

# The Effect of Google Classroom in Improving Learning Motivation and Critical Thinking Skills of University Students

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## ABSTRACT

This research aims to determine the effect of the google classroom platform on educational innovation courses in improving learning motivation and critical thinking skills of PGSD students of Riau University. This study uses a type of quasi-experimental research with its research design is nonequivalent control group design which has an experimental group and a control group. The sampling used in this study is the purposive sampling technique. The results showed that the influence of the google classroom platform on educational innovation courses in improving: 1) Student learning motivation saw simple Pearson correlation test results in a control class of 0.781 and an experimental class of 0.790 with a high category. 2) Critical thinking skills of students viewed the average results of the analysis of the verified Gain test showed a moderate increase in the experimental class of 0.4881 and a control class of 0.4390. This study conducted hypothetical testing of research showing that the influence of google classroom platform on educational innovation courses in improving learning motivation and critical thinking skills of PGSD students of Riau University judging by the results of paired sample t-test in control classes and experimental classes obtained significance (Sig.) of  $0.000 < 0.05$  which showed  $H_0$  rejection and  $H_a$  is accepted.

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## 1. INTRODUCTION

As information and communication technology (ICT) advances, it impacts education's rapid advancement. Universities currently using the Merdeka Belajar Kampus Merdeka (MBKM) Curriculum will have to adapt their curricula as a result of this new development in order to meet the challenge of developing human capital with the necessary skills for the twenty-first century (Junaidi & et al, 2020). The advancement of technological development for the benefit of human knowledge, comprehension, and application of various competencies is achieved through the development of superior human

resources (HR) (Wajong et al., 2020). Students and lecturers alike can benefit from modern digitalization in university education by utilizing technological media (Gustina. et al., 2020).

As a result of ICT's use, classes have become more exciting, fun, and engaging, and students have been able to participate in a variety of communicative activities. However, ICT in education cannot be separated from the issue. Because of the COVID-19 pandemic that broke out in Indonesia, the current problems are causing all elements to shift. The government's educational prevention efforts are detailed in SE Number 4 of 2020, explaining how universities transfer knowledge via the internet. SE Number 4 of 2020. As a result of the shift, universities must shift their teaching methods from face-to-face to online (Nadeak et al., 2020). Students' motivation to learn and their ability to adapt to a new system to attend lectures are affected by this condition. The students must also know how to use social media to keep track of the learning process.

In the era of information technology development, it creates an educational innovation in learning by utilizing the internet network called E-Learning or the online learning model. It can change the education sector by providing access for students to share and obtain information and data in a relatively easy way. E-learning facilitates teaching and learning activities by assisting with information technology (Hertiavi, 2020). The process of teaching and learning using E-learning is a learning activity by utilizing various digital media connected to the internet network. E-learning requires more specific media to facilitate learning activities. An alternative to the popular E-learning supporting media is the Google Classroom Platform with key features that actively support as an online social communication media added with features aimed at delivering material and evaluating online learning. In addition, the learning support media that all levels of education can use from elementary school to College is the WhatsApp Group Platform.

This year's AASL research on alternative media shows that Google Classroom is the best website for fostering innovation, creativity, active participation, and collaboration and provides an easy way for lecturers and students to carry out learning in virtual classrooms to stay connected on the internet. The WhatsApp Group Platform is a messaging platform that can be used in distance learning, where students are gathered in one group and the learning process is carried out in messages, both written and audio and image-based, using both written and spoken language. A platform known for saving quotas and practicality makes this application a popular choice among both educators as well as students because, on average, all of their numbers are already linked to this application. According to Bouhnik & Deshen, the use of WhatsApp Platform, also known as WA, is becoming increasingly popular on a national and international scale these days (Bouhnik & Deshen, 2014).

The College is a modern institution that must equip students with various soft skills. It is essentially based on the motivation of learning, which is a driver of behavior in doing learning activities with perseverance, passion, and persistence to achieve goals to improve students' self-skills by the competence of the 21st century, one of which is critical thinking skills. Critical thinking skills forming students have skills in formulating hypotheses, analyzing, interpreting, deciphering, applying several criteria, composing arguments, making comparisons and conclusions, and integrating and synthesizing information to produce various alternative solutions (Lee & Choi, 2017). Various strategies can be done to facilitate soft skills development, namely, students' critical thinking skills in face-to-face learning environments and online learning.

