

BLOG-GOTHIC AS AN INTERACTIVE LEARNING MEDIA IN ANALYTICAL GEOMETRY COURSE

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Abstract

This study aims to determine (1) how the application of Blog-Gothic as an interactive learning media in Analytical Geometry course (2) the response of students to the use of Blog-Gothic as an interactive learning media in the course of Analytical Geometry. This blog utilization is expected to produce a significant influence, which is in addition to aiming to improve student learning outcomes, it is also expected to help students wisely utilize the internet to find material lectures, discuss difficulties in certain subjects and increase creativity in writing. In addition, lecturers are also easier to monitor the progress of their students through their Blogs or by visiting student Blogs. It is also expected to be able to overcome the diversity of the ability to ask and argue and also can be a solution to the lack of face-to-face hours of lectures. This research is a quantitative research with the use of quasi-experimental or quasi-experimental. Subjects are given an initial test and then given Blog-based learning and then given a final test to find out the improvement in learning outcomes. Observations, questionnaires and interviews were conducted to obtain student response data on Blog-Gothic usage.

Keywords: Analytical Geometry; Blog-Gothic; Interactive Learning Media

INTRODUCTION

In accordance with Law No.14 of 2015 concerning teachers and lecturers, it is explained that teachers must have competencies which include: 1) pedagogic competence 2) professional competence 3) social competence and 4) personality competence. What is meant by professional competence here is related to how they are able to master and develop material in accordance with the field of science being taught and can utilize advances in Technology, Information, and Communication (ICT) as a communication medium that supports teaching and learning activities. Therefore, they must be able to answer the two main challenges at this time, namely changes in perceptions of learning itself and the challenges of advancing information and telecommunications technology that are developing so rapidly (Kristiyanti, 2011).

In general, students have the ability to ask questions and argue differently. Still based on the experience of researchers, that students who are able to respond or provide solutions to a given problem are few. This is due to the lack of media to express themselves in asking freely without feeling ashamed and the limitations of face-to-face hours. So we need a media that allows students to participate actively freely that can be accessed outside of lecture hours. Based on the experience of researchers, the mastery of mathematics teacher candidates' reasoning in the place of researcher's teaching is still relatively low. One of them is related to Analytic Geometry courses on the subject of lines and spatial fields (three dimensions). There are still many students who have difficulty abstracting points or lines in the third dimension so that students' critical thinking skills are still relatively low.

According to Imswatama & Nur'aini (2015), the difficulties in the course of analytic geometry generally include the following 3 things:

1. Difficulty understanding concepts, namely difficulties that occur when students make mistakes in answering questions related to geometrical concepts
2. Difficulty understanding principles, namely difficulties that occur when students make mistakes in the use of formulas and theorems, or students know about the formula but they are wrong in the process.
3. Difficulties in conducting algebraic operations are difficulties that occur when students make mistakes in the algebraic calculation process.

Meanwhile, according to Junaedi (2012), students have difficulty in making reasoning and completion procedures correctly and logically. This results in student work or student writing in answering questions that cannot be understood by readers or assessors.

Based on the results of observations and interviews with several students, it was revealed that the factors underlying their lack of reasoning ability were due to low basic concepts. This is because the emphasis of learning while still in high school only emphasizes the ability to work on the problem, so it does not provide opportunities for students to build their own knowledge.

According Arsyad (2010: 248) learning media is an intermediary in the form of learning resources or physical vehicles that contain instructional material that can be used by students to support learning activities. Arsyad further explained that learning media can

clarify the presentation of messages and information so as to facilitate and improve learning processes and outcomes. One of these media can be represented by a Blog which is an alternative media for learning through the internet or a medium of interaction between students and lecturers. This media is also very effective in overcoming the problem of limited face-to-face hours during lectures and of course utilizing the advances in communication and information technology that is developing today.

Blog is the largest library in the world, because blogs can function as a source of learning and at the same time learning media for students. However, there are still few educators who use and forgive blogs as learning media and media as well as learning resources (Nugroho, 2017). The use of Blog as a learning medium as well as a learning resource will at least change the way learning and learning techniques are not monotonous so that it can motivate students to learn something and be free. Blogs also have a function as a medium of interaction and discussion between teachers and students, students with students, instructors with other teachers, and learners of a place with other students and so on. This is in accordance with the opinion of Huette (2006: 5) describing the advantages of using blogs in classrooms, among others: 1) can promote critical and analytical thinking, 2) can encourage creative, intuitive and associational thinking, 3) can encourage analogical thinking, 4) potential for increased access and exposure to quality information, and 5) a combination of solidarity and social interactions.

