis Test Results through SPSS 25

Table 1. Normality, Homogeneity and Hypothesis Test Results through SPSS 25

	Kolomogorov smirnov	***Levene's Test for Equality of Variences***	***T-test for equality of means***
	Sig.	**Sig.**	**Sig. (2-tailed)**
Experiment	.200*	0,875	0,000
Control	.200*		

Based on the results from table 1 above, the normality test using the Kolomogorov Smirnov obtained a significance value for the control and experimental classes of 0.200, which is more than 0.05. The criteria for testing the normality test if the significance value is more than 0.05 indicates that the data is normally distributed. The homogeneity test using the Levene test by looking at the significance of Levene's test for equality of variances, the significance value of the two classes obtained is more than 0.05. Homogeneous testing criteria if the significance value is more than 0.05 indicates that the data is homogeneous.

After the data has been tested for normality and homogeneity and have obtained normal and homogeneous data, the next test used is the independent sample t-test to test the hypothesis. The hypothesis test is seen from the significance value (2-tailed). Based on the tests that have been carried out in the table above, the significance value of the hypothesis test is 0.000, which is less than 0.05. According to the test criteria, if sig (2-tailed) <0.05 then H0 is rejected and H1 is accepted, meaning that there is a significant difference.

Improving the critical thinking skills of class VII students of SMP N 1 Way Tenong on environmental pollution is carried out using the N-gain test using excel calculations as follows:

Table 2. Calculation of the N-gain results for the experimental and control classes

Table 2. Calculation of the N-gain results for the experimental and control classes

	Class	Average score	N-gain	Interpretation
N-gain Skor	Experiment	Pretest = 53 Posttest = 73	0,4184	0,30 ≤ N – gain ≤ 0,70 (Currently)
	Control	Pretest = 48	0,2789	N – gain < 0,30 (Low)

Table 2 above shows the average N-gain score for the experimental and control classes. The experimental class obtained a greater N-gain score than the control class. The experimental class obtained a score of 0.4178 while the control class obtained a score of 0.2789. Based on the Normalized-Gain test criteria, the results obtained were that the experimental class was in the medium category because the N-gain value was more than 0.30 and less than 0.70, while the control class was in the low category because the N-gain value was less than 0.30.

In addition, questions about the pretest and posttest were also made based on indicators of critical thinking. Figure 2 below presents the results of calculating the average item score per critical thinking indicator in the experimental class.