Students of elementary school teacher education study programs must possess critical thinking skills as stakeholders in improving the quality of education, so it is very important to form qualified teacher candidates. Therefore, the quality of a prospective elementary school teacher is strongly influenced by his motivation factor in conducting learning activities; thus, the motivation of learning will encourage prospective elementary school teachers to develop their skills. According to preliminary research conducted at Riau University with PGSD Undergraduate Study Program, there are issues with learning that students experience, such as not comprehending lectures and students who are uninspired, uninterested in learning who feel overwhelmed and easily give up. If a student does not participate in the learning process and is not present in virtual classes, this can be seen, even if it is rare. Students are distracted from their studies and therefore unable to concentrate.

According to Damanhuri, (2020) student learning motivation decreases when attending lectures in his research. Some students are late when joining virtual classes so that in discussions in the classroom (online), students do not involve themselves even students disable cameras. In addition, when asked a question by lecturers, students still look unprepared to provide quality answers, and some students look untidy and not excited. This problem shows that, of course, a person has different learning motivations. High motivation in students is seen from virtual classes, persistence, perseverance, trying to understand the material delivered by lecturers and adding insight by reading various references and always focused while doing the learning process and able to direct behavior to achieve goals. While students who are not motivated will easily feel hopeless, bored, bored, and not interested in following online or online learning, it will impact the process and learning. According to his research, Sri (2020) found that the coronavirus outbreak's effects on higher education, particularly in Indonesian institutions, were inconsistent. A lack of motivation among some college students has been caused by online learning.

Researchers also discovered that students were unable to solve critical thinking problems. Defining problems, selecting sources, and using critical thinking are areas where students have not demonstrated their abilities (Lee & Choi, 2017). When learning educational innovation courses, students must have both conceptual and contextual knowledge about educational innovation so that elementary school teacher education students can participate and follow the development of educational innovation according to science and technology based on learning motivation and critical thinking abilities.

According to the description, lecturers must develop and create a teaching and learning environment that is creative, innovative, interactive, and fun to encourage students to engage in learning activities that improve critical thinking. With the help of Google classrooms, teachers can use alternative media that can motivate students and influence students' critical thinking skills.

## 2. METHODS

This research method uses experiments with this type of quasi-experimental research that the entire subject of the study group is given treatment so that researchers instead choose subjects randomly (Siyoto & Sodik, 2015). As well as using nonequivalent control group design that have the same control and experimentation classes in its implementation. The design of this study aims to find out the influence and compare experimental classes with controls. The study was conducted with ten meetings. The preliminary stages start with a pretest in which the researcher gives both groups. The core stage is the researcher uses the google classroom platform in the experimental class while in the control class using the conventional platform WhatsApp as a medium that facilitates the learning process. While the closing stages, researchers provided a final test (post-test) that aims to see the effect of treatment (treatment) on improving students' learning motivation and critical thinking skills in semester 6 of grades A and C in the PGSD students of Riau University.

This study sample was a 6th-semester PGSD class A student who numbered 38 people as a control class and class C 37 people as an experimental class. Researchers conducted sampling using purposive sampling with the underlying purpose of the study to select sample members specifically (Sundayana, 2014). The selection uses purposive sampling techniques on the basis that students of semester 6 of class A and C as a homogeneous sample group. In contrast, the data collection technique in this study is a questionnaire to measure learning motivation and a description test that aims to measure the critical thinking skills of PGSD students of Riau University. The hypotheses proposed in this study are:

$H_0$  : There is no Effect of Online Learning Models in Improving Learning Motivation and Critical Thinking Skills of PGSD Students.

$H_a$  : There is Effect of Online Learning Models in Improving Learning Motivation and Critical Thinking Skills of PGSD Students.

### 3. FINDINGS AND DISCUSSION

The study results data description includes learning motivation data and critical thinking skills of PGSD students in educational innovation courses. The experiment class uses the google classroom platform, while the control class uses the WhatsApp group platform. Based on the analysis of data obtained by the results of the study, as follows:

#### *Validity of Learning Motivation Questionnaire*

The data results are then tested for validity using pearson's Product Momen formula with the help of the SPSS application. Based on the results of the validity analysis of 40 statement items in the learning motivation questionnaire obtained, the results of validity with SPSS obtained the overall result that the item can be concluded valid. So that statement items can be used to measure the learning motivation of PGSD students in control classes and experimental classes.

