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The Use of Timetable Learning Media to Enhance Student Engagement in Mathematics for Grade II A at *Baiturrohman* GMI Jember Elementary School

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Abstract:
This research is a qualitative study that explores the use of a timetable board as a learning tool to enhance student engagement in Mathematics, specifically the topic of time units, for Grade II A students at *Baiturrohman* GMI Jember Elementary School. The objectives of this study are to determine 1) The process of using the timetable board in teaching Mathematics, focusing on time units, for Grade II A students at this school, and 2) The improvement of student engagement in Mathematics, particularly in the topic of time units, through the use of the timetable board in Grade II A at this school. The data collection techniques include lectures (material delivery), observation, discussion, tests, and documentation. The subjects of this study are 18 students in Grade II A. The implementation of the learning activities using the timetable board as a teaching aid is deemed successful due to the students' significant curiosity during the learning process. This curiosity has led to increased student activity during the learning process, with a majority of students showing a 50% improvement in understanding the material related to time units in Mathematics. In conclusion, this research suggests that using the timetable board as a learning tool effectively enhances student engagement in Mathematics, particularly in the topic of time units, for Grade II a students at this Elementary School.

Keywords: *Timetable Board, Learning Media, Student Engagement*

Introduction

Education is a crucial aspect for the development of human resources because it serves not only as a means to liberate individuals from backwardness but also from ignorance and poverty. According to the National Education System Law of 2003, Article 1, education is a conscious and planned effort to create a learning atmosphere and learning processes so that students actively develop their potential to possess spiritual and religious strength, self-control, personality, intelligence, noble character, and skills needed for themselves, society, nation, and state. Through education, it is hoped that individuals in Indonesia will emerge with strong spirits and enthusiasm to support and implement national development goals.

Mathematics is an essential subject as it finds application in our daily lives, developing an awareness of values that are essential[1]. Despite being considered one of the most challenging study areas, everyone must learn mathematics as it serves as a tool to solve problems in everyday life, similar to language, reading, and writing. The role of the teacher in creating a mathematical community in the classroom is also crucial, meaning that the teacher's role as an instructor should be proportional to other roles as a facilitator, participant, or even as a friend in the class[2]. Many students are not happy or motivated during mathematics lessons because teachers often fail to provide sufficient motivation. The absence of learning media in mathematics teaching makes the subject difficult and boring. Addressing mathematical difficulties early on is crucial, as failure to do so may lead to various social problems since almost all subjects require mathematics. Mathematics deals with facts, relationships, as well as spatial and temporal problems.

In teaching activities, teachers commonly use the chalkboard to convey material. However, students often find the abstract nature of the material received to be uninspiring, leading to less enthusiasm and suboptimal understanding. In this second-grade class, the curriculum includes the measurement of time, involving the calculation of time differences in minutes and seconds. To simplify the understanding of time-related topics, an engaging and easy-to-understand media is required. Media is vital in the educational journey, particularly in elementary school education. Since elementary school students are not adept at abstract thinking, efforts should be focused on making the learning process as concrete as possible for them. Instructional media plays a significant role in achieving this goal. The Indonesian Dictionary defines media as tools or means of communication, such as newspapers, magazines, radio, television, film, posters, and banners[3]. In the meantime, according to Hermawan, Scramm states that media is a message-carrying technology that can be utilized for learning purposes. Creative use of media and instructional aids can enable students to learn better and enhance their performance in line with the intended goals. One of the methods is through the use of audiovisual learning media[4].

Azhar Arsyad delineates four roles of instructional media, particularly visual media, which include (a) attention function, (b) affective function, (c) cognitive function, and (d) compensatory

[1] Siagian, (2012), *Manajemen Sumber Daya Manusia*. Jakarta : Bumi Aksara, 54

[2] Umar, D.H., (2012), *Pelatihan Metodologi Penelitian*. Bogor: Ghalia Indonesia, 76

[3] Nurfadhillah, S., Ramadhanty Wahidah, A., Rahmah, G., Ramdhan, F., & Claudia Maharani, S. (2021). "Penggunaan Media dalam Pembelajaran Matematika dan Manfaatnya di Sekolah Dasar Swasta Plus Ar-Rahmaniyah". *EDISI : Jurnal Edukasi Dan Sains*, 3(2), 169–182. https://ejournal.stitpn.ac.id/index.php/edisi/article/view/1296

[4] Asep Herry Hermawan, dkk, (2009), *Pengembangan Kurikulum dan Pembelajaran*, Jakarta : Universitas Terbuka, 11.

