





## Effectiveness of learning and motivation to use google classroom on critical thinking skills

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Article Information	ABSTRACT
Submitted: 2021-08-06 Accepted : 2021-07-21 Published : 2021-07-21	<p>The effectiveness of learning is said to be successful if all learning can be fulfilled. One of them is learning motivation. Learning that can increase the effectiveness of learning and student motivation towards critical thinking skills is electronic learning with the google classroom application. E-learning can measure students' motivation to learn and their critical thinking skills. Students are considered successful when they achieve their learning goals. But in reality, students have not shown motivation and critical thinking skills. This is what makes learning activities less effective and efficient. Students tend to be lazy to think and express their opinions. During the learning process, students need to be motivated to be interested in learning, thinking and understanding the material. It is the responsibility of the lecturer to always innovate in the learning process in order to stimulate motivation and critical thinking skills. The purpose of this study was to determine whether there was an effect of learning effectiveness and motivation using google classroom on critical thinking skills in educational research methods courses. This type of research is a quasi-experimental research (quasi-experimental). The design used is the non-equivalent group design. The research population was all students of the fifth semester of Biology Education, which amounted to 65 students which were divided into 2 classes, while the sample was class A, which amounted to 35 people. The method of collecting data on the effectiveness of learning and motivation uses a questionnaire while the ability to think critically uses a test. Then the data were analyzed using the ANACOVA test. Based on the results of the research through the ANACOVA test, it can be concluded that the effectiveness of learning and motivation using google classroom has an influence on the critical thinking skills of the fifth semester students of FKIP UMB for the 2020/2021 academic year.</p> <p><b>Keywords:</b> Critical thinking; learning effectiveness; motivation</p>
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### INTRODUCTION

In the new normal phase in the world of education, learning process activities using various platforms grow very rapidly. E-learning is used at almost every level of education. At the tertiary level,

namely the University of Muhammadiyah Bengkulu in the odd semester of TA. 2020/2021 already utilizes Google Classroom-based e-Learning learning. [Mu'minah and Gaffar \(2020\)](#) explained that Google Classroom provides easy interaction between lecturers and students in cyberspace. the use of google classroom makes it easier for lecturers to manage learning, interact and convey information precisely and accurately to students.

Google Classroom is an online learning platform that can be used for free. The Google Classroom application provides features for lecturers, namely they can create assignments for students and can collect assignments from them. Both lecturers and students can work without using paper in this application ([Atikah et al., 2021](#)). Provide training to students on the use of google classroom as a form of introduction to the functions and benefits of the software. It is possible that if it is applied for the first time it will fail, so reflection and monitoring are needed ([Durahman, 2018](#)). The advantages of Google Classroom are that it is easy to use, saves time, is cloud-based, flexible, free, and mobile friendly ([Janzen, 2014](#)). Google Classroom provides a space for anyone to share material, accept assignments, design collaborations, and provide input and value. The learning process is said to be effective when lecturers and students have the motivation to continue learning even though studying online ([Muzayyanah, 2021](#)).

Learning activities will be successful if all components and elements are in it such as learning aids, learning effectiveness and student learning motivation. Motivation is an internal drive from a student to carry out a certain activity to achieve learning goals ([Sari et al., 2018](#)). The presence of learning motivation in students can stimulate critical thinking skills. In the learning process, students need motivation so that they are interested in learning and thinking and understanding the material ([Fajriaturrohmah, 2019](#)). Critical thinking skills become real when an individual is able to absorb information well. This is to make it easier for students to find material. Critical thinking ability is a complex thinking process, namely thinking logically which aims to make reasonable decisions through a systematic scientific process including analyzing, synthesizing, recognizing problems and solving them, concluding and evaluating ([Prameswari et al., 2018](#)). The teaching and learning process is needed both in order to achieve competence and learning objectives. In line with the opinion of [Astuti \(2019\)](#) that motivation and mathematical critical thinking skills have a correlation in growing the desire and willingness to solve problems faced by someone so that they can obtain optimal results.

During the learning process, students need to be motivated to be interested in learning, thinking and understanding the material. It is the lecturer's responsibility to stimulate students' motivation to think critically. Lecturers can innovate learning through electronic learning or e-learning by using google classroom ([Rahmawati, 2013](#)). In the opinion of [Nirfayanti & Nurbaeti \(2019\)](#) that e-learning using Google Classroom-based media helps teachers create active and interesting learning. But in reality, the learning process in the classroom is not optimal. There are still many students who lack the motivation to learn and do not dare to express opinions. Students tend to receive knowledge from lecturers so that there is no two-way interaction. This is what makes teaching and learning activities have not been able to achieve the desired goals. Seeing these situations and conditions, lecturers must innovate in the learning process so that learning runs effectively and efficiently. One of the policies taken is to apply blended learning by utilizing learning applications.

