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## MAKING LEARNING TEACHING MATERIALS IN SCHOOL BASED ON INFORMATION AND COMMUNICATION TECHNOLOGY

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### Abstract

In the world of education now learning methods do not only use conventional methods such as from textbooks and teacher explanations, but also with effective and efficient learning methods using information technology. An example is multimedia-based learning media. Community service is one way that can be used to carry out information technology socialization. The community service that will be carried out in this study is entitled Easy and Interesting Mathematics Learning Through Animation. For elementary school students, with the aim of helping students in the learning process of mathematics that is more interesting interactive and fun, because in general lower elementary school students view mathematics lessons are difficult and boring learning. In this service, a learning media for mathematics will be created that includes the problem of building and space in accordance with the existing curriculum. Learning applications that are built include material, training, and tests, in accordance with applicable competency standards. Furthermore, training will be given to several elementary schools, as a briefing on how to use this learning system application so as to increase student motivation and ultimately improve student achievement and improve education quality.

**Keywords:** Mathematics learning, Information technology

### 1. INTRODUCTION

The Community Service activities will be carried out at SD Negeri No.091665, located in Laras Village, Bandarhulan District, Simalungun Regency, North Sumatra Province. The distance from the University of Sumatera Utara to this elementary school is 123 Km, which crosses the road across Sumatra, from Medan to the direction of Pematang Siantar. Arriving at Simpang Dolok Merangir, turning left towards the PTPN IV Laras Plantation Plantation.

In general, this school requires learning aids, especially for Mathematics. One of the main factors is the number of elementary school students who view mathematics lessons as a difficult and tedious lesson. In addition to students, teachers also experience difficulties in delivering material, including limited time in

delivering quite a lot of material, and lack of interest in students learning mathematics when using conventional learning methods such as from textbooks and teacher explanations. Therefore, it is necessary to try in the process of learning mathematics to be more interesting, more interactive and fun.

In terms of finding solutions to overcome these problems, so as to increase the interest in learning and student achievement in mathematics. In teaching and learning activities, obscurity and the amount of material delivered can be helped by presenting media as an intermediary. The complexity of learning materials can be simplified with the help of media, because the media can represent what is less able to be conveyed through words or sentences. Therefore, in order to help improve the quality of education and teaching

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mathematics in particular, it is necessary to take advantage of the development of computer technology.

In the world of computers known as animation. Animation is one part of computer graphics that presents a very attractive display. The use of animation can be intended for simulation, attracting the attention of computer users in certain parts of the screen, displaying program output with interesting images compared to a series of numbers or letters. With this application, it is expected to be able to make it easier and easier to understand and learn the material provided. Replacement of this system is expected to provide accurate information, save costs and time so that in the learning process all students can understand the subject matter. Likewise, this animation design can provide motivation to students in terms of learning mathematics, in particular, the problem of building fields and space.

## 2. PROBLEM

The advancement of computer technology can help all aspects of human life. The problem is that there are not many elementary schools that have multimedia-based learning media, especially in mathematics. And many students feel bored with a monotonous learning system, especially maths that have enough material. With this consideration, the proponent wants to apply knowledge and technology by holding the making and tutorial of mathematics learning media so as to improve understanding and attract interest in learning and students help improve the quality of education and teaching mathematics.

## 3. METHOD

The methods that will be carried out in the implementation of this service are:

1. Obtain data in the form of information taken from books or special mathematics curriculum material for the learning application to be made.

2. Identify how to make the material studied easier to learn by elementary school students.
3. To attract students' interest in learning in this material, learning applications will be made in which the material is packaged as efficiently as possible, so students can interact with the application.
4. Design learning applications, starting from making the application display, preparation of material, exercises and questions.
5. After the design is completed and maximum results are obtained, then this application is divided into schools and make training/workshops for math teachers or students.

## 4. RESULT AND DISCUSSION

The results of the Community Service activities Professor Serve in broad outline includes several components as follows:

1. Achievement of training objectives
2. Achievement of planned material targets
3. The ability of participants in mastering the material

In its implementation, this activity was attended by all teachers at SD Negeri No.091665 Laras Village, Bandarhuluan District, Simalungun District, North Sumatra Province. Thus, it can be said that the target of this service has been achieved. The achievement of the goal of mentoring the development of learning media in general is very good, but the limited time provided results in not all material about the development of learning media can be delivered in detail.

But seen from the results of the participants' training, namely the quality of learning media that has been produced, it can be concluded that the objectives of this activity can be achieved. The achievement of material targets in this service activity is quite good, because the mentoring material

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can be delivered in its entirety. Assistance materials that have been delivered are:

1. Learning media theory
2. Development of computer-based learning media
3. Development of learning media with teaching aids

The ability of participants to be seen from the mastery of the material is still lacking due to the short time in delivering the material and the abilities of the different participants. This is due to the large amount of material that is only delivered in a day so there is not enough time for the participants to fully understand and practice all the material given. This success can also be seen from the satisfaction of participants after participating in the activity. The benefits obtained by the teacher are being able to develop and develop better quality learning media.