Problems that often arise with regard to the use of learning media are their availability and utilization. Therefore the author tries to see how far the availability and utilization of the

internet by UNIRA students by using a questionnaire. The questionnaire was given to University of Madura (UNIRA) Mathematics Education majoring students, totaling 136 students from a total of 156 students. Based on the results of a questionnaire given to Madura University mathematics education students, data was obtained as shown in the Table 1 below:

Table 1. The results of a questionnaire

No	Question	Answer	Answer (%)
1	How often do you use the internet?	Everyday	72,06
		Once a week	18,38
		Once a month	6,62
		Etc	2,94
2	Related to what activities you do most often when using the internet	Social Media (Facebook, Instagram, Twitter)	49,26
		Chat (BBM, Line, WA)	55,88
		Googling Learning material	5,88
		Lain-lain	3,68
3	How often do your lecturers use the internet to support learning activities Teach	Very Often	1,47
		Often	29,41
		Seldom	65,44
		Never	0
			21,3

	What is most often related to ?	Send assignments via email	2
		Looking for resources lecture	78,68
4	Do you Know what is "blog"?	Yes	71,32
		No	28,68
5	Do you have a blog	Yes	6,62
		No	93,38
6	Have your lecturers ever used blogs as learning media	Ever	0
		Never	100

Based on these data, the availability of internet networks among students is still not optimally utilized to support teaching and learning activities at University of Madura. So this attracted the attention of researchers to design a learning media using a *Blog - Gothic* (Blog Geometry Analitic) as a learning center which contained lecture plans, teaching materials, assignments, reference links, videos and discussion material in the course of analytic geometry. In addition, lecturer and student blogs can also interact with each other. Students are required to have their own blogs, as a means to do the tasks given by the lecturer. After all students have a blog, a community of student bloggers (*Gothic Community*) is created that allows interaction and communication between lecturers and students from various universities can be

incorporated in the student blogger community.

The use of Blogs that is done in order to improve student learning outcomes is expected to produce a significant influence. Addition to aims to improve student learning outcomes, as well as to be able to use the internet to find lectures, discuss anything in certain subjects and increase creativity in writing. In addition, the lecturer is also easier to monitor the development of their students through their Blog or by visiting the Student Blog. Based on this background, the author is interested in conducting research entitled "*Blog-Gothic* as an Interactive Learning Media in Analytical Geometry Courses".

Blog-Gothic (Analytic Geometry Blog) as a learning center designed in it will contain lecture plans, teaching materials, assignments, reference links, videos and discussion material. Blog features are interrelated and supportive in this media, namely the *Post* that will describe the contents of the Blog, *Comments* are facilities that provide an opportunity for question and answer between students or students and lecturers to improve understanding of the material being discussed, *Link* to each other share website addresses about reference material for lectures, *Blogroll* which is a collection of links or blogs that are frequently visited, *Sidebar*, and *Syndication*.

In addition, lecturer and student Blogs can also interact with each other. Students are required to have their own blogs, as a means to do the tasks given by the lecturer. This method can spur the climate of competition among students, because of course they want their blog to be the best. After all students have a *Blog*, a community of student bloggers is created namely *Gothic Community*. There is a Blog, namely *Blog - Gothic* itself as the center of the learning in the

form of *Aggregator Blog* or blog with several contributors with lecturers and students from various universities can be incorporated in the student Blogger community.

RESEARCH METHODS

According to the title of the research, this study includes quantitative research with a descriptive approach. Quantitative research methods can be interpreted as a research method based on the philosophy of positivism, used to examine a particular population or sample sampling is generally done randomly, data collection using research instruments, data analysis is quantitative / statistical with the aim to test the hypothesis set (Moleong, 2014: 24). While descriptive research is research intended to investigate the circumstances, conditions, situations, events, activities, etc., and the results are presented in the form of research reports (Arikunto, 2010: 3). This study is intended to obtain a deep and detailed picture of the phenomena that occur in the object of research regarding the use of *Blog-Gothic* as an interactive learning media in Analytical geometry courses. The research subjects in this study were students who took Analytical Geometry courses in Even Semester Academic Year 2017/2018 Class A. The number of subjects was 9 students. Place for conducting research activities in the Mathematics education study program of University of Madura. The research instruments used in this study were tests, observation sheets and student response questionnaires. In this study, observations were made by the author through *Blog-Gothic*. While the questionnaire was given to determine the response of students to the use of *Blog-Gothic* as an interactive learning medium in Analytical Geometry courses.

