

Student Activities Learning in Applying AR Media with the RME Approach

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Keywords: About five key words in alphabetical order, separated by comma

I. INTRODUCTION

Learning media that continues to develop in the digital era provides great opportunities to improve the quality of the learning process. One of the innovations that attracts attention in the context of mathematics education is the application of Augmented Reality (AR) Media with a Realistic Mathematics Education (RME) approach. RME places emphasis on learning mathematics that is concrete, real, and relevant to everyday life, while AR provides an additional dimension in the form of visual, sound, or interactive elements that can enrich the learning experience.

In this context, it is important to understand how student activities interact with the application of AR learning media with the RME Approach. Student activities not only include participation in learning activities, but also involve understanding concepts, learning motivation, and active involvement in the learning process.

This study aims to document and analyze student activities during the application of AR learning media with the RME Approach. By understanding the dynamics of student activity, we can identify potential successes or barriers in adopting this technology in mathematics learning.

Student activities can include reactions to visual elements displayed by AR media, the level of engagement in interactive learning, as well as how they integrate learned mathematical concepts in everyday life situations. In addition, the role of teachers in supporting student activities is also an important aspect that will be considered.

Through a deep understanding of student activities in the application of AR learning media with the RME Approach, it is hoped that this research can contribute to the development of mathematical learning models that are more responsive to student needs in the digital era. The conclusion of this study is expected to provide practical direction for educators in increasing the effectiveness of the use of technology in mathematics learning.

NurIzza N. Ahmad, Syahrul Nizam, 2020; Gusti Ngurah, 2020; Wen Hung chao, 2018 shows that the use of AR in mathematics teaching and learning provides a sense of fun and interactive, with a sense of fun and interactive in learning, learning outcomes will increase. The results of this study also revealed significant differences before and after the application of AR in mathematics learning. The results of this study also revealed significant differences before and after the application of AR in mathematics learning. The results of this study are in line with research developed by Fadi Abdul Raheem by Bani Ahmad (2021) AR technology helps to attract the attention of learners, because it is accompanied by sound, video, color, and 3-dimensional images enhanced with information and concepts related to images, which helps in developing visual thinking skills. Allows interaction with applications individually or collectively and gives them ample opportunity to think visually, and positively enhances their interaction.

II. METODHS

This study used a qualitative descriptive research design with 32 grade VIII student subjects. This research was conducted at SMPN 4 Bantimurung, Maros Regency, South Sulawesi, Indonesia. To obtain activity data, researchers use student activity observation sheet instruments when applying AR media with the RME approach. Data analysis includes the stages of reduction, presentation, and drawing conclusions. The indicators of learning activity in this study refer to Uno, 2013 which is reviewed from the aspects of:

- a. Visual activities, which include reading, paying attention to demonstration images, experiments, other people's work.
- b. Oral Activities such as stating, formulating, asking, giving suggestions, issuing opinions, holding interviews, discussions and interruptions.
- c. Listening activities for example listening: description, conversation, discussion, music, speech.
- d. Writing activities, e.g. writing stories, essays, reports, questionnaires, copying.
- e. Drawing activities, e.g. drawing, making graphs, maps, diagrams.
- f. Motor activities, which include conducting experiments, making constructions, repairing models, playing, gardening, raising livestock.
- g. Mental activities, for example responding, remembering, solving problems, analyzing, looking at relationships, making decisions. Emotional activities, such as taking interest, feeling bored, happy, excited, passionate, courageous, calm, nervous

III. RESULT AND DISCUSSIONS

The observations made focused on one group and 2 observers. This is so that observations made by observers can be more thorough and in-depth. The data on student activeness can be seen in the table below:

Table Student Activeness Data Recapitulation Table

No	Meeting	Score	Category
1	Meeting I	3,2	Active
2	Meeting II	3,4	Active
3	Meeting III	3,3	Active
4	Meeting IV	3,7	Very Active
	Average	3,4	Active

From the data above, it can be seen that there is an increase in student activity at each meeting. The first meeting saw that the average activity of the learners was 3.4. The first meeting seemed that students had been active in the aspect of group formation, the use of ARMATIK media included preparing ARMATIC, opening ARMATIC applications, highlighting realistic objects and running ARMATIC applications. In addition, students' focus on ARMATIK media juxtaposed with realistic objects in working on LKS. This may be due to the curiosity of students to further explore this media.

The observations collected from the first meeting to the fourth meeting provide a consistent picture of the level of activity that can be categorized as active. learners demonstrate active participation in the process of identification and determination of the elements of cubes and blocks presented through ARMATIC media. In the learning process, it can be seen that all students contribute in groups. This activeness is caused because each student is active in making observations and analysis.

The observations also illustrate that there are other aspects of the learning process that have achieved excellent performance. These factors involve the application of deep learning concepts, the ability of learners to relate concepts to everyday situations, as well as their ability to develop critical thinking skills.

AR media with the RME approach is designed like a game so that based on Dienes' theory it is able to provide a stimulus that triggers learning motivation. With him, a sense of pleasure will be awakened, joy in learning so that learning will be more meaningful. This theory is reinforced by the results of research conducted by Siregar (2017) about the properties of the mathematical learning process, including in learning mathematics must be rich in stimuli that will provide learning motivation which has an impact on activeness and high learning outcomes. The results of this study are in line with research developed by Fadi Abdul Raheem by Bani Ahmad (2021) AR technology helps to attract the attention of learners, because it is accompanied by sound, video, color, and 3-dimensional images enhanced with information and concepts related to images, which helps in developing visual thinking skills. Allows interaction with the application individually or collectively and gives it ample opportunity to think visually.

IV. CONCLUSION

The use of AR media with the RME approach can increase the level of participation and involvement of students in mathematics learning. The diversity of visual and interactive elements in AR media can stimulate student interest. The results showed that the application of AR media with the RME approach can contribute to the understanding of students' mathematical concepts. The ability to relate mathematical concepts to real, contextual situations can improve their understanding. Learners show higher engagement in interactive learning

using AR media. The use of AR media allows students to collaborate in finding mathematical solutions. They can communicate and discuss more actively in groups, strengthening their social skills. This conclusion provides an overview of the effectiveness of the application of AR media with the RME approach to student activities in mathematics learning. With this deep understanding, the development of learning strategies that are more innovative and responsive to the needs of learners can continue to be improved.

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