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function[5]. On the other hand, as per Kemp & Dayton in Azhar Arsyad, it can serve three primary functions when applied to individuals, groups, or large audiences[6]: (1) stimulating interest or action, (2) conveying information, and (3) delivering instructions. According to Setyawan, D., & Arumsari, A. D. (2019), Anderson asserts that the aims of audiovisual instructional media encompass various elements, such as: (1) Enhancing children's cognitive skills to enable them to identify numerous things and encourage movement, (2) Imparting knowledge about specific principles and laws, (3) Illustrating examples and behavioral approaches relevant to student interactions, and (4) Delivering information material in the most effective manner.

In this research, the chosen media is the timetable board. The timetable board is a teaching aid that resembles a wall clock. While a wall clock has a clock mechanism, the timetable board does not have one. However, both have clock hands to indicate time. The timetable board is a circular teaching aid made of manila paper and styrofoam, featuring two clock hands made of popsicle sticks. The board also contains several questions related to time. The timetable board is covered with manila paper containing hour and minute numbers, facilitating students in calculating time. This media is used for teaching mathematics related to time measurement. The timetable board plays a significant role and offers benefits as a visual aid, particularly in mathematics classes.

After conducting lessons using the timetable board, there is an improvement in student engagement. This aligns with the findings of Supraptiasih's research (2013), stating that the use of clock media can enhance student learning outcomes in time-related topics. Therefore, this research supports previous studies in the field. The timetable board can assist in explaining time calculations, making the process more tangible and expected to create an active and enjoyable learning environment, aligning with the intended goals. Technological advancements encourage efforts to incorporate technology results into the learning process. This necessitates teachers to use the tools provided by schools, acknowledging that these tools may align with contemporary development and societal demands. Teachers can utilize media created using affordable, efficient, and simple tools to achieve the desired learning objectives[7]. Teachers must also stimulate student interest through educational tools, which, as learning media, should stimulate sensory perception through vision, hearing, touch, taste, and smell. To achieve this goal, teachers need adequate teaching media to ensure that instructional materials are absorbed by students as effectively as possible[8].

[5] Azhar Arsyad, (2013), *Media Pembelajaran*, Jakarta: Rajagrafindo Persada, 20
[6] Azhar Arsyad, (2013), *Media Pembelajaran*, 28
[7] Kustandi, Cecep dan Bambang Sutjipto, (2011), *Media Pembelajaran Manual dan Digital*, Bogor: Ghalia Indonesia, 87
[8] Daryanto, (2015), *Pengelolaan Budaya dan Iklim Sekolah*, Yogjakarta: Gava Media, 56

Methods

This study adopts a qualitative approach, chosen due to its specific nature where the researcher is directly involved, and the research findings are presented descriptively. Qualitative research involves descriptive data primarily in the form of words, images, or recordings. The criteria for data in qualitative research are definite[9]. The subjects of this study are 18 students in Grade II A at *Baiturrohman* GMI Jember Elementary School, consisting of 10 males and 8 females. The instruments used by the researcher in this study are as follows:

The first, written test. The test is employed to determine the students' learning outcomes after the mathematics lesson on the topic of time measurement, using the timetable board. The test questions include multiple-choice and fill-in-the-blank questions, totaling 15 items. The Second, Research Focus. In this classroom action research, the researcher implements the use of the timetable board in the learning process. There are two main focuses in this research: a) Process focus, which observes the activities of Grade II A students at *Baiturrohman* GMI Jember Elementary School during the mathematics learning process utilizing the timetable board. b) Outcome focus, which aims to assess the learning outcomes of Grade II A students at *Baiturrohman* GMI Jember Elementary School in the subject of Mathematics after implementing the use of the timetable board. Data collection techniques in this research involve observation and documentation. The analysis technique refers to the Miles and Huberman model, which consists of data collection, data reduction, data display, and data verification.[10]

Results and Discussion

The learning activity using the timetable board at Baiturrohman GMI Jember Elementary School, specifically for Grade II, was conducted in October 2023. This learning activity took the form of teaching practice during the Introduction to School Environment (PLP). The use of the timetable board was employed to observe students' engagement in learning using this teaching aid. The session began with an opening activity, including prayers, checking in, singing, and an apper-ception exercise. It continued with the core activity, starting with the presentation of the material and providing examples related to the topic of time, aimed at refreshing students' knowledge of time units that had been previously studied.

