

## ***Edmodo-Based Mathematical Learning Analysis***

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### ***Abstract***

The number of students who do not participate in the online mathematics learning process makes it difficult for teachers to control students and it is also difficult to create discipline. This study aims to describe: planning, implementation, evaluation, the obstacles that hinder the learning of mathematics using Edmodo. The approach and type of research used is a qualitative method with the type of research being grounded theory. The research subjects were teachers and students of class VIII SMP N 7 Sungai Penuh. Data collection techniques using observation, interviews and documentation. The data obtained were analyzed through data reduction, data display, and drawing conclusions. The results of this study are 1) the planning of the use of media was successfully implemented by the teacher, 2) the implementation of the use of the Edmodo learning media was coherent starting from the preliminary stage, the core stage and the closing stage, 3) the evaluation was carried out to the maximum, because the teacher could monitor student performance in the learning process through edmodo media during the learning process takes place and students are also on time in collecting assignments, there are even no more students who do not collect assignments, 4) and the obstacles that hinder e-learning learning using edmodo in learning mathematics, such as the internet network and also the lack of supervision from parents of students.

***Keywords:*** *Mathematics Learning; Edmodo.*

### **Abstrak**

Banyaknya siswa yang tidak berpartisipasi dalam proses pembelajaran matematika secara daring menyebabkan guru sulit untuk mengontrol siswa dan juga sulit untuk menciptakan kedisiplinan. Penelitian ini bertujuan untuk mendeskripsikan: perencanaan, pelaksanaan, evaluasi, kendala-kendala yang menghambat pembelajaran matematika menggunakan Edmodo. Pendekatan dan jenis penelitian yang digunakan adalah metode kualitatif dengan jenis penelitiannya *grounded theory*. Subjek penelitian adalah guru dan siswa kelas VIII SMP N 7 Sungai Penuh. Teknik pengumpulan data menggunakan observasi, wawancara dan dokumentasi. Data yang diperoleh dianalisis melalui reduksi data, penyajian (*display*) data, dan penarikan kesimpulan. Hasil penelitian ini yaitu 1) perencanaan penggunaan media berhasil dilaksanakan oleh guru, 2) pelaksanaan penggunaan media pembelajaran edmodo sudah runtut mulai dari tahapan pendahuluan, tahap inti dan tahap penutup, 3) evaluasi dilaksanakan dengan maksimal, karena guru bisa memantau kinerja siswa

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dalam proses pembelajaran melalui media edmodo selama proses pembelajaran berlangsung dan siswa juga tepat waktu dalam mengumpulkan tugas, bahkan tidak ada lagi siswa yang tidak mengumpulkan tugas, 4) dan kendala-kendala yang menghambat pembelajaran *e-learning* menggunakan edmodo dalam pembelajaran matematika yaitu seperti jaringan internet dan juga kurangnya pengawasan dari orang tua siswa.

**Kata Kunci:** Pembelajaran Matematika; Edmodo.

## INTRODUCTION

Electronic learning or online learning called E-Learning is formal and non-formal learning that is carried out by utilizing technology, so that students and teachers carry out the teaching and learning process using electronic media (Yulia, 2016). E-Learning is carried out online, students and teachers can access it anywhere and anytime. E-Learning that often exists is usually in the form of online courses, online seminars, and so on. Generally, E-Learning is done through a web-based internet intermediary, all materials, quizzes and teaching materials can be accessed on the web. The existing material can be in the form of text formatted into a pdf file form, in the form of sound, some are in the form of YouTube streams (Yulia, Febriza, E & Erita, 2021). One form of e-learning is Edmodo-based learning.

Edmodo is a social media that supports learning, with a look almost similar to Facebook (Hadi & Rulviana, 2018). Edmodo is a testament to the rapid development of existing internet technology. Edmodo is a social media for teachers and students or lecturers and students that serves to share ideas on the agenda of activities and assignments that can create interaction between teachers and students, so that edmodo allows it to be applied as a learning medium (Vera, Yulia, & Rusliah, 2021). According to Wardani (2017) there are several advantages of Edmodo, namely: User Interface: Adapting a facebook-like appearance simply; Compatibility: Edmodo supports previewing different types of file formats; The Edmodo application can not only be accessed using a PC (laptop/desktop) but can also be accessed using gadgets based on Android OS.