Community Service activities carried out with face-to-face events and learning media development practices went well and smoothly. Face-to-face meetings with lecture methods and demonstrations of teaching aids in this case are mathematics teaching aids. Followed by training for teachers to make learning materials with computers starting from the selection of materials, preparation of materials, and displaying material in front of the class. Along with practice directly in explaining mathematical teaching aids.

This activity is held one day, namely on Saturday 1 December 2018 from 07.30-13.00 WIB. Participants in the activity were teachers at SD Negeri No.091665 Laras Village, Bandarhulan District, Simalungun District, North Sumatra Province and some students. Teachers were present from all fields of expertise and locations for conducting training in Class VI SD Negeri No.091665 Laras Village. The implementation of this service activity is carried out by 2 (two) service teams and 2 (two) as assistants. The team from the

Mathematics Department of the Faculty of Mathematics and Natural Sciences is:

1. Prof. Dr. Tulus, M.Si
2. Dr. Sawaluddin, M.I.T
3. M. Romy Syahputra, S.Si, M.Si
4. Tulus Joseph, S.Si, M.Si

The topics presented in this activity are:

1. Introduction to the importance of computer-based learning media
2. Theory of using learning media with computers
3. Theory of the use of media mathematics teaching aids
4. Steps to compile and develop computer-based learning media
5. Exercise in making learning media
6. Evaluation of the results of learning media that have been compiled.

After that the team and the teachers held a discussion about this service. The main points discussed are as follows:

1. Lack of computer equipment and displays for all subjects.
2. Development of teachers in delivering learning to students



**Fig 1. Discussions Community Service Team with Teacher**

Based on the discussion points and objectives in this service, the team provides assistance in the form of:

1. One laptop unit
2. One projector unit
3. One mouse unit
4. Two units of mathematical props

The process of delivering this assistance was given directly by the team and was received directly by the principal of SD Negeri No.091665 Desa Laras.

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The process of the next activity is training and demonstration directly by the team in accordance with the topics planned for this activity. The limited time of the meeting resulted in not all material being conveyed in detail. The activity begins with lectures and demonstrations and then continues with the exercises.



**Fig 2. Demonstrations and training by Dr. Sawalluddin, M.IT**



**Fig 3. Demonstrations and training by Prof. Dr. Tulus, M.Si**



**Fig 4. Demonstrations and training by Tulus Joseph, S.Si, M.Si**

From the training activities, it appears that the teacher has not mastered the way to develop good learning media, especially computer-based learning media. The program then continued with a question and answer session. Various questions were raised enthusiastically by the participants in the question and answer session. Broadly speaking, the core questions of the participants are:

1. How to operate computers and projectors in terms of activating, connecting and placing well.
2. Requirements for developing good learning media
3. Steps to make computer-based learning media quickly.
4. Replacement of layouts, fonts, and backgrounds in the preparation of computer-based learning media
5. Making tables in slides
6. Giving sound effects and animation in the preparation of computer-based learning media.
7. Use of good props
8. Setting the appearance of computer-based learning media that is good for students.
9. Adjustment of computer-based learning media with teaching aids in this case mathematics subjects.

The community service program in the form of learning media development training for elementary school teachers No. 091665 Laras Village, Bandarhulan District, Simalungun Regency, North Sumatra Province is expected to increase knowledge, skills and more confidence in

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carrying out their profession. Teachers will be more enthusiastic and motivated to develop themselves. The results of this training will be beneficial for the school, the teaching and learning process will be more interesting with the use of more varied learning media.

Besides that, with the training of learning media development, it will add to the skills of the teacher in preparing the learning tool so that it will support the teacher's ability to prepare learning materials so that students are better able to understand the material taught at that time. Before leaving the location of the team together with the teacher of SD Negeri No.091665 Laras Village, Bandarhuluan District, Simalungun District, North Sumatra Province conducted a group photo as a motivation to be more enthusiastic in educating elementary school students No.091665 Laras Village, Bandarhuluan District, Simalungun District, North Sumatra Province as the next generation of the Indonesian nation.

## 5. CONCLUSION

The community service program is well organized and runs smoothly in accordance with the planned activities that have been prepared even though not all participants, in this case, are SD Negeri No. 091665 Laras Village, Bandarhuluan District, Simalungun District, North Sumatra Province who well mastered the material presented. This activity received a very good response as evidenced by the activity of participants following the direction and demonstrations carried out by the team by not leaving the place before the training time ended.

Based on the evaluation that has been done, some suggestions can be proposed as follows:

1. The time for the implementation of service activities needs to be added so that the objectives of the activity can be fully achieved, but with the consequence of adding implementation

costs. Therefore, the cost of Community Service should not be the same between several proposal teams, given the different target audiences.

2. The existence of follow-up activities in the form of similar training is always held periodically so that it can improve the ability of teachers to carry out the teaching and learning process.

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