The material presentation utilized lecture, discussion, and question-and-answer methods. The teacher frequently provided sample questions and asked students to answer the questions

[9] Agus Sugiarto, (2015), *Manajemen Kearsipan Modern dari Konversional ke Basis Komputer*, Yogyakarta: Gava Media, 36

[10] Sugiyono, (2017), *Metodologi Penelitian Kuantitatif, Kualitatif, dan R&D*, Alfabeta, 338

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posed, thereby enhancing the understanding of Grade II A students regarding the previously explained time unit material available on the timetable board. The students were highly enthusiastic and eager to step forward to try using the timetable board.

Before using the timetable board, the teacher explained the procedures for using the board, followed by a demonstration. Afterward, students attempted to use the timetable board by answering questions posed by the teacher. Observation was carried out to monitor the level of student engagement during the learning activity. The teacher recorded the students' interactions with the timetable board, their involvement in discussions, their ability to answer questions, and how effectively they used the media. Documentation was also conducted by capturing photos of the learning activity, including moments when students actively used the timetable board.

This activity aimed to enhance students' understanding of time units through the use of the timetable board. By actively involving students and providing hands-on experience, it is expected that they will better grasp the concept of time. The timetable board serves as a visual aid, allowing students to interact with the representation of time units in a tangible and practical manner. This hands-on approach is intended to reinforce the theoretical aspects of the lesson and promote a more profound comprehension of the subject matter.

Additionally, the activity was designed to make learning more interesting and enjoyable for students, facilitating increased engagement and motivation in the learning process. By incorporating interactive elements, the timetable board not only aids in the comprehension of time units but also transforms the learning experience into an interactive and enjoyable session. This approach is aligned with the belief that an engaging learning environment contributes to improved retention and understanding of the material.

Picture 1. The teacher is currently explaining the material using the timetable board.

Picture 2. The teacher is currently assessing the students.

According to Nurfadhillah *et al.*, the use of real media during learning allows students to learn by observing real visual objects, including their forms, colors, and usage, enabling optimal learning to take place[11].

The results of the practical learning activity during the Introduction to School Environment (PLP) using the timetable board can be formulated as follows:

1. During the learning process, students were highly active. The introduction of the timetable board not only served as a visual aid but also prompted active engagement from the students. They actively participated in discussions, asked questions, and interacted with the timetable board, indicating a heightened level of involvement during the lesson.
2. There was a significant curiosity among students during the use of the timetable board in learning, leading to active student participation throughout the learning session. The hands-on nature of the timetable board captured the students' interest and curiosity, encouraging them to explore the concept of time more actively. The interactive features of the timetable board prompted students to inquire and discuss, fostering a dynamic and participatory learning environment.

[11] Nurfadhillah, S., Ramadhanty Wahidah, A., Rahmah, G., Ramdhan, F., & Claudia Maharani, S. (2021). "Penggunaan Media dalam Pembelajaran Matematika dan Manfaatnya di Sekolah Dasar Swasta Plus Ar-Rahmaniyah". *EDISI : Jurnal Edukasi Dan Sains*, 3(2), 289–298. https://ejournal.stitpn.ac.id/index.php/edisi

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3. There was an improvement in learning, with a 30% increase to 50% of students showing increased interest in learning due to the introduction of a new learning media they encountered during the lesson. The incorporation of the timetable board as a novel learning medium positively impacted students' interest and motivation. The observed 30% to 50% increase in students actively participating and showing enthusiasm suggests that introducing innovative teaching tools, such as the timetable board, can contribute to a more engaging and effective learning experience.

Conclusion

Basing on the implemented learning process, it can be concluded that the use of the timetable board can enhance the learning engagement of Grade IIA students at SD Baiturrohman GMI Jember Elementary School in mathematics. Furthermore, there is an improvement in learning, with a 30% increase to 50% of students showing increased interest in learning due to the introduction of a new learning media they encountered during the lesson. A suggestion arising from this learning practice is for students to continue improving their academic achievements. Additionally, it is recommended for the school, especially the teachers, to enhance creativity in creating a livelier classroom environment by incorporating more varied and innovative learning media for delivering lessons, concurrently improving student learning outcomes.

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