Based on the results of preliminary observations at SMP N 7 Sungai Penuh City, information was obtained that the online learning process using WhatsApp

media has not obtained maximum results and many students are late in collecting assignments and some are even not collecting assignments. The learning process has not obtained maximum results. Where students still have difficulty in answering the questions given by the teacher. To make it known from the questions can already be done by students, but to parse the answers from entering numbers based on the formula studied is still not done correctly. One of them is due to the lack of enthusiasm of students in the mathematics learning process, then many students are not active in the mathematics learning process, and there is no question and answer process between students and their teachers.

Many students do not collect assignments, because students do not understand the material provided by the teacher through the WhatsApp media which results in students being less enthusiastic in the process of learning mathematics. Therefore, in the implementation of e-learning, a medium or better known as a platform that is classified as the latest, follows technological developments and can also make students more interested in mathematics learning processes in particular. One of the platforms used in the e-learning learning process at SMP N 7 Sungai Penuh City is Edmodo.

Edmodo is a social media that supports learning, with an appearance similar to Facebook (Hadi & Rulviana, 2018). The Edmodo e-learning application is designed with a design similar to the Facebook social media application, with a series of facilities specifically aimed at advancing the world of education such as profile features, photos and features for storing various documents and photos, so that it becomes a comfortable place for teachers/lecturers and students. students/students to communicate, collaborate and share content (Wardani, 2017).

Edmodo is evidence of the rapid development of existing internet technology. Edmodo is a social media for teachers and students or lecturers and students that functions to share ideas, agenda files, activities and assignments that can create interaction between teachers and students, so that Edmodo allows it to be applied as a learning medium.

The introduction of the Edmodo application is very much needed in the teaching and learning process to expedite the teaching and learning process which

is often hampered due to holidays and the provision of materials, assignments, and announcements that are difficult to do during holidays (Rahayuda, 2019). From the explanation of the definition of Edmodo above, it can be learned that Edmodo is a form of information technology that supports efforts towards 21st century education. So with Edmodo, the teaching and learning process continues even though it is remote.

The purpose of this study is to describe the Edmodo-based mathematics learning plan on number pattern material. Implementation of Edmodo based mathematics learning on number pattern material. Evaluation of Edmodo based mathematics learning on number pattern material. Obstacles that hinder Edmodo based mathematics learning.

## **RESEARCH METHODS**

Analysis of mathematics learning based Edmodo is using research methods. Qualitative research is a research method used to examine the condition of natural objects (Sugiono, 2016). The type of research used in this qualitative research is grounded theory, with an emphasis on mathematics learning based Edmodo. The selection of this method was based on the curiosity of researchers to conduct a more in-depth analysis of mathematics learning based Edmodo. In the end, a new theory can be compiled based on an existing theory that can give a clear picture of mathematics learning based Edmodo. With it, grounded model research moves from data to concept. The data that has been obtained is analyzed into facts, and facts become concepts.

The subjects in this study were students of class VIII SMP Negeri 7 Sungai penuh. In this study the selection of subjects was carried out by means of random sampling. Random sampling is a sampling technique in which all individuals in the population either individually or collectively are given the same opportunity to be selected as members of the sample. Researchers determine the population that will be the target of research. The population used was class VIII which consisted of two locales and each locale consisted of 20 students. Researchers calculate the number of respondents needed. The required number of

respondents is 6 people consisting of 3 students who score above the KKM and 3 students who score below the KKM. Where for the KKM at SMP N 7 Sungai Penuh is 70. So for the respondents there are 3 people who get scores above 70 and 3 people who get scores below 70.

The researcher collected data from the student exercise results sheets, so that the respondents were the subjects of this study. So local students A and local B totaling 40 people were separated which students had completed their grades and which students had not completed their grades. Only then from the scores of students who completed and those who did not complete were randomly selected to get 3 people whose scores were complete and 3 people whose grades were incomplete. So it can be student respondents who serve as subjects in this study.

In this study, primary data was taken directly from SMP Negeri 7 Sungai penuh, through observation, interviews and documentation with the school. The secondary data in this study is the documentation of students' exercise results in learning mathematics. The data collection techniques in this study were observation, interviews and documentation. To test the credibility of the data from the results of data collection from field notes, observations, interviews, and documentation, this study used a triangulation technique with sources.