Based on the introduction above, the researcher is interested in conducting research on "Learning Effectiveness and Motivation Using Google Classroom on Critical Thinking Ability". The purpose of this study was to see whether there was an effect of learning effectiveness and motivation using google classroom on critical thinking skills of students in the fifth semester of Biology Education at UMB. This

research needs to be done because (1) Awareness of limited knowledge and understanding (2) Fulfillment of curiosity (3) Problem solving and (4) Fulfillment of self-development.

## RESEARCH METHODS

This research has been carried out from February to March 2021 and the research location is in the Biology Education Study Program, FKIP UMB in the subject of educational research methods. The research population was all students of the fifth semester of Biology Education, which amounted to 65 students which were divided into 2 classes, while the sample was class A, which amounted to 35 people. Sampling was carried out using a simple random sampling technique, namely random sampling so that each population had the same opportunity to be selected as the research sample. Sampling with this technique is done by lot. This type of research is quasi-experimental research. The design used is the non-equivalent group design with a design description in [Table 1](#).

**Table 1. Overview of Research Design**

Classes	Research Design
E	O <sub>1</sub> -----X-----O <sub>2</sub>
K	O <sub>1</sub> -----X-----O <sub>2</sub>

Information: E = Experiment class; K = Control class; X = Treatment; O<sub>1</sub> = Pretest; and O<sub>2</sub> = Posttest

The instrument used is a questionnaire sheet and a test sheet. The questionnaire provided is a closed questionnaire consisting of 20 statements and 25 multiple choice critical thinking questions. The instrument used was adapted from previous researchers. Questionnaires and tests have been validated by the study and assessment of the problem by the validator, namely by the selected lecturer. Questionnaires are used to obtain information about the effectiveness of learning and student motivation and then test sheets to see students' critical thinking skills in Biology learning.

The group was given a questionnaire on the effectiveness of learning and motivation and a critical thinking ability test which was then analyzed using the ANCOVA test. Before testing the hypothesis, the prerequisite tests were carried out, namely the normality test and homogeneity test. The procedure carried out is the preparation stage, including: research design, instrument preparation, instrument validity test and revision. The research implementation stage includes: giving a pretest about critical thinking, delivering material and opening a discussion forum in google classroom, giving a questionnaire and a test (posttest) about learning effectiveness, motivation and critical thinking, collecting data in the form of secondary and primary data/questionnaire results, tabulation data, analysis of learning effectiveness data, discussion and conclusions and suggestions.

## FINDING AND DISCUSSION

Seeing the effect of learning effectiveness and motivation using google classroom on critical thinking skills, the data will be analyzed and tested with the SPSS application. Before testing the hypothesis, it is better to test the prerequisites, namely normality and homogeneity tests. The normality test used the Shapiro Wilk test because the number of data was <50. The criteria are if the significance value is greater than 0.05 (> 0.05), then the data is normally distributed ([Table 2](#)). The following are the results of the normality test of learning effectiveness, motivation and critical thinking skills.

Based on [Table 2](#) that all data obtained the Asymp value. Sig. (2-tailed) > 0.05, which means that the data on learning effectiveness, motivation and critical thinking skills have data that are normally

distributed. After knowing the data is normally distributed, it is continued with the homogeneity of variance test using Levene's statistic test. The results of the homogeneity of variance test can be seen in [Table 3](#).

**Table 2. Normality Test**

Data Group	Asymp Value. Sig. (2-tailed)	Information
Learning Effectiveness	0,800	Normal Distribution
Motivation	0,605	Normal Distribution
Critical Thinking Ability	0,791	Normal Distribution

**Table 3. Test of Homogeneity of Variance**

Levene's Statistic	df1	df2	Sig.
0,997	2	35	0,374

Based on [Table 3](#), it can be seen that the significance value obtained is 0.374, which means it is greater than 0.05 ( $0.374 > 0.05$ ), so it can be concluded that the data on learning effectiveness, motivation and critical thinking skills have a homogeneous variance. After knowing the data on the effectiveness of learning, motivation and critical thinking skills are normally distributed and have a homogeneous variance, followed by hypothesis testing, namely the Anacova test. Testing the statistical hypothesis ( $H_a$ ) proposed in this study is accepted or rejected,  $H_a$  will determine the acceptance or rejection of the hypothesis proposed in the study.

