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## Google classroom implementation in Indonesian higher education

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**Abstract.** This study aims to: (1) See student learning independence through the application of Google Classroom and (2) View Critical Thinking of students through the application of Google Classroom. This research is a qualitative descriptive study conducted on students of the Department of Geography Education, Faculty Social Sciences, Universitas Negeri Medan taking courses in Meteorology and Climatology in the odd semester of the 2017/2018 Academic Year. The population of this study were 82 students consisting of 3 classes. The sampling technique in this study is total sampling by taking the entire population into a research sample. The results showed that the use of Google Classroom in learning made it easier for lecturers and students to manage lectures, especially in terms of task management. After applying the learning media in the form of Google Classroom, the results of student learning independence were significant, this was evidenced by the majority of students having high learning independence. While the ability to think critically is the most accumulated students in the ability to think critically medium level.

### 1. Introduction

The development of learning is now progressing. It is based on the fact that the information and communication technology in its development has affected the world of education. Increasingly felt in line with the shift in learning patterns from face to face towards more open education by utilizing information and communication technology as learning media and meeting their needs for almost unlimited information. Then there is innovation in the form of technology-based learning models [1]. The development of these technologies can be maximally utilized by students in the learning process, especially in the implementation of problem-based learning [2]. Today's technology literacy can be seen with the emergence of blended learning as part of the learning process [3]. Blended learning is combining face-to-face learning and utilization of internet network resources as learning supplements [4]. The use of this method is relatively new in the world of education.

Learning materials from various easily accessible sources make it easy for students to plan and implement learning. Using learning by collaborating face-to-face learning with distance learning can increase student learning time [5]. Another advantage gained is that it is easy for teachers to evaluate every activity that has been done by students in monitoring activities in order to solve problems and make learning more effective and efficient.

Collaborative learning between face to face with distance through the use of certain media precisely takes place more meaningfully because the learning material provided is designed in such a way that

students understand it more easily [5]. The implementation of this learning is not only in the face-to-face process, but also in the face-to-face activities that have internet access. This provides benefits for students to repeat or ask questions about unclear material. Through that, students are expected to be able to understand the material better and more actively in learning, so as to improve student learning outcomes.

Current learning, more directed at modernization activities with the help of advanced technology in the hope of helping students in learning lessons in an interactive, productive, effective, inspiring, constructive, and fun. A variety of fast-growing electronic information sources are often seen as a significant opportunity for change in education, with a shift towards increasing student independence in learning [6]. In addition, students are also expected to have life skills from the application of the technology. Indeed, learning by using technology provides opportunities and opportunities for teachers to be able to prove and develop their competencies, especially paedagogic and professional competencies. The use of technology in learning is assumed and is expected to be a solution in overcoming the problems of classroom learning caused by the lack of optimal role of lecturers/teachers in utilizing the use of technology in the world of education.

The survey results show that nearly 55 percent of all institutions offer at least one blended course while 64 percent offer at least one online course [7]. One of the things that can be utilized by education, especially lecturers in carrying out the learning process is by utilizing the Google Classroom application [8]. Google Classroom is considered as one of the best platforms out there for enhancing teachers' workflow [9]. Google classroom allows teachers to spend more time with their students and less time on the paperwork, and it is now even better [10]. This application is a learning support application created by Google but is still rarely even known by most educators in Indonesia. This application service is assumed to be an alternative in answering problems and challenges in classroom learning [11]. This application will make it easier for lecturers to organize six (6) assignments mandated in the KKNI (Indonesian National Qualifications Framework)-oriented curriculum, process student grades, open discussion forums both classical and individual remotely. So that the intensity of the teaching and learning process is no longer bound to the allocation of face-to-face time. Besides time efficiency, this application also excels in terms of cost efficiency because this application allows students to reduce paper usage because all assignments are uploaded into google classroom.

Critical thinking is a process of intellectual discipline that is active and skilled in conceptualizing, applying, analyzing, synthesizing, and / or evaluating information gathered from, or produced by, observation, experience, reflection, reasoning, or communication, as a guide to beliefs and actions [12]. Critical thinking is a life skill, not a hobby in the academic field. Critical thinking is a hobby of thinking that can be developed by everyone, so this hobby must be taught in elementary, middle and high school [13].