#### *Validity Test of Critical Thinking Skills Description*

Based on the cognitive domain at levels C4, C5, and C6, this study devised a test description from course materials on educational innovation. Since the purpose of the description test is to assess students' ability to use critical thinking, its construct validity is evaluated by comparing the test's results to instructional goals derived from indicators of critical thinking ability, as shown in the table 1.

**Table 1 Description Test Development**

No	Indicators of Critical Thinking Skills	Question of Description Test	Level
1.	Explaining basic and simple (elementary clarification) Focus the question	Specify the three problem formulations from the information above?	C4
	Analyze arguments	Based on the solutions listed in the information above, explain the efforts made in creating learning innovation?	C5
	Asking and answering questions	Based on PISA and TIMSS data above, explain the causes and impacts that will occur if there is no innovation in the learning process?	C4
2.	Determining the basis for the decision Considering the suitability of the source	Explain what you think, whether the PISA and TIMSS data in the information above is trustworthy?	C5
	Consider the observation report	Explain your opinion on alternative solutions to overcome the low ability of students in Indonesia based on data from PISA and TIMSS?	C5
3.	Summing (inference) Induce and consider induction results	How do you think curriculum innovations affect the quality of learning?	C5
	Generalize	What is behind and the impact of changes to the KTSP curriculum the 2013 curriculum, and the free learning curriculum?	C5
	Create and determine value considerations	Why is the development of local content innovation in improving the quality of education in elementary schools?	C5
4.	Provide advanced clarification Define and consider it	Explain what is meant by lesson study?	C4

	Identify assumptions	Explain your options regarding alternative solutions to the information?	C5
5.	Estimating and combining (supposition and integration) Considering the reason	Explain the 3 benefits of educational innovation in your opinion based on that information?	C4
	Consider or combine the information in decision making	What do you think about educational innovations that can be applied in elementary schools?	C6

### Results of Research Instrument Reliability Test

The research instrument is declared reliable if from the results of the analysis processed using SPSS version 20, can be seen in the following table 2.

**Table 2 Reliability Test Results of Learning Motivation Questionnaire**

Reliability Statistics	
Cronbach's Alpha	N of Items
.948	40

(Source: SPSS 20)

Based on table 2 obtained the result of Cronbach's Alpha of 0.948, the value is interpreted according to the criteria of the reliability coefficient level. Thus, it can be concluded that the reliability test results of instruments aimed at measuring the learning motivation variables of PGSD students of Riau University are said to be very high or very reliable.

### Results Simple Pearson Correlation Test

Data analysis in this study was conducted to determine the magnitude of the effect of free variables, namely the Google Classroom platform on bound variables is learning motivation using a simple Pearson correlation test with the help of SPSS 20. The results of the data analysis using a simple Pearson correlation test can be seen in the table 3.

**Table 3 Pearson Simple Correlation Test Control Class**

Data	Pearson Correlation	Sig. (2-tailed)	N
Pretest Questionnaire	0,781	0,000	38
Posttest Questionnaire	0,781	0,000	38

**\*\*.** Correlation is significant at the 0.01 level (2-tailed).

**Table 4 Pearson Simple Correlation Test Experimental Class**

Data	Pearson Correlation	Sig. (2-tailed)	N
Pretest Questionnaire	0,790	0,000	37
Posttest Questionnaire	0,790	0,000	37

**\*\*.** Correlation is significant at the 0.01 level (2-tailed).

Based on table 3 results of the simple Pearson correlation test from data on the learning motivation questionnaire of PGSD University students. It can be known in the experimental class using the Google Classroom platform and the control class using conventional platforms obtained a simple Pearson

correlation test result with a control class value of 0.781. Table 4 shows that in the experimental class, it was 0.790. Pearson's correlation score analysis results in the experimental class were higher than those of the control class. Then the results of the analysis were interpreted based on a table of criteria for the value of the simple Pearson correlation coefficient, so it can be concluded that the magnitude of the effect of the use of the Google classroom platform (X) in increasing the learning motivation of PGSD students (Y1) has a high category.

### **Results Test Normalized Gain**

The final stage of this study was conducted testing to find out the improvement of learning results from the description test to measure critical thinking skills, using the Normalized Gain test with the help of SPSS 20. The Normalized Gain Test provides an overview of the improvement in results before and after treatment (Sundayana, 2014). The results of data analysis using the normalized Gain test can be seen in the table 5.