**Table 4. Anacova Test**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected	7077.953a	2	3538.971	50.474	.000	.450
Intercept	3055.318	1	3055.361	34.645	.000	.750
Pretest	1492.099	1	792.099	45.016	.000	
Efektivitas dan motivasi	4415.916	1	2225.916	23.313	.000	.300
Error	6079.486	60	80.658			.278
Total	358189.000	65				
Corrected Total	12057.429	62				

Based on [Table 4](#) The reference for covariance analysis is if the probability/significance value  $< 0.05$ . Based on the results of the ANCOVA test, it can be seen that corrected shows a significance number of  $0.000 < 0.05$ , meaning that the pretest and effectiveness and motivation simultaneously have different impacts on critical thinking. The intercept showed a significance value of  $0.000 < 0.05$  with a contribution of 75 percent of the treatment impact on critical thinking. The significance value of the pretest showed  $0.000 < 0.05$ , meaning that the pretest had an impact on critical thinking. Effectiveness and motivation showed a significance value of  $0.000 < 0.05$ , meaning that the effectiveness and motivation of learning using Google Classroom had a significant effect on critical thinking skills.

Based on the results of data analysis that has been carried out with the help of SPSS, a significance value of  $0.000 < 0.05$  is obtained. Then it is proven that the effectiveness of learning ( $X_1$ ) and motivation ( $X_2$ ) have an influence on critical thinking skills ( $Y$ ) this is because students' critical thinking skills can run optimally if students have the motivation to learn. In addition, teaching and learning activities provide a safe, peaceful and prosperous atmosphere. In line with John Carroll's opinion in [Rohmawati \(2015\)](#) about indicators of learning effectiveness are attitudes, children's willingness to learn, children's preparation for learning, and the quality of teachers in learning activities. To achieve this, a two-way relationship between teachers and students is needed to achieve goals ([Rohmawati, 2015](#)).

Students' critical thinking ability can be influenced by the effectiveness of their learning. If the learning process is effective, it can stimulate critical, creative and logical thinking skills. In line with Ghofur's (2018) that the achievement of students' critical thinking skills is influenced by many factors, including the process, conditions and effectiveness of the learning process. If the learning process goes well, the learning objectives will also be achieved. Then the crucial thing is student motivation, if students have high motivation then students can follow the learning process well so that learning objectives can be achieved. Emda (2017) states that if a person's motivation is categorized as high, they tend to be enthusiastic and focus on teaching and learning activities. Motivation is an attempt to generate suggestions, encouragement, or the desire to do something (Wayudi, et al, 2020). Student learning motivation by using google classroom media has an effect on critical thinking skills. In line with that student are quite enthusiastic in undergoing learning by using the google classroom media. Based on the results of the observations, which were observed during the learning process, students seemed able to answer the questions posed by the teacher, critically discussing different arguments with other friends.

Google Classroom gives students the opportunity for unrestricted access to learning. So that students have the space to find, analyze and evaluate all the information that is accessed. In accessing knowledge in Google Classroom, students are required to think critically and think logically about what has been accessed. In line with Qory's (2022) that learning using the flipped classroom model can create active and effective learning. Students no longer feel the boredom that usually only listens to the teacher's explanation. Instead they can find as much information as possible many to solve a problem topic in order to find a solution. So that students are required to analyze the problem first before getting a solution and the answer another.

Google Classroom makes it easy for teachers to give, submit, and grade assignments, making it easier for students to access assignments (Rikizaputra, 2020). In addition, Google Classroom explains learning methods that are contextual, interesting, innovative, and student-centered. What we can do now is to motivate students to keep their enthusiasm for learning even though learning is done online, using various, interesting and creative methods and activities so that students don't feel bored and create a pleasant atmosphere.

Fun in learning. This can motivate students and have the ability to solve problems (Yulianti, et al, 2021). If students are motivated to learn, then they can improve critical thinking skills. In line with Nurlaela's (2017) that students who are motivated to learn from documentary films have high critical thinking skills. If students are motivated to learn, they will obey or carry out the learning process compared to students who are not motivated (Azis, et al, 2017). If students want to learn to use google classroom, they tend to be loyal to their learning (Khairunnisa, 2020).