Google Classroom application is interesting by researcher considering (1) this media allows various alternative learning resources for students outside of the material that has been given by the lecturer through the use of information technology and can be used to support the lack of traditional learning, (2) the campus already has a network WiFi is evenly distributed in each faculty that can be used by all parties in the campus, it can be lecturers, students or staff, (3) many students who have brought laptops to support teaching and learning activities as well as completing assignments on campus, (4) ease of using Google Classroom that can be used on laptops, computers, and Android-based mobile devices that are mostly owned by students and lecturers. The above considerations show that there is technical support available to bridge the implementation of learning by applying the Google Classroom application media, while consideration number 1 above is expected to be one of the means of triggering students' learning independence and critical thinking.

## 2. Methods

This research used qualitative data that will be analyzed through descriptive techniques. The research was conducted on students of Department of Geography Education, Faculty of Social Sciences, Universitas Negeri Medan who take the course of Meteorology and Climatology in odd semester of

2017/2018 academic year. The study population was 86 students consisting of 3 classes. The sampling technique in this study is total sampling by taking the entire population into a research sample.

Six indicators of learning independence are [14]: (1) Dependence on others, (2) Have self-confidence, (3) Be disciplined, (4) Have a sense of responsibility, (5) Be based on own initiative, and (6) Conduct self-control. Following are the lattice instruments for student learning independence. The critical thinking assessment instrument was developed from the critical thinking indicator [15], namely: (1) Provide elementary clarification, (2) Building basic skills/basic support, (3) Conclusion/inference, (4) Make an explanation/advance clarification, and (5) Strategy and tactics.

### 3. Result and Discussion

#### 3.1. Google Classroom Implementation

Implementation of the KKNI Curriculum (Indonesian National Qualifications Framework) in the Universitas Negeri Medan in 2016 which aims to improve the relevance and competitiveness of graduates has mandated 6 (six) forms of assignment in each course, including: routine assignments, Critical Book Report (CBR), Critical Journal/Research Review (CJR), Construction of Idea, Mini Research, and Project. With increasing assignments in each lecture, lecturers are required to be able to arrange each lecture document starting from the learning plan, lecture contract, assignment guide, assessment format, and so on. The application of Google Classroom in Meteorology & Climatology courses at the Department of Geography Education is deemed necessary to regulate the lecture system. The existing system has encountered many shortcomings, especially in terms of task management.

In the early stages of 2014-2016 the development of Google Classroom was not intended for everyone, only institutions that collaborate with Google, but in March 2017 Google Classroom was accessible to all people using personal Google account. It can be used by lecturers and students in learning, so there is no need for collaboration with Google.

The first step in the Google Classroom application in Meteorology and Climatology course is to create a Google account. When using of the previous course, we still use the the institution email account ([rikirahmad@unimed.ac.id](mailto:rikirahmad@unimed.ac.id)) that has been synchronized with Google Apps. The advantage is that Google provides 30 Gigabytes of storage space/Google Drive which is twice as large as the regular Google storage space of only 15 Gigabytes. After lecturers and students have a Google account, each of them can access Google Classroom through computers, tablets, and smartphones which almost all of which are owned by students.

Lecturers are in charge of creating classes by taking the *create class* feature in the Google Classroom start menu, while students enter the *join a class* menu and enter a code that can only be obtained through lecturers. There are three classes that apply the use of Google Classroom in Meteorology & Climatology course, namely Class A, Class B, and Class D Year 2017.



Figure 1. Display of Google Classroom Class A Meteorology & Climatology Course

Lecturers can see all student activities during learning at Google Classroom. The interaction between lecturers and students is well recorded. The features used in Google Classroom in Meteorology and Climatology course are assignments, grading, communication, time-cost saving, achieve course, and privacy.

Unlike Google's customer service, Google Classroom as part of *G Suite for Education* does not display any ads in the interface for students, faculty, and lecturers, and user data is not scanned or used for advertising purposes. All of these features have been applied and used by lecturers during learning in the Meteorology and Climatology course for one semester. Lecturers can easily learn usage by learning independently by looking at *Google Support* on Google Classroom. Access and usage methods are distinguished based on the platforms used such as computers, Android and iOS based mobile phones. Besides going through *Google Support*, you can go through the YouTube channel about Google Classroom. Basically the initial stage is done by *logging* in using the *G Suite for Education* or google personal/google email account.