Triangulation is a technique of checking the validity of data that utilizes something else (Sari & Yulia, 2017). In this study, triangulation was carried out by comparing and checking back the degree of trust from the results of observations, interviews and documentation. The observation results were obtained from the observation sheet, the interview results were obtained from the interview guidelines and the documentation results obtained photos of the students' training results. The strongest data is the data obtained from the results of observations. Qualitative data analysis tends to produce less structured amounts of data compared to quantitative research (Pratiwi Risca Dian, 2017).

## **RESULTS AND DISCUSSION**

### **1. Planning the Use of Edmodo-Based E-Learning Learning Media in Mathematics Learning about Number Pattern Material**

Learning planning is essentially arranged in order to carry out the learning process. Learning planning is a process of determining the program plan of learning activities that will be carried out in an integrated and systematic manner. Learning planning is a task that must be done by a teacher before carrying out learning activities. In the learning planning mentioned in the Ministry of Education and Culture No. 65 of 2013 consists of a Syllabus and RPP which refers to the Content Standards (SI). In this study, we first observed how to plan the design of implementing mathematics learning, especially on the material of number patterns.

At this stage, researchers first observe how the initial Learning Implementation Plan (RPP) appears online. Where at the beginning of entering school, usually RPP must be compiled because RPP is a teacher's teaching device. Nowadays, because online learning is carried out, teachers must re-compile the RPP in a simple form. The Minister of Education and Culture emphasized that the RPP can contain only three core components consisting of learning objectives, learning activities, and assessment. In the learning objectives, it is explained how to identify the material, explain the material, and understand the material. Then in the learning activities, it is divided into introductions, core activities, and closing. Furthermore, the assessment contains an assessment of attitudes, knowledge and skills.

In the preparation of the design of learning implementation requires cooperation between teachers. First, all teachers hold meetings regarding the curriculum used, then set the Minimum Completion Criteria (KKM) for each subject, one of which is mathematics, and set the hours of each subject per week. From the meeting, it was found that the curriculum decision used was the 2013 curriculum, and for KKM mathematics subjects were 70. For the implementation time of the learning process, it is carried out with a time of 2x45 minutes. Furthermore, the preparation of the RPP is handed over to the

teachers of each subject for each class. RPP class VIII SMP N 7 Sungai Penuh is compiled by a teacher of mathematics subjects. In line with what the principal said regarding the preparation of the design for the implementation of online learning, that in the preparation of the design for the implementation of this learning we previously held a meeting with all teachers at SMP N 7 Sungai Penuh first. What are the points in making the online RPP, then collect material that must be adjusted to the syllabus this semester.

The points in making an online RPP include learning objectives, learning activities, and assessment. In the learning objectives, teachers have the purpose of carrying out a learning system in the classroom, such as making it easier for teachers to deliver learning materials. Then the learning activities consist of learning steps. After having a goal, the teacher must make steps to achieve the goal. Effective learning steps are needed in the preparation of online RPP, without certain steps, it will certainly make the preparation of RPP unable to run well. The steps in the preparation of the RPP are divided into introduction, core activities, and closing. Furthermore, the point in making an RPP is assessment. The purpose of this assessment is to see the potential that students have for the learning that has been carried out.

After doing observations, researchers conducted interviews with the principals of SMP Negeri 7 Sungai Penuh on July 28, 2021, Vice Principal of Curriculum on July 28, 2021 and class VIII mathematics teachers on July 29, 2021. Interviews conducted on the design of the learning process applied to class VIII subjects online. The lesson implementation plan prepared by the mathematics teacher of class VIII SMP Negeri 7 Sungai Penuh can be seen in appendix II.

The results of the interview with the principal of SMP Negeri 7 Sungai Penuh stated that before using Edmodo media, teachers still used WhatsApp media in the learning process. By using this WhatsApp media, many students are not too enthusiastic in the learning process and many are late in collecting assignments and some are not even collecting assignments. Then just switch to using Edmodo media in the learning process, thus making students more

interested in the learning process because this Edmodo media is classified as the latest and follows the development of the technological era.