Learning activities in google classroom, lecturers invite students to actively participate in learning activities to achieve learning goals. Through interactive videos, the lecturer provides a forum for students to provide responses and solutions to a problem. All students enthusiastically gave their opinions through the comments column. In addition, students must be able to solve problems related to the topic being discussed. In line with Listiani's(2018) opinion that students can use their abilities to identify problems, conduct experiments, provide solutions, and evaluate them. In google classroom, lecturers have plenty of time to share scientific research, open discussion forums about problems, and complete tasks that need to be done (Nirfayanti dan Nurbaeti, 2019). In general, activities in Google Classroom can affect students' critical thinking skills. Critical thinking ability is an indicator of high thinking, and critical thinking is a good way of thinking, so students can solve problems, make decisions, make assumptions, analyze and use scientific methods.

Google classroom is one of the learning tools used by lecturers and students. Lecturers and students can interact and collaborate to discuss the material more deeply. The emergence of student motivation in learning activities can stimulate cognitive abilities and critical thinking skills. In line with Zuhelmi's (2017) that active learning media is designed to clarify the presentation of material and overcome the boundaries of the senses, body and space. Online learning with google classroom can stimulate thinking skills, be able to analyze what is read, seen and heard and develop critical thinking skills (Rostyant, et al., 2020). Motivation is used as a driving force to seek knowledge and gain experience. In line with the opinion of Nugraha, et al(2017) motivation is the driving force that comes from students and leads to learning activities. Anyone who is motivated can improve their critical thinking skills. High learning motivation increases critical thinking and low motivation decreases critical thinking (Anita, 2015). In line with Faiz's (2012) that motivation greatly influences and plays an important role in students' critical thinking skills. Motivation empowers students to manage their abilities including the ability to interpret, analyze and evaluate ideas. Highly motivated students enjoy useful things such as learning that requires a high level of intellectual ability (Nurlaela, 2017).

Based on the significance value obtained, it can be concluded that the effectiveness of learning and motivation by using Google Classroom has an effect on the critical thinking ability of students in the fifth semester of Biology Education at UMB. In line with the results of Herwati's research (2020) it shows that students' critical thinking skills are influenced by the effectiveness of the LMS google classroom. The findings from Nuriyati (2022) show that the use of google classroom is very helpful in increasing students' learning motivation, especially in learning. Increased motivation makes students enthusiastic in attending lectures. Google classroom provides insight and experience in the teaching and learning process. Students are very active and enthusiastic in participating in lectures and discussions, students are also free to express opinions and hone thinking skills in solving problems related to the material being studied.

## CONCLUSION

Based on the results of the research through the ANCOVA test that has been carried out, the authors conclude that there is an effect of learning effectiveness and motivation using google classroom on the critical thinking skills of fifth semester students of FKIP UMB for the 2020/2021 academic year.

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## REFERENCES

- Anita, I.W. (2015). Pengaruh Motivasi Belajar Ditinjau dari Jenis Kelamin Terhadap Kemampuan Berpikir Kritis Matematis Mahasiswa. *Jurnal ilmiah UPT P2M STKIP Siliwangi*, 2(2), 246-251. <https://adoc.pub/p2m-stkip-siliwangi-jurnal-ilmiah-upt-p2m-stkip-siliwangi-vo0fa75d76c4d92716d5c58a5599f5b58c21558.html>
- Astuti, L.P. 2019. Meningkatkan Kemampuan Berpikir Kritis dan Motivasi Berprestasi Siswa dengan Menerapkan Model Pembelajaran *Discovery Learning* di SMA. *Prosiding Seminar Nasional & Call For Papers*. 19 Januari 2019, Tasikmalaya, Indonesia.328-332 <https://jurnal.unsil.ac.id/index.php/sncp/article/view/1058>