**Table 5 Normalized Gain Test Results Control Class and Experimental Class**

Group	Mean	Median	Variance	Std.Deviation
Control	0,4390	0,4737	0,072	0,26777
Eksperimental	0,4881	0,4761	0,035	0,18716

Based on table 5, the gain test results were numbered in the control class obtained an average of 0.4390, while in the experimental class, the results of the acquisition amounted to 0.4881. It can be known that there are differences in the results of acquisitions that indicate that the control class is smaller than the experimental class. Then the results of the analysis are interpreted based on a table of criteria for normalized Gain values, so it can be concluded that the results of the description test between before and after being treated using the Google Classroom platform experience a moderate level, it is seen in the range of criteria for normalized Gain values of  $0.30 < g < 0.70$ .

Thus, the average results of the analysis of the realized Gain test showed an increase in the critical thinking skills of PGSD students of Riau University in the experimental class higher than the control class using conventional platforms. The pretest and posttest results of the description tests used in control classes and experimental classes in data retrieval aim to find out how much google classroom platform (X) uses in improving the critical thinking skills of PGSD students (Y2).

### **Results Test Paired of T-Test Samples**

Research using quantitative methods has a research hypothesis as a temporary answer to a problem that is still presumption; therefore, research is done by collecting then, processing, and analyzing data so that it can be proven the truth of the research hypothesis. To prove the hypothesis, researchers can conduct experiments or experiments; thus, the hypothesis that has been tested for truth will be a theory (Siyoto & Sodik, 2015). The study conducted a hypothesis test using a paired sample t-test. The use of paired sample t-test is done testing two paired samples. Researchers use the paired sample t-test hypothesis test that aims to find out the improvement between the data before and after the treatment. Then the comparative hypothesis testing is carried out.

In this study, the purpose of the hypothesis test was to answer the research problem that whether there is an effect of the google classroom platform on educational innovation courses in improving learning motivation and critical thinking skills. The results of obtaining data using the help of SPSS 20 can be seen in the table 6.

**Tabel 6 Hasil Uji Paired Sample T-Test**

Data	Mean	Std.Deviation	t	df	Sig. (2-tailed)
	Pretest & Posttest				
Learning Motivation	4,17333	5,83876	6,190	74	0,000
	Questionnaire				
	Pretest & Posttest				
Skills Description Test	16,52733	9,10283	15,724	74	0,000
	Critical Thinking				

Based on table 6, this study tested the study's hypothesis using data processing motivation learning questionnaires and critical thinking skills description tests on pretest and posttest in control classes and experimental classes. The paired sample t-test data on learning motivation in pretest and posttest in control classes and experimental classes obtained a t-hitung value of 6,190 while the acquisition of significance (Sig.) amounted to 0.000. In contrast, the results of the analysis of pretest data and posttest test description of critical thinking skills obtained a value of 15,724, while the acquisition of significance (Sig.) 0.000. Then, the acquisition is interpreted that the value of the significance of the learning motivation variable (Sig.)  $0.000 < 0.05$  or at the t-hitung value of 6,190  $>$  to 1,666, indicates the reject  $H_0$ , accept  $H_a$ . Interpretation on the critical thinking skill variable obtained a significance value (Sig.)  $0.000 < 0.05$  or at a t-hitung value of 15,724  $>$  t-table 1.666 indicating the reject  $H_0$ , accept  $H_a$ . So it can be concluded that there is the effect of online learning models in improving learning motivation and critical thinking skills of PGSD students of Riau University.

People's attitudes and ways of thinking have to adapt to the changing times of the modern era. People in the modern era need to be able to use information and communication technology (ICT) because of technological advancements. Internet media is now as important a source of new information for students as traditional textbooks or classroom lectures in the 21st century. As a result, learning innovation is no longer limited to the classroom. Online learning or e-learning is a learning activity that utilizes the network (internet, LAN, WAN) as a method of delivery, interaction, and facilities supported by various other forms of learning services (Atikah et al., 2021). E-learning, also called online (online), becomes an innovation to distribute a good, interactive, and student-centered model.

