

Online Tutorials Evaluation on Elementary Mathematics Learning Courses at *Pokjar Kendal*

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Abstract. The objective of this study is to evaluate online tutorials for courses in elementary mathematics. The research subjects were students at *Universitas Terbuka* who were members of the *Pokjar Kendal*. It is a qualitative descriptive study. Observation sheets, questionnaires, and interviews were used to collect the data. The findings indicated that: 1) 60.6 percent of students use learning resources in the form of books; 58.5 percent use learning videos; 57.6 percent use websites; and 33.3 percent use other sources; and 2). The majority of students (48.5 percent) struggle with the coordinate system material; 78.8 percent struggle with trigonometry; and 57.6 percent struggle with the power of numbers. According to the study's findings, many students still struggle with Elementary Mathematics Learning materials. The study's findings suggest that the following should be done for the tutorial to be more effective: 1). Lecturers and students benefit from efficiency in using the learning resources, 2). Lecturers can concentrate on material system, trigonometry, and rank number material in the tutorial, 3) the requirement for educational media that can assist students during tutorials.

Keywords: Online, Evaluation, Elementary Mathematics learning Course, Tutorials

INTRODUCTION

Universitas Terbuka implements open and distance learning systems. Such a learning system has proven to effectively increase the reach and equal distribution of educational opportunities for the community. The main characteristic of an open and long-distance system between students and lecturers is that they cannot physically interact directly. Through the distance learning system, students must learn independently [1]. One of the efforts to overcome distance learning problems, *Universitas Terbuka* implement a tutorial system. A tutorial is a form of learning assistance service provided to students to help students achieve optimal learning outcomes [2], [1]. Even though I have implemented the tutorial, it turns out that there are still learning obstacles. One of the problems that we can see in the Elementary Mathematics Learning course. In this course, students are required to be able to apply the material in everyday life. The material must also be implemented in learning in elementary school.

Elementary mathematics learning courses are compulsory subjects that PGSD students must take. This course contains the basics of learning mathematics, crude mathematics material, and school mathematics strengthening fabric. Based on the initial observations, it was concluded that 1). student learning outcomes in Elementary Mathematics Learning subjects are less, 2). many students can only absorb theory but do not apply it in learning, 3). students are less adaptive to online learning models and technological developments. This problem is because tutorial activities are carried out online. Online tutorial activities cause students to be less motivated in learning. Lack of student motivation causes student activity to be below. Based on this, it is necessary to evaluate the tutorial activities.

Tutorial evaluation is a significant part of improving the quality of education [3] [4] and is inseparable from the learning process [5]. In higher education, lecturer evaluation is a way to determine the effect of lecturer teaching on students [6]. Relying on the evaluation, the learning system that is run will become increasingly contributive to the needs of learning design [7] and improve the quality of learning [8][9] [10]. Through the evaluation, the root cause of the tutorial that has been going on will be known. This evaluation is related in terms of students and materials in the Elementary Mathematics Learning course. In connection with the above problems, it is necessary to conduct more in-depth research on the root cause of the situation in following the tutorial. The root of this problem will be found, and a solution will be sought. Based on this, it is necessary to evaluate the Elementary Mathematics Learning course tutorial at the Kendal district working group.

RESEARCH METHODOLOGY

This research is a qualitative descriptive study. The research subjects were students of the Kendal district working group, who took the Mathematics Learning course for Elementary School, amounting to 33 students. The research instrument used a questionnaire and in-depth interviews. The questionnaire was filled out using a google form. The study's data collection techniques used triangulation, namely questionnaires, observations, and in-depth interviews [11]. Data analysis consists of data reduction, data presentation, and concluding. Based on the results of the questionnaire analysis, ten students were selected to be interviewed in-depth. The questionnaires and interviews were analyzed, and the results were described and presented in graphical.

RESEARCH RESULT

Questionnaires asked whether students studied material outside of tutorials and learning resources. The results are presented in Figure 1 below.



FIGURE 1. Activities to strengthen student material outside of tutorials and learning resources.

Based on Figure 1, it can be seen that the activities of strengthening material outside the tutorial as many as 3% of students always carry out reinforcement, as many as 51.5% often do support and 45.5% rarely do reinforcement. Based on Figure 2, it can be seen that 45.5% of student learning resources use modules, 27.3 ppt materials from tutors or fellow students, 24.2%, and 3% materials from the internet. Furthermore, students will be known related to additional student references. The results can be presented in Figure 2 below.

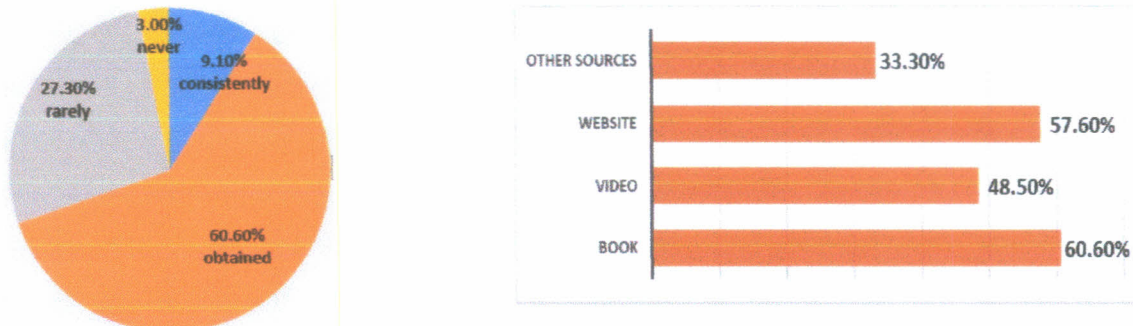


FIGURE 2. Additional reference tutorial material

Additional student references obtained 60.6% of students often seek other references, 27.3% rarely, 9.1% consistently, and 3% never. Other student references were in books as many as 60.6% of students, 48.5% in videos, 57.6% in the form of websites, and 33.3% from other sources. Furthermore, the difficulty of students in learning the material in elementary mathematics learning subjects. The results are presented in Figure 3 below