- Atikah, R. Prihatin, T., Hernayanti, H.; & Misbakh, J. (2021). Pemanfaatan Google Classroom Sebagai Media Pembelajaran di Masa Pandemi Covid-19. *Jurnal Pendidikan Teknologi Informasi dan Komunikasi*, vol 7(1), 7-18. <https://doi.org/10.31980/jpetik.v7i1.988>
- Azis, A., Cahyono, E., & Fahinu. (2017). Pengaruh Model Pembelajaran Kooperatif dan Motivasi Belajar Terhadap Kemampuan Berpikir Kritis Matematik Siswa SMP. *Jurnal Pembelajaran Berpikir Matematika*, 2(1), 1-12. <https://jurnal.unsil.ac.id/index.php/jp3m/article/view/2804>
- Durahman. (2018). Pemanfaatan Google Classroom Sebagai Multimedia Pembelajaran Bagi Guru Madrasah pada Diklat di Wilayah Kerja Kemenag Kabupaten Cianjur. *Jurnal Diklat Keagamaan*, 12(34), 215-221. <https://doi.org/10.38075/tp.v12i34.71>
- Emda. (2017). Kedudukan Motivasi Belajar Siswa dalam Pembelajaran. *Lantanida Journal*, 5(2), 93-196. <http://dx.doi.org/10.22373/lj.v5i2.2838>
- Faiz, F. (2012). *Thinking Skill: Pengantar Menuju Berpikir Kritis*. Suka Press. Yogyakarta. <https://opac.perpusnas.go.id/DetailOpac.aspx?id=1054205>
- Fajriaturohmah, R. (2019). Pengaruh Motivasi Belajar dan Kemandirian Belajar terhadap Kemampuan Berpikir Kritis Siswa melalui Penerapan Strategi Pembelajaran Berbasis Masalah. *Skripsi*. Program Studi Teknologi Pendidikan Jurusan Kurikulum dan Teknologi Pendidikan Fakultas Ilmu Pendidikan Universitas Negeri Semarang. Semarang. [http://lib.unnes.ac.id/33336/1/1102414080\\_Optimized.pdf](http://lib.unnes.ac.id/33336/1/1102414080_Optimized.pdf)
- Ghofur, A dan Raharjo, N.R.B. (2018). Peningkatan Kemampuan Berfikir Kritis Mahasiswa melalui Pendekatan 5E dan SETS Berbantu Aplikasi Media Sosial. *Jurnal Inovasi Pembelajaran*, 4(2), 102-112. <https://doi.org/10.22219/jinop.v4i2.6678>
- Janzen, M. 2014. Hot Team :Google Classroom. <http://tit.psu.edu/2014/12/04/hot-team-google-classroom/>
- Khairunnisa. (2020). Analisis Pemanfaatan Aplikasi *Google Classroom* Sebagai Media Pembelajaran dalam Meningkatkan Motivasi Belajar Siswa. *Skripsi*. FKIP Universitas Muhammadiyah Sumatera Utara. Medan. [http://repository.umsu.ac.id/bitstream/handle/123456789/5157/Skripsi%20Khairunnisa\\_FKIP\\_1602070027.pdf;jsessionid=17C7E3D1206BA7E506029731A8CC52B6?sequence=1](http://repository.umsu.ac.id/bitstream/handle/123456789/5157/Skripsi%20Khairunnisa_FKIP_1602070027.pdf;jsessionid=17C7E3D1206BA7E506029731A8CC52B6?sequence=1)
- Listiani, I. (2018). Efektifitas Lembar Kerja untuk Memberdayakan Kemampuan Berpikir Kritis Mahasiswa Pendidikan Guru Sekolah Dasar. *Jurnal Penelitian Pendidikan*, 35(1), 18-25. <https://doi.org/10.15294/jpp.v35i1.13547>
- Mu'minah, I.H dan Gaffar, A.A. (2020). Optimalisasi Penggunaan Google Classroom Sebagai Alternatif Digitalisasi dalam Pembelajaran Jarak Jauh (PJJ). *Jurnal Bio Educatio*, 5(2), 23-35. <http://dx.doi.org/10.31949/be.v5i2.2610>
- Muzayyanah, S. (2021). Efektivitas Pembelajaran Online di Masa Pandemi Covid-19. *Skripsi*. Fakultas Ilmu Tarbiyah dan Keguruan Universitas Islam Negeri Syarif Hidayatullah. Jakarta. [https://repository.uinjkt.ac.id/dspace/bitstream/123456789/59454/1/1117015000097\\_Siti%20Muzayyanah.pdf](https://repository.uinjkt.ac.id/dspace/bitstream/123456789/59454/1/1117015000097_Siti%20Muzayyanah.pdf)
- Nirfayanti dan Nurbaeti. (2019). Pengaruh Media Pembelajaran *Google Classroom* dalam Pembelajaran Analisis Real Terhadap Motivasi Belajar Mahasiswa. *Jurnal Penelitian Matematika dan Pendidikan Matematika*, 2(1), 50-59. <https://e-journal.my.id/proximal/article/view/211>
- Nugraha, A.J., Suyitno, H., & Susilaningih, E. (2017). Analisis Kemampuan Berpikir Kritis Ditinjau Dari Keterampilan Proses Sains dan Motivasi Belajar Melalui Model PBL. *Journal of Primary Education*, 6(1). <https://journal.unnes.ac.id/nju/index.php/JPP/article/view/13529>
- Nuriyati, T. (2021). Penggunaan Aplikasi Google Classroom Sebagai Media Pembelajaran untuk Meningkatkan Motivasi Belajar. *Jurnal Pendidikan dan Pembelajaran*, 1(2), 117-130. <https://ejournal.kampusmelayu.ac.id/index.php/kaisa/article/view/274>
- Nurlaela, L. (2017). Pengaruh Media Pembelajaran dan Motivasi Belajar Terhadap Kemampuan Berpikir Kritis Siswa. *Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, 1(2), 180-187. <https://core.ac.uk/download/pdf/230482881.pdf>