Google Classroom, a platform for online learning, is one option. It can use teaching and learning more effectively, simplifying tasks, boosting collaboration, and encouraging classroom communication. Classes can be created, assignments assigned, feedback sent, and all of this can be seen in one place by teachers (Atikah et al., 2021). When using the Google Classroom platform, teachers are expected to guide, motivate, and inspire their pupils to learn, while pupils are held to high standards for their work. Students can meet this requirement if they have a consistent or even high level of learning motivation, which encourages them to pay closer attention in class to meet a specific learning objective (Rahmawati, 2013). Learning motivation is the psychological driver that motivates learners to engage in learning activities.

Students who have a high learning motivation will be aware of the demands of the increasingly modern age. This is because students understand that by maintaining and increasing learning motivation, they will positively impact themselves to do learning activities. The development of globalization characterized by openness and free competition is increasingly urgent. To compete in this era of globalization, the ability and competitiveness of reliable human resources is needed. Globalization of the 21st century calls for quality in all human efforts and works. In the 21st century, education is becoming increasingly important to ensure learners have learning and innovating skills, skills using technology and information media, and can work and survive by using skills for life (Wijaya et al., 2016).

Today, education is in a time of knowledge (knowledge age) with an acceleration of extraordinary knowledge improvement. The style of learning activities in the time of knowledge (knowledge age) must be adjusted to the needs of the time of knowledge (knowledge age). Learning materials should

provide a more authentic design to go through challenges where learners can collaborate to create solutions to solve lesson problems. According to Trilling and Hood (Wijaya et al., 2016), problem-solving leads to questions and seeks answers by learners who can then be searched for problem-solving in the context of learning using available information resources.

In educational innovation courses, students' critical thinking skills are honed by studying real-world problems that arise in education. A problem-based learning approach is used to facilitate student-centered instruction. As a result, the issues discovered necessitate creative problem-solving to be resolved. The need for educational innovation is critical in today's world if we improve the standard of education for all students. Students who want to become teachers need to be equipped with research and problem-solving results from their studies. Susanti & Kridiana (2021) claim that encouraging students to solve problems that arise from sharing relevant and accurate sources will improve their critical thinking skills.

Significant influence on the learning motivation of PGSD students of Riau University is influenced by various efforts made during the online learning process using the google classroom platform, among others: providing motivation to increase student learning interest, providing guidance to students in achieving success one of them by studying seriously, providing opportunities for students to express their opinions on various problems, providing Verbal reinforcement with praise for opinions expressed by students based on perspectives that previously students read various relevant reference sources.

While using the Google Classroom platform for their online learning, Riau University PGSD students' critical thinking skills have improved as a result of the following strategies: materials covered during courses on educational innovation, which began by discussing various issues in the field of education, student task sheets (LTM), and instruction based on operational verbs (KKO) on C4. Courses in educational innovation, designed to keep pace with the changing needs of students in an increasingly modern world, further the goal of developing students' critical thinking abilities. Because of this, students must be able to utilize information and communication technology (ICT) effectively. According to (Salim et al., 2020), the development of technology and information has brought students as the current generation to enter the world of digital literacy. This is because ICT is one of the innovations in the world of education.

Effective decision-making requires students to be capable of critical thinking, which is a skill that can be learned. As future classroom teachers, PGSD students should be equipped with critical thinking skills so that they can find innovative solutions to problems that arise in the field of education. In addition, students benefit from the use of Google Classroom (Khairani et al., 2020). In google, classroom-assisted learning, students can actively engage in discussion activities, develop ideas, enrich materials, get used to completing quizzes, improve their problem-solving skills, find alternative ways to solve problems, and associate the material with the constructs around it.

#### 4. CONCLUSION

We can infer from data analysis and other studies that the Google Classroom platform positively impacts Riau University PGSD students' motivation to learn, as evidenced by the experimental group's Pearson correlation test scores, which were 0.790% higher than those of the control group. Thus, based on the average analysis of the realized Gain test results, the effect of Google Classroom on educational innovation courses in improving the critical thinking skills of PGSD students at Riau University was moderate, as judged by the average results of the analysis. Testing the hypothesis that the paired sample t-test data on learning motivation questionnaires obtained significance (Sig.) 0.000 from the results of the pre-and posttests in control and experimental classes was the final stage of testing the hypothesis. Pre- and post-test analyses of critical thinking skills in both control classes and experimental classes yielded significance (Sig.) 0.000 as the only significant result. The significance value of the learning motivation variable (Sig.) 0.000 0.05 indicates the rejection of hypothesis H0 and acceptance of hypothesis Ha. So it can be concluded that online learning models positively affect PGSD students' motivation and critical thinking abilities.



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