Likewise, the vice principal of curriculum and mathematics teacher of class VIII of SMP N 7 Sungai Penuh said. So it is very clear that using interesting learning media in the learning process is very helpful for students and teachers, especially in mathematics learning. Because learning mathematics is considered difficult and very boring, a mathematics teacher must be able to choose the media used in the learning process so that mathematics learning is enjoyed by students. Therefore, this Edmodo media is suitable for use by mathematics teachers at SMP Negeri 7 Sungai Penuh. However, it must also be adjusted to the design of the implementation of learning.

Thus, in this study at SMP Negeri 7 Sungai Penuh, they have carried out Edmodo-based e-learning in line with the Learning Implementation Plan (RPP) prepared. This is evidenced from the results of observations and interviews that have been conducted by researchers at SMP Negeri 7 Sungai Penuh.

## **2. Implementation of E-Learning Media Based on Edmodo in Mathematics Learning on Number Pattern Material**

Based on the results of research conducted by researchers from July 28, 2021 researchers, they made observations and interviews with class VIII mathematics teachers to find out the stage of implementing Edmodo-based e-learning media in mathematics learning on number pattern material. As for his observation, the researcher saw the implementation of the use of edmodo media in the process of learning mathematics. Where in learning the implementation of the use of Edmodo media is indeed carried out in sequence and in accordance with what has been compiled based on the design.

At this stage of implementation, the initial activity carried out by the teacher is to greet and invite students to pray together, then the teacher checks the student's attendance, after which the teacher conveys the learning objectives and benefits of the topic to be taught, and the teacher conveys an

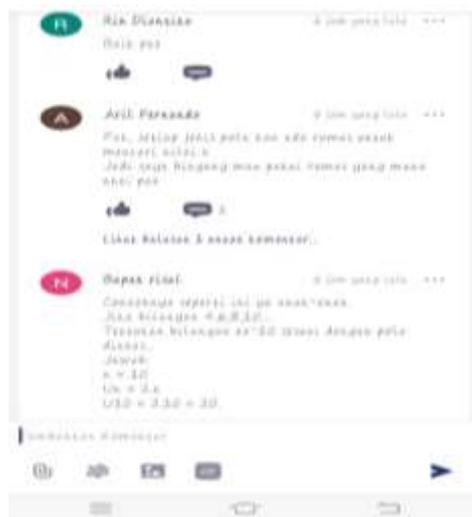
outline of the scope of the material and learning steps. At this stage of the initial activity, it has been carried out based on the implementation stage compiled by the mathematics teacher.

The next stage at this stage of implementation is the stage of core activities. At this stage, students are given motivation and guidance to see, observe, read and write them down again. Where they were given impressions and reading materials about the number pattern material in Edmodo media. As shown in Figure 1:



**Figure 1. Reading Materials in Edmodo Classroom**

Based on Figure 1 of the display of reading materials about the number pattern material on the Edmodo page, it can be concluded that the teacher provided reading materials for the material on the Edmodo page at the beginning of learning. Here the teacher gives students the opportunity to identify as many things as possible that are not yet understood, starting from factual questions. This question should remain pertinent to the material of the number pattern displayed on Edmodo. Seen in Figure 2 students ask about the material of the number pattern.



**Figure 2. Students Ask in Edmodo Class**

Based on Figure 2, it can be seen that students ask the math teacher about the material that does not understand in the Edmodo class. There is interaction between teachers and students in the Edmodo class. Then students are given the opportunity to discuss, gather information, represent, and exchange information about number patterns. After that, the students presented their work and then responded to by other students. As for the next stage in this activity, teachers and students make conclusions about the things that have been learned related to the material of number patterns, students are then given the opportunity to ask again things that have not been understood.

Then the last stage that the teacher does in this stage of implementation is the closing activity. Where in this closing activity the teacher and students reflect on the learning experience. Furthermore, the teacher presents the lesson plan at the next meeting and prays for the completion of the lesson.

Then the researcher conducted an interview with a mathematics teacher in class VIII of SMP N 7 Sungai Penuh. As for the results of an interview with a mathematics teacher in class VIII of SMP Negeri 7 Sungai Penuh by Mr. Nafrisal, S.Pd said that the implementation of Edmodo-based e-learning, learning media in mathematics learning on the material of class VIII number patterns of SMP Negeri 7 Sungai Penuh was appropriate to be carried out

based on the learning implementation plan prepared, and the implementation was also carried out well by teachers and students.