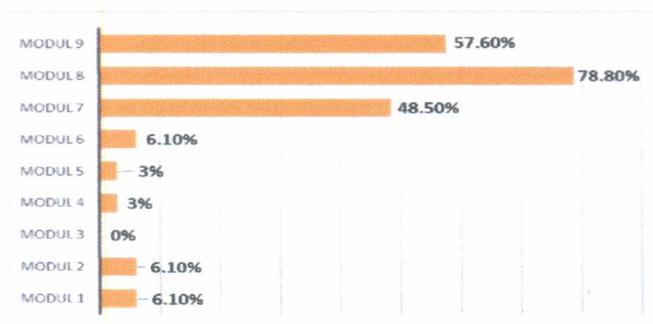


FIGURE 3. Students' Material Difficulties

Based on Figure 3, it can be seen that many students have difficulty with the material in module 7, module 8, and module 9. A total of 78.8% difficulty in trigonometry material in module 8, 57.6% difficulty in material with exponents and logarithms, as many as 48.5 difficulties. In the coordinate system material. Based on the results of the data, in-depth interviews were concluded that 1). There are many sine and cosine rules in trigonometry, but they cannot be implemented in problems. Students have difficulty in using the sine and cosine rules because each question is different, 2). In the matter of exponents and logarithms, students have a problem applying logarithms to the compound interest model. Student inputs in this course include 1). they are adding ideas for online-based learning methods and media that are more creative and easy for students to understand, 2). there are summaries of formulas and examples of practice questions that already have explanations and are given to students to study, 3). In learning more examples of the material, coordinate systems, trigonometry, and numbers to powers and logarithms, 4). For complex materials such as trigonometry, lecturers should make learning videos, 5). Creating learning media that can be directly implemented in elementary learning.

DISCUSSION

Mastery of the material at the time of the tutorial each student is different. To master more material, it is necessary to strengthen the material by students outside of tutorial activities. The findings of this study turned out to be many students who rarely did reinforcement outside tutorial hours, namely 45.5% of students. Students do support when students are given assignments by tutors, such as being asked to work on questions and given the task of making papers. It can be concluded that the students' initiative in strengthening the material is still lacking. There needs to be a tutorial design so that students are motivated to maintain outside of tutorial activities.

When studying the material, students should add references so that student's knowledge of the material increases. The results showed that many students still only used the primary learning resources, as much as 27.3%. As many as

48.5% of students use learning videos in learning the material. Additional references can be in the form of books, videos, websites, and other sources. Learning video is one of the media that can support student learning. Through learning videos, it can be seen clearly and in detail in presenting the existing material. Through video, it is also more flexible because we can learn according to the available time [12] [13] [14]. In addition to video, the website is also a flexible learning medium. The website provides complete material and a more comprehensive range of materials. Through websites, students are rich in learning resources [15] [16].

In every lesson, there must be material difficulties experienced by students. For example, students have problems at the end of the module material in the Elementary Mathematics Learning course. Students' problematic materials include trigonometry, numbers to powers and logarithms, and coordinate systems. One alternative to improve student mastery is to create learning media. Video learning is one alternative in improving student material mastery. Efforts to improve students' understanding of the material can also be made a concept map [17] [14]. In addition, students can also learn from material summaries made by students themselves.

Another thing that can be done is to create media or teaching aids that can be directly applied in learning in elementary school. Based on the research analysis results, it can be concluded that there is a need for media that can facilitate students to learn independently and flexibly. One alternative media is the e-module. This e-module media can contain concept maps, material summaries, practice questions, and evaluation questions. This material can be in the form of power points, pdfs, and learning videos. This media will facilitate students to study independently [18] and be more flexible [19]. Independent and flexible learning will improve student learning outcomes [20][21]. Therefore, the evaluation found in the tutorial process for elementary mathematics learning courses, namely the difficulty of students understanding the material in the module, especially trigonometry, power numbers, and logarithms, and the coordinate system required learning media that can accommodate the learning needs of these subjects. Student learning media needs include practical e-modules containing concept maps, material summaries, learning videos, and evaluation questions for each material presented.

CONCLUSION

This current research had some results, such as; the books' learning references need, which had to accommodate some resources. Moreover, most students had difficulties comprehending some materials, especially the coordinate system material, trigonometry, and the power of numbers materials. All in all, there are still many students who have difficulty learning the material in the Elementary Mathematics Learning course. The tutorial should be planned, practiced, and evaluated systematically to solve the problems found. In addition, the lecturers and the students must apply and interact with the learning sources optimal. The tutorial can also focus on system material, trigonometry, and rank number material. Expressly, the learning media in e-modules must implement the concept maps, material summaries, learning videos, and evaluation questions for each material.

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