### 3.2. Learning Independence

Learning independence in Meteorology and Climatology course is quite diverse ranging from low, medium and high categories. The accumulation of classes learning independence can be seen in the following Table 1:

**Table 1.** Student Learning Independence Scores

No.	Category	Classes			Total	Percentage (%)
		A	B	D		
1	Low	3	5	3	11	12,79
2	Medium	7	4	7	18	20,93
3	High	19	21	17	57	66,28
<b>Amount</b>					<b>86</b>	<b>100</b>

From the table above it can be described that 11 students or 12.79% are classified as low in learning independence, 20.93% or as many as 18 students of learning independence are classified as moderate, and as much as 66.28% or as many as 57 students of learning independence are relatively high. Whereas if we analyze further, then from the 15 statements that identify the independence of learning, it turns out that the most common problem is the distrust of students to express opinions that are different from their peers and lack of initiative in expressing their opinions. This is evidenced during the discussion that most students tend to be passive, they only ask or express opinions if they have been appointed first. In addition, lack of confidence is reflected in some of the tasks they have done on Google Classroom. When they are required to analyze a problem or answer questions in their own language, they tend to with a language that tends to be theoretical. Lack of confidence in expressing this opinion affects the learning process in the classroom. Students tend to be shy and passive in discussing directly or remotely via Google Classroom. It can be concluded that after applying the learning media in the form of Google Classroom, the results of student learning independence were quite significant, this was evidenced by the majority (66%) of students had high learning independence.

### 3.3. Critical Thinking

Critical thinking is one of the thinking skills that must be possessed by a student. This is in line with the curriculum demands that the output of higher education should reach level six (6) which has advanced thinking skills and good analysis. This critical thinking can not be created spontaneously, there needs to be a continuous stimulus to hone this ability. In Meteorology and Climatology course, study habits and assignments are designed in depth to shape this thinking ability.

Through continuous observation in 12 meetings, the average student learning independence varies from each class. The following is described the distribution of students' critical thinking abilities from the three classes. In general, students' critical thinking skills in every classes can be seen in Table 2.

**Table 2.** Critical Thinking Ability of Classes 2017/2018 Academic Year

No.	Category	Classes				Percentage (%)	
		A	B	D	Total		
1	Low	7	6	5	18	20.93	
2	Medium	18	16	16	50	58.14	
3	High	4	8	6	18	20.93	
<b>Amount</b>						<b>86</b>	<b>100</b>

Source: Primary data processing, 2017

From the table above illustrated that most students have the ability to think critically in the medium category that is equal to 58.14%, while students with the highest and low thinking ability are only around 20.93%.

Judging from the distribution of scores on each critical thinking item, it can be analyzed that the biggest weakness of: 1) class A in critical thinking is the lack of ability to focus questions. While the most important aspect of critical thinking in this class is the ability of all class members to identify assumptions or opinions well; 2) class B shows that the lowest score is 80 in the aspect of interaction with others, and the highest score is 91 in the ability to make conclusions in deduction sentences. This means that in this class, the ability to think critically in developing strategies to interact with peers and lecturers still needs to be improved, and the ability to draw conclusions from general concepts and specifically elaborated is good enough; 3) in Class D, the lowest score was 76 in the skill of identifying credible learning resources and the ability to integrate with others. Furthermore, this proves that the ability to critically think students in choosing learning resources is still low, as evidenced by some students including a list of rudimentary references, not choosing a trusted reference and often found quotes on the contents of the report is not relevant to the reading list listed in the reference list. The highest score is 93, namely in the aspect of ability to identify assumptions/opinions that come out of context/theory or relevant to the context/theory.

#### 4. Conclusions

The results of student learning independence through the application of Google Classroom in the Meteorology and Climatology course of the 2017/2018 Academic Year are categorized as high. The ability of Critical thinking of students through the application of Google Classroom in the Meteorology and Climatology course of the 2017/2018 Academic Year accumulates in the ability to moderate critical thinking. Student responses to the use of Google Classroom in the Meteorology and Climatology course of the 2017/2018 Academic Year are generally good.

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