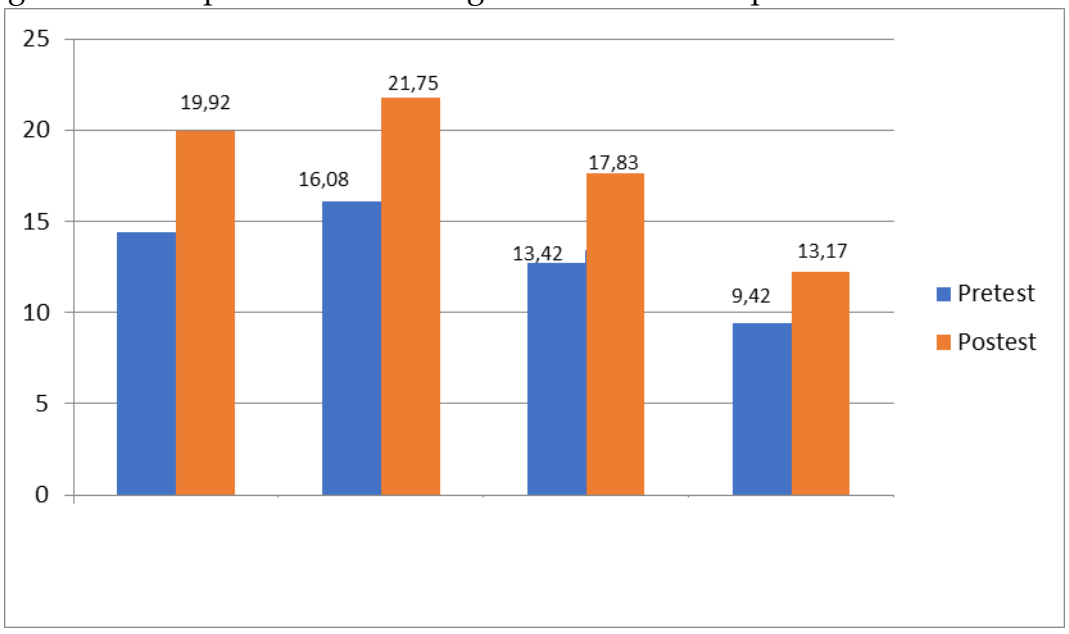

Figure 2. Calculation Results of The Average Score of Questions Each Indicator of Critical Thinking In The Experimental Class

Based on the picture above, students' critical thinking skills can also be seen from the average score of the item indicators made using critical thinking indicators. The four critical thinking indicator activities are providing simple explanations (analyzing questions), making further explanations (defining), organizing strategies and techniques (actions and interacting with others), and concluding (inducing and considering inductions) as well (making and determining the results of considerations). Based on the data that has been obtained

in Figure 2, the item indicator "make further explanations (define)" obtains the highest score than the other indicators, namely pre-test 16.8 and post-test 21.75, in this case, the high ability of students to answer correctly on this indicator due to the use of e-booklets that are adapted to material about environmental pollution making it easy for students to define what is around them. The use of e-booklet media in the learning process provides new experiences for students because they have never been used before. While the lowest indicator is in the indicator The test item "determining the results of consideration (concluding)" obtained the lowest score, namely pretest 9.42 and posttest 13.17, in this case, the low indicator of the item was due to the difficulty of students understanding the problem in the form of an analysis of the conclusions from the results of the consideration so that many students still wrong answer on the indicator question.

The researcher then distributed questionnaires regarding students' responses regarding e-booklet learning media through problem-based learning. The questionnaires consist of 4 indicators and 20 questions shown in table 3.

Table 3. Questionnaire Indicator Table

No	Questionnaire Indicator	Questionnaire Items
1	The enthusiasm of students, and a sense of curiosity in participating in learning	1, 3,5, 6, 8, 14
2	Student responses in participating in learning activities	2,7,9,10,12,18
3	The concentration and accuracy of students in participating in learning activities	4,11,15,17
4	Willingness and hard work of students in participating in learning activities	13,16,19,20

The result of student responses to e-booklet media are as follows:

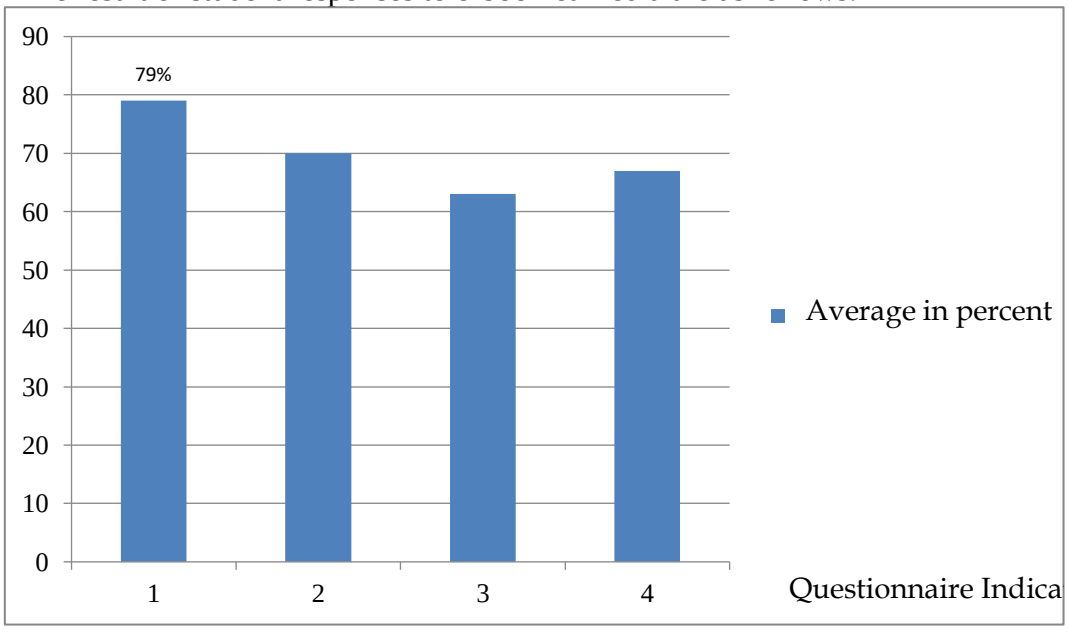

Figure 3. Presents Results of The Student Response Questionnaire

Based on the results of the student response questionnaire in the picture above, the highest percentage of indicators is found in the first questionnaire item indicator, namely student enthusiasm, and a sense of curiosity in participating in learning with a percentage of 79% in the good category. In addition to the first indicator, 3 other indicators are also in the good category, although the percentage of indicators is below 79%, they are still in the good category, because they are at a percentage of 61-80%. The overall average percentage of the four indicators is 70% and is in a good category. Thus the use of e-booklet media can be well received by experimental class students.

Analysis of the research data shows that the use of e-booklet media has an effect on the critical thinking skills of class VII students of SMP N 1 Way Tenong on environmental pollution. This can be seen from the results of calculating the pretest and posttest N-gain scores which showed a significant difference between the two experimental and control classes, namely the experimental class had a higher score than the control class. The use of e-booklets was very well received by students and was supported as seen from the results of the student response questionnaire in the experimental class shown in Figure 3.

The increase in students' critical thinking skills is due to the use of e-booklet media through PBL, because the use of digital media through problem-based learning is a very supportive aspect for criticizing environmental issues, and can enable students to think more critically. When learning in the experimental class using e-booklet digital learning media, students are trained to observe the e-booklet and also understand the problems contained in the e-booklet and try to solve these problems. Students are able to solve problems and answer every question in the e-booklet based on what they see in the environment. Critical thinking can be defined as an individual thought process that starts with the intention to solve a problem or answer a question, by examining different options and selecting the most suitable and logical one (Alsaleh, 2020:21). Through e-booklet media and problem-based learning models the ability to think critically can be helped to increase because it is supported by media which attracts students to find problems and students are able to answer post-test questions that are made using indicators of critical thinking and the results increase better than the pre-test. This is supported by research conducted by Agustina and Fitrihidajati (2020:327) in class X high school that PBL-based digital learning media can train students' critical thinking skills and digital media has characteristics that link PBL with critical thinking skills.

Learning activities carried out using PBL provide opportunities for students to solve problems. And the use of e-booklet media in the experimental class is a supporter of increasing students' critical thinking skills, because the student learning process begins with interesting learning media, so students are more enthusiastic about learning and don't get bored quickly with the ongoing learning process. The use of e-booklets is also not in the form of print but electronic booklets make students start to use digital media as technology develops. The initial process of learning using the PBL syntax begins with problem orientation activities in the e-booklet where students are required to see environmental pollution problems that occur in the surrounding environment. After orienting the problem, it is

continued by organizing students to form groups and then guiding the investigation based on the problems presented. After being able to answer environmental problems around students and groups present results, present, and discuss as well as evaluate and make conclusions.

In the learning process carried out through the PBL learning model, students read and understand the LKPD and e-booklets that have been distributed, in the LKPD there are instructions for students to determine and solve phenomena problems in accordance with the material discussed, namely environmental pollution found in e-learning media -booklets. After that students are also asked to find any phenomena of environmental pollution that occur in the environment around the home or school environment. Furthermore, students were asked to discuss and look for supporting literature to present their results.