To obtain data in accordance with the feasibility of a Blog application in analyzing Analytical Geometry, descriptive data analysis was used by calculating Student Response Analysis Students' responses to the use of Blogs in analyzing Geometry learning using the formula:

$$R_i = \frac{s_i}{n} \times 100\%$$

Information:

R_i : Percentage of students who answered "yes"

s_i : Total students who say "yes"

n : Total of students

Student response categories:

- Student responses are considered positive if the average percentage of student answers $\geq 60\%$
- Student responses are considered negative if the average percentage of student answers $< 60\%$

Analysis of student learning outcomes completeness

Completeness of student learning outcomes can be seen from the results of the final score obtained by students that are carried out after the learning activities take place. Students are said to have completed their learning if they get a minimum grade of 70. A class is said to be complete if the class is 85% (Suryosubroto, 2009: 64) students have achieved completeness that can be searched using the formula:

Completeness of learning calcically

$$= \frac{\sum x}{\sum N} \times 100\%$$

Information : $\sum x$: The number of students who complete their study individually

$\sum N$: Number of students in one class

RESULT AND DISCUSSION

1. Result

This study aims to determine whether the use of *Blog-Gothic* can improve student learning outcomes in Analytical Geometry courses. The student learning outcomes in Analytical Geometry lectures are as follows:

Table 2. The student learning outcomes in Analytical Geometry lectures

No	Code	Rt	Prts	Uts	Uas	Final Score
1	NWI	71.7	80	75	80	76.8
2	ZII	85.3	90	96	98	93.3
3	MRU	84.0	88	93	90	89.3
4	KMS	69.3	65	60	65	64.4
5	ATH	81.0	85	82	88	84.2
6	ATD	80.3	84	80	80	80.9
7	STM	77.7	80	75	85	79.5
8	FRM	82.0	88	85	95	88.0
9	SNL	73.3	70	80	75	75.2

Information:

Rt : The average of task score

Prts : Participation

UTS : Mid Test

UAS : Final Test

The value of student participation is obtained from the activeness of students in the class and in the *Gothic Community* group. It can be seen in the table above that the high value of student participation is comparable to the final grades obtained by students.

Students who complete individual study are 8 people, while students who do not complete individual learning are 1 person. So that it can be calculated for classical learning completeness as follows:

Classical learning outcomes completeness: $= \frac{8}{9} \times 100\% = 88,89\%$

Because the percentage of achievement is classical $88.89\% > 85\%$, hence the use of *Blog Gothic* on Analytical Geometry learning is good to use.

Student responses to the use of *Blog Gothic* on Analytical Geometry learning at University of Madura Class A in 2015 Academic Year 2017-2018 can be categorized as positive, because students who say "yes" to the questionnaire given are 88.89 %

2. Discussion

a. *Blog Gothic*

Making a *Blog Gothic* prepared as a learning medium in the course of Analytical Geometry which is a learning center that contains teaching materials, assignments, reference links, videos and discussion material. Blog features are interrelated and supportive in this media, namely the *Post* that describes the contents of the Blog, *Comments* are facilities that provide opportunities for question and answer between students or students and lecturers to improve understanding of the material being discussed, Link to share website address about lecture reference material. Here is the home view of the *Blog-Gothic*



Figure 1. home view of the *Blog-Gothic*

Students can access *Blog-Gothic* wherever they are even outside of lecture hours, whether through their mobile phones or PCs and of course have the opportunity to share information, both on the *Blog-Gothic* and on their respective Blogs. It is also expected to be able to overcome the diversity of the ability to ask and argue and be a solution to the lack of face-to-face hours of lectures.

b. *Gothic Community*

The group was created on March 5, 2018 by the researcher, followed by inviting all students of the Analytical Geometry course of the 2015 Class A Mathematics Education major in Class A as many as 9 students. The first post was made on March 7, 2017 which began with discussing the task of creating a personal blog. The following is a picture of the *Gothic community* on *Blog-Gothic*

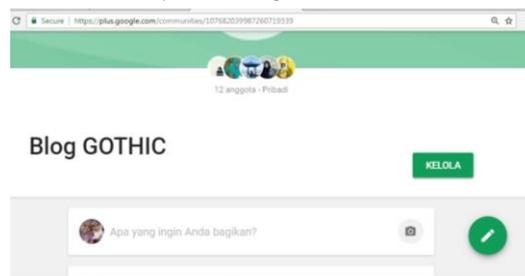


Figure 2. Picture of the “Gothic community” on *Blog-Gothic*

On the page of the Gothic community, every member of the community has the facility to share information and to discuss all matters related to Analytical Geometry lectures. Some students directly utilize the group to convey their difficulties in a problem. Seeing the response so quickly from some students, indicating that there is enthusiasm in sharing information or asking questions and responding to each other, between students and

lecturers. The following is a picture of student and lecturer discussion activities

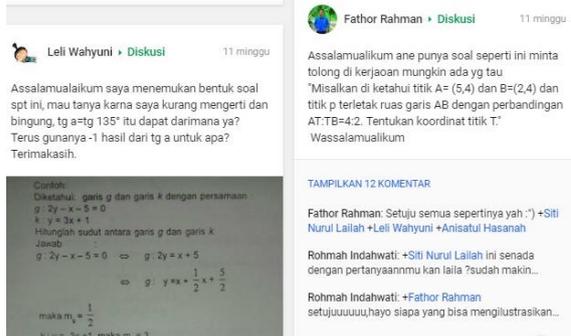


Figure 3. picture of student and lecturer discussion activities

The picture above is a screenshot that shows how communication is done by students. In addition, researchers also respond to discussions conducted by students, as seen in the picture below:

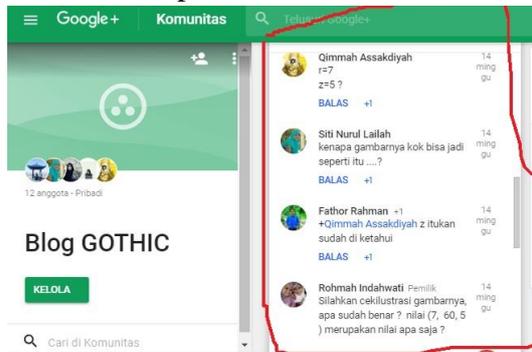


Figure 4. The respond of researchers to discussions conducted by students

Based on the conversation in the screenshot results above it can be seen that students begin to dare to respond without fear of being wrong with the questions posed by their friends.

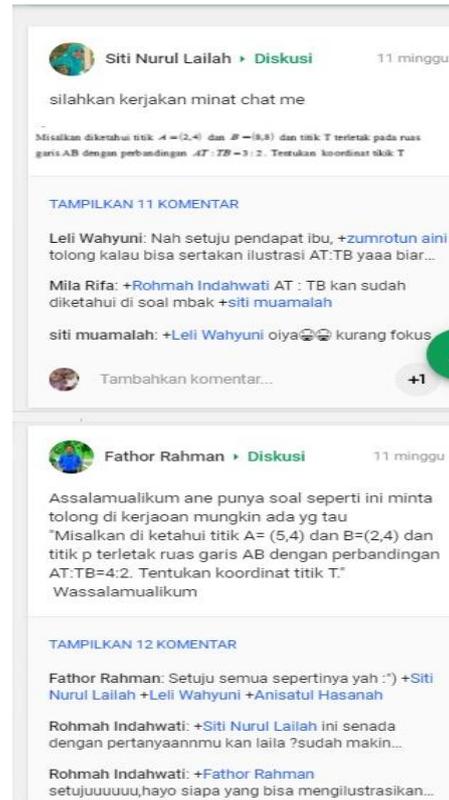


Figure 5. The conversation of students

c. Student Personal Blog

The purpose of creating a *Blog-Gothic* in the form of media, in addition to learning media is to train students in developing their writing skills, especially in geometry courses. Students are required to have their own blogs, as a means to do the tasks given by the lecturer. This method can spur the climate of competition among students, because of course they want their blog to be the best. After all students have a Blog, a community of student bloggers is created. There is a Blog, namely *Blog-Gothic* itself as a learning center.



Figure 6. One of the student's blog

Here are some student personal blogs, in the picture above it appears that students are distributing posters about summary material to make it easier to remember the definitions and parabola formulas. In addition, students also do the tasks given by uploading them on their blog, as in the following picture



Figure 7. Another student's blog that uploading the task

The interest and enthusiasm of students learning with blogs turned out to be quite good. This was their first experience, seeing that there were no E-Learning lessons from other lecturers before. So that it becomes a new innovation in mathematics learning at Madura University. Besides they can use the internet to support learning activities that can be accessed wherever and whenever, also invite them to practice to write.

CONCLUSION AND SUGGESTION

From the results of research that has been done at University of Madura and the results of data analysis, it can be concluded in this study as follows:

1. Students who complete learning individually are 8 people, while students who do not complete individual learning are 1 person. Because individually students achieve minimum learning completeness standards by obtaining grades ≥ 70 as many as 8 students from 9 students and classical acquired 88.89% completeness, so the use of Gothic Blog on Analytical Geometry learning is good to use.
2. The response of students to the use of *Blog-Gothic* on the learning of Analytical Geometry at University of Madura Class A in 2015 Academic Year 2017-2018 can be categorized as positive, because students who say "yes" to the questionnaire given are 88,89%.

Based on the conclusions above, the writer can write some suggestions, namely:

1. Lecturers should familiarize students with mutual discussion not only in class but also outside lecture hours. In addition, the media should be used as a tool to support teaching and learning activities
2. In addition to the various questionnaires with "yes" and "no" answers, there are also two description questions related to constraints and suggestions when using the Blog, the majority of obstacles faced by students are signals that are not too supportive in the learning process through media blogs, quota limitations the internet is another obstacle for students to

- open the Blog application. Therefore, when we want to use a blog as a learning medium, the internet network must be adequate
3. The next expectation for other lecturers to develop learning is not limited to blogs but should be based on E-Learning which is more powerful.

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