From the results of the interview of class VIII mathematics teachers, it was obtained that the implementation of mathematics learning using Edmodo as e-learning media at SMP Negeri 7 Sungai Penuh was in accordance with the learning implementation plan that had been made starting from preliminary activities, core activities and closing activities.

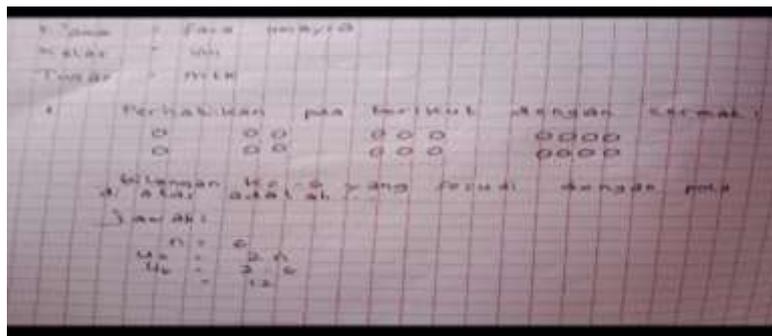
### **3. Evaluation of Learning Media on E-learning Based Edmodo in Mathematics Learning on Number Pattern Material**

Based on the results of research conducted by researchers from July 28, 2021, researchers conducted observations and interviews with mathematics teachers and class VIII students to find out the evaluation stage of Edmodo-based e-learning learning media in mathematics learning on number pattern material. As for his observations, researchers saw how to evaluate the use of edmodo media in the process of learning mathematics. In this evaluation stage, two evaluations are divided, namely teacher evaluation and student evaluation in using this Edmodo learning media.

The form of teacher evaluation is that the teacher reflects the student's learning experience on the number pattern material using Edmodo. The teacher gave the practice questions to the class VIII students by sending photos of the practice questions in the package mother. After that, the students do their respective dibuku exercises, then they are sent to the Edmodo class. Furthermore, at this stage the teacher assesses the results of student exercises on learning mathematics of number pattern material. Of the 40 students in Class VIII, the teacher assessed that the results were obtained by 13 people who were incomplete and 27 people who were complete. It can be seen that many students get grades above KKM and there are some students who get grades below KKM. Then the teacher then delivers the lesson plan at the next meeting. At this stage, the teacher sees the extent of the ability of the class VIII students to master the material that has been studied. So with this stage, the

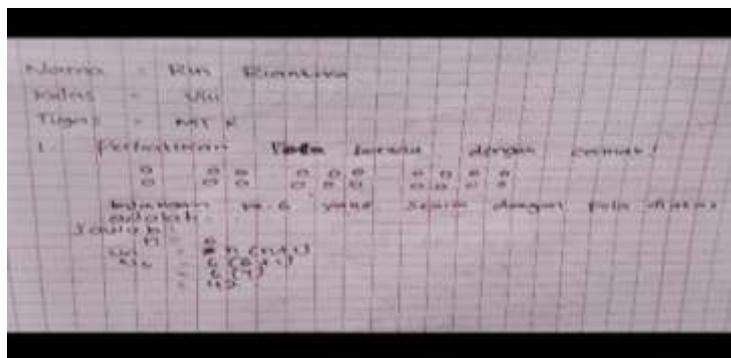
teacher evaluates the results of student exercises in e-learning using edmodo in mathematics learning on the material of number patterns.

Furthermore, the form of student evaluation is an exercise sheet of student work from the 40 students and finally can subject 6 students with a category of 3 students who get a score above KKM, and 3 students who get a score below KKM. The following is evidence of the results of students' exercises in answering the number pattern material questions:



**Figure 3. Training Results of Students Who Obtained Scores above KKM**

Based on Figure 3, this is one of the results of the exercise of students who obtained scores above KKM. Where this student can answer the question of number pattern material given by the teacher, and answer it correctly according to the steps of the formula studied.