After students are able to analyze the phenomena contained in the e-booklet and phenomena that occur in the surrounding environment students are asked to make conclusions based on the sources that have been collected. This is also supported by Handayani, et al (2016:888) Students' critical thinking skills include behavioral tendencies and cognitive skills to solve problems, draw conclusions, consider various possibilities and make decisions. Doing critical thinking activities will be very instrumental in building and developing minds to solve various problems with appropriate arguments.

CONCLUSION

Based on the results of the research that has been done and the discussion, it can be concluded that the use of e-booklet media has a significant effect on the critical thinking skills of class VII students of SMP N 1 Way Tenong on environmental pollution material. Interesting digital media and problem-based learning support the improvement of students' critical thinking skills. The e-booklet media was also well received by students based on the response questionnaire given to students in the experimental class in the good category.ion can be generalized findings according to research problems, can also be in the form of recommendations for the next step. The research conclusions are adjusted and aligned with the research objectives, **not** the repetition of data results.

REFERENCES

Agustina, D. W., & Fitrihidajati, H. (2020). Pengembangan Flipbook Berbasis Problem Based Learning (Pbl) pada Submateri Pencemaran Lingkungan untuk Melatihkan Keterampilan Berpikir Kritis Peserta Didik Kelas X SMA. *Berkala Ilmiah Pendidikan Biologi (BioEdu)*, *9*(2), 325-339.

Alsaleh, N. J. (2020). Teaching Critical Thinking Skills: Literature Review. *Turkish Online Journal of Educational Technology-TOJET*, *19*(1), 21-39.

Azrai, E. P., & Dj, R. D. R. (2013). Efektifitas Penerapan e-book sebagai Sumber Belajar Mandiri dalam Pembelajaran Biologi. *Prosiding SEMIRATA 2013*, *1*(1).

Basri, H., & As' ari, A. R. (2019). *Investigating Critical Thinking Skill of Junior High School in Solving Mathematical Problem. International Journal of Instruction*, *12*(3), 745-758.

Batubara, H. H. (2021). *Media pembelajaran digital*. PT Remaja Rosdakarya.: Bandung.

Fahmi, F., Setiadi, I., Elmawati, D., & Sunardi, S. (2019). *Discovery learning method for training critical thinking skills of students*. *European Journal of Education Studies*, 6(3), 342-351.

Febrianti, F.A.(2021). Pengembangan Digital Book Berbasis Flip PDF Professional Untuk Meningkatkan Kemampuan Literasi Sains Siswa. *Jurnal Ilmiah Pendidikan Dasar*, 4(2), 102-115.

Fitri, S. F. N. (2021). Problematika Kualitas Pendidikan di Indonesia. *Jurnal Pendidikan Tambusai*, *5*(1), 1617-1620.

Handayani, D. E., Rahayu, S., & Yuliati, L. (2016). Kemampuan Berpikir Kritis dan Process- Oriented Guided Inquiry Learning Berkonteks Socioscientific-Issues Pada Materi Pencemaran Lingkungan. *Prog. Semnas Pend. IPA Pascasarjana UM*, *1*(1), 887-898.

Lismaya, L. (2019). *Berpikir Kritis & PBL:(Problem Based Learning)*. Media Sahbat Cendekia.: Surabaya.

Mahanal, S., Zubaidah, S., Sumiati, I. D., Sari, T. M., & Ismirawati, N. (2019). *RICOSRE: A Learning Model to Develop Critical Thinking Skills for Students with Different Academic Abilities*. *International Journal of Instruction*, *12*(2), 417-434.

Muhdar, A., A., S., Indria, D. M., & Rusnianah, F. (2018). Efektifitas Pemberian E-Booklet Tentang Permasalahan Menyusui Terhadap Peningkatan Pengetahuan Dokter Umum di Puskesmas Kota Malang. *Jurnal Kesehatan Islam: Islamic Health Journal*, *7*(1).

Noor, M. (2019). Guru Profesional dan Berkualitas. Alprin.: Jawa Tengah.