- Qory, S.S.E. (2022). Efektivitas Penerapan Model Pembelajaran Flipped Classroom Terhadap Peningkatan Kemampuan Berpikir Kritis Siswa Pada Mata Pelajaran PAI Kelas XII MIPA di SMA Negeri 1 Krembung Sidoarjo. *Skripsi*. Fakultas Tarbiyah dan Keguruan Program Studi Pendidikan Islam Universitas Islam Negeri Sunan Ampel. Surabaya. [http://digilib.uinsby.ac.id/53203/3/Saidana%20Saniyyah%20EI%20Qory\\_D01218045](http://digilib.uinsby.ac.id/53203/3/Saidana%20Saniyyah%20EI%20Qory_D01218045)
- Rahmawati, B.F. (2013). Meningkatkan Motivasi Belajar dan Kemampuan Berpikir Kritis Mahasiswa Melalui Model Pembelajaran Berbasis Masalah. *Jurnal Educatio*, 8(2), 17-27.
- Rikizaputra dan Sulastri,H. (2020). Pengaruh E-Learning *Google Classroom* Terhadap Hasil dan Motivasi Belajar Biologi Siswa. *Jurnal Pendidikan*, 11(1), 106-118. <https://doi.org/10.47783/jurpendigu.v1i1>
- Rohmawati. (2015). Efektifitas Pembelajaran. *Jurnal Pendidikan Usia Dini*, 9(1), 15-32. <http://journal.unj.ac.id/unj/index.php/jpud/article/view/3491>
- Rostyanta, dkk. (2020). Pengaruh Pembelajaran dengan *Google Classroom* Diintegrasikan Video Interaktif Terhadap Keterampilan Berpikir Kritis dan Bertanggung Jawab. *JTB*, 9(1), 142-153.
- Sari, N., Sunarno, W., & Sarwanto, S. (2018). Senior High School Learning Motivation on Physics Subject. *JPP (Jurnal Pendidikan Dan Pembelajaran)*, 24(1), 1–6. <http://journal2.um.ac.id/index.php/jpp/article/view/6815>
- Prameswari, S.W., Suharno, & Sarwanto. (2018). Inculcate Critical Thinking Skills in Primary Schools. *National Seminar on Elementary Education*, 1(1), 742-750. <https://jurnal.uns.ac.id/SHES/article/view/23648>
- Wayudi, M .,Suwatno., & Santoso,B.(2020). Kajian Analisis Keterampilan Berpikir Kritis Siswa Sekolah Menengah Atas. *Jurnal Pendidikan Manajemen Perkantoran*, 5(1), 67-82. <https://doi.org/10.24235/edueksos.v9i2.6329>
- Yulianti,dkk. (2021). *Application of the Google Classroom-Assisted Blended-Inquiry Method on Students' Critical Thingking Skill. International journal of Innovation, Creativity and Change*, 15(6), 227-238. [https://www.ijcc.net/images/Vol\\_15/Iss\\_6/15619\\_Sukardi\\_2021\\_E1\\_R.pdf](https://www.ijcc.net/images/Vol_15/Iss_6/15619_Sukardi_2021_E1_R.pdf)
- Zuhelmi, Adlim& Mahidin. (2017). Pengaruh Media Pembelajaran Media Interaktif Terhadap Peningkatan Keterampilan Berpikir Kritis Siswa. *Jurnal Pendidikan Sains Indonesia*, 5(1), 72-80. <http://jurnal.unsyiah.ac.id/jpsi>