**Figure 4. Training Results of Students Who Score below KKM**

Based on Figure 4, this is the result of the training of students who obtained scores below KKM. Where students still do not understand in doing rectangular number pattern problems, especially. Students are still unable to

determine their n grades and still cannot do the questions according to the steps learned.

After that, the researcher conducted an interview with the mathematics teacher of class VIII of SMP N 7 Sungai Penuh. The result of the researcher's interview with the mathematics teacher of class VIII is that during mathematics learning using Edmodo media makes transformation to students. Where students become enthusiastic in learning mathematics, then the teacher can also control student activities during the learning process, and also in the collection of assignments, no one is late anymore and no one even does not collect assignments anymore. So it really brings a good influence to the students as well as the teachers.

Then the researcher also conducts interviews with students who have been determined as the subject. Students whose practice scores are above KKM said that the evaluation of the use of edmodo media went well and should be. However, for subjects whose practice scores are below KKM, they said that the evaluation of the use of Edmodo media has less influence on students, and makes students rush into the collection of assignments due to limited time.

So it can be said that the teacher carries out the evaluation stage with the maximum, because the teacher can monitor student performance in the learning process through Edmodo media during the learning process. And students are also punctual in collecting assignments, and there are not even students who do not collect assignments anymore.

#### **4. Obstacles that Hinder E-Learning Learning Using Edmodo in Mathematics Learning**

Obstacles are something that makes an activity carried out imperfectly. In carrying out an activity, it will definitely not be separated by an obstacle that interferes with the running of the activity. Similarly, the use of Edmodo media also has a problem. Based on the results of research conducted by researchers from July 28, 2021 researchers, conducted documentation and interviews with mathematics teachers and class VIII students who were selected as subjects to

find out the obstacles that hinder e-learning using Edmodo in mathematics learning.

At the documentation stage the researcher sees the results of the exercises worked on by the students. Where by using Edmodo there are obstacles for students, namely the problem of internet network coverage, and also the lack of students in understanding the subject matter because in the process of learning mathematics it is difficult to do it remotely. As evidenced by the results of student exercises collected to mathematics teachers, there are still some students who get unsatisfactory scores because they do not understand the material provided by the teacher.

Then at the interview stage between the researcher and the class VIII mathematics teacher and also the researcher with the class VIII students who are the subject. The obstacles for teachers are the internet network and the lack of supervision from parents. Because no matter what, parental supervision in the learning process is very important. Whether it's face-to-face or online learning. That is the obstacle for math teachers. Then the problem of inadequate networking, it is a very influential obstacle in the online learning process. In e-learning, it really needs adequate internet support, because the lack of a smooth internet network will make the e-learning learning process not run smoothly.

Then there are obstacles for students, namely network problems because the time in collecting assignments is limited by the teacher, if the network is not sufficient, the automatic collection of tasks is constrained and can result in being late in collecting the assignments. So it can be concluded that the obstacles that hinder e-learning using edmodo in mathematics learning, both for teachers and for students, are internet network coverage. The internet network is needed in the e-learning learning process, because without an internet network the learning process cannot be done optimally. In addition to network constraints, another obstacle found was the lack of supervision from parents of students.

## CONCLUSION

Based on the results of research and discussion on mathematics learning based Edmodo at grade VIII students of SMP Negeri 7 Sungai Penuh, it can be concluded that in the planning stage of mathematics learning based Edmodo on number pattern material, teachers carry out the learning planning stage first before carrying out learning activities. SMP Negeri 7 Sungai Penuh has implemented edmodo-based e-learning in line with the Learning Implementation Plan (RPP) prepared. This is in line with the research of Dewi and Yulia (2018) which states that learning planning is very important for teachers to carry out before starting the learning.

At the stage of implementing edmodo media on mathematics learning for the number pattern material, that the teacher carries out the learning in accordance with the learning implementation plan that has been made starting from preliminary activities, core activities and closing activities. In the evaluation stage of mathematics learning based Edmodo on the number pattern material, that the teacher carries out the evaluation stage optimally because the teacher can monitor student performance in the learning process through Edmodo media during the learning process. And students are also punctual in collecting assignments, and there are not even students who do not collect assignments anymore. At the stage of obstacles that hinder mathematics learning based Edmodo, such as the internet network, and also the lack of supervision from students' parents.

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