Nuraeni, S., Feronika, T., & Yunita, L. (2019). Implementasi Self Efficacy dan Keterampilan Berpikir Kritis Siswa Pada Pembelajaran Kimia di Abad 21. *Jambura Journal of Educational Chemistry*. 1(2), 49-56.

Pamungkas, T. (2020). *Model Pembelajaran Berbasis Masalah (problem base learning)*. Guepedia: Bogor.

Rusman, M. P. (2017). *Belajar & Pembelajaran: Berorientasi Standar Proses Pendidikan*. Prenada Media.: Bandung.

Saputri, A. C., Rinanto, Y., & Prasetyanti, N. M. (2019). *Improving Students'Critical Thinking Skills in Cell-Metabolism Learning Using Stimulating Higher Order Thinking Skills Model*. *International Journal of Instruction*, *12*(1), 327-342.

Sutrisno, T. (2019). *Keterampilan dasar mengajar (the art of basic teaching)* (Vol. 121). Duta Media Publishing.: Jawa Timur.

Batubara, H. H. (2021). *Media pembelajaran digital*. PT Remaja Rosdakarya.: Bandung.

Fahmi, F., Setiadi, I., Elmawati, D., & Sunardi, S. (2019). *Discovery learning method for training critical thinking skills of students*. *European Journal of Education Studies*, 6(3), 342-351.

Febrianti, F.A.(2021). Pengembangan Digital Book Berbasis Flip PDF Professional Untuk Meningkatkan Kemampuan Literasi Sains Siswa. *Jurnal Ilmiah Pendidikan Dasar*, 4(2), 102-115.

Fitri, S. F. N. (2021). Problematika Kualitas Pendidikan di Indonesia. *Jurnal Pendidikan Tambusai*, *5*(1), 1617-1620.

Handayani, D. E., Rahayu, S., & Yuliati, L. (2016). Kemampuan Berpikir Kritis dan Process- Oriented Guided Inquiry Learning Berkonteks Socioscientific-Issues Pada Materi Pencemaran Lingkungan. *Prog. Semnas Pend. IPA Pascasarjana UM*, *1*(1), 887-898.

Lismaya, L. (2019). *Berpikir Kritis & PBL:(Problem Based Learning)*. Media Sahbat Cendekia.: Surabaya.

Mahanal, S., Zubaidah, S., Sumiati, I. D., Sari, T. M., & Ismirawati, N. (2019). *RICOSRE: A Learning Model to Develop Critical Thinking Skills for Students with Different Academic Abilities*. *International Journal of Instruction*, *12*(2), 417-434.

Muhdar, A., A., S., Indria, D. M., & Rusnianah, F. (2018). Efektifitas Pemberian E-Booklet Tentang Permasalahan Menyusui Terhadap Peningkatan Pengetahuan Dokter Umum di Puskesmas Kota Malang. *Jurnal Kesehatan Islam: Islamic Health Journal*, *7*(1).

Noor, M. (2019). Guru Profesional dan Berkualitas. Alprin.: Jawa Tengah.

Nuraeni, S., Feronika, T., & Yunita, L. (2019). Implementasi Self Efficacy dan Keterampilan Berpikir Kritis Siswa Pada Pembelajaran Kimia di Abad 21. *Jambura Journal of Educational Chemistry*. 1(2), 49-56.

Pamungkas, T. (2020). *Model Pembelajaran Berbasis Masalah (problem base learning)*. Guepedia: Bogor.

Rusman, M. P. (2017). *Belajar & Pembelajaran: Berorientasi Standar Proses Pendidikan*. Prenada Media.: Bandung.

Saputri, A. C., Rinanto, Y., & Prasetyanti, N. M. (2019). *Improving Students'Critical Thinking Skills in Cell-Metabolism Learning Using Stimulating Higher Order Thinking Skills Model*. *International Journal of Instruction*, *12*(1), 327-342.

Sutrisno, T. (2019). *Keterampilan dasar mengajar (the art of basic teaching)* (Vol. 121). Duta Media Publishing.